

**Ref: GMR/GWEL/EC/COM/24-25/
20.05.2024**

The APCC F (C.)

Ministry of Environment and Forest & Climate Change,
RO (WCZ) Ground Floor
East Wing, New Secretariat Building
Civil Line, Nagpur - 440001
Maharashtra

Subject: EC Compliance Report of GMR Warora Energy Limited 2 x 300 MW (Phase -I & II)

Ref: 1. MoEF, Environment Clearance Letter J-13011/2/2008-IA. II (T) DATED 19th MAY, 2008
2. MoEF, Environment Clearance Letter J-13011/2/2008-IA. II (T) DATED 4th JUNE, 2009
3. MoEF, Environment Clearance Letter J-13012/75/2008-IA. II (T) DATED 25th MAY, 2010

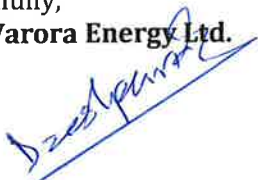
Respected Sir,

With reference to the above, we are pleased to submit our half yearly Environment Clearance compliance report for Phase I & II of our unit **GMR Warora Energy Limited** situated at MIDC, Warora, Chandrapur for the period of **October 2023 to March 2024**.

Kindly acknowledge the receipt of the same.

Thanking you.

Yours Faithfully,
For **GMR Warora Energy Ltd.**



Dhnanjay Deshpande
COO-Thermal

Encl.: As Above

CC: 1. The RO, MPCB, Chandrapur, Maharashtra
2. The SRO, MPCB, Chandrapur, Maharashtra

**SIX MONTHLY COMPLIANCE REPORT OF
ENVIRONMENTAL CLEARENCES (EC)**

**600 (2x300) MW COAL BASED THERMAL POWER
PLANT (PHASE - I & II)**

**At
WARORA, DISTRICT CHANDRAPUR
MAHARASHTRA**

***Submitted to:*
Integrated Regional Office, Nagpur Ministry of
Environment, Forest & Climate Change, Central
Pollution Control Board, New Delhi &
Maharashtra Pollution Control Board, Mumbai
and Regional Office, Chandrapur**



***Submitted By*
EHS DEPARTMENT
GMR WARORA ENERGY LIMITED
Plot No B-1 | MIDC Growth Centre | PO – Warora |
Dist – Chandrapur | Maharashtra-442 907**

PERIOD: OCTOBER' 2023 – MARCH' 2024

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Compliance Status on Environmental Clearance

Phase—I (1x 300 MW): ISSUED BY MOEF VIDE LETTER No J-13011/2/2008-IA.II (T) DATED

19th MAY, 2008

and LETTER No J-13011/2/2008-IA.II (T) DATED 4th JUNE, 2009

Sl. No	Terms and Conditions	Compliance Status
1	The total land requirement for the project shall be restricted to 114 ha	Complied. Total land requirement is restricted to 114 ha only.
2	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and 44% respectively	Being Complied. The average Sulphur & ash content in coal are 0.34% & ash content is 34.31% respectively during reporting period.
3	A bi-flue stack of 220 m height with continuous online monitoring Equipment's for SO _x , NO _x and Particulate matter shall be provided. Exit velocity of flue gases shall not be less than 25 m/sec	A bi-flue stack of 275 m height with continuous online monitoring system for SO _x , NO _x and Particulate matter is duly provided. Exit velocity of flue gases is being maintained above 25 m/sec.
4	High efficiency Electrostatic Precipitator (ESPs) shall be installed to ensure that particulate emission does not exceed 100 mg/Nm ³	High efficient Electrostatic Precipitators (ESPs) is installed with 99.98% efficiency to ensure that emission of particulate matter are always maintained below 50 mg/Nm ³ . The monitoring reports are enclosed as Annexure - 1
5	Fly ash shall be collected in dry form and its 100% utilization shall be ensured from day one. Bottom ash shall be disposed in conventional slurry mode in the ash pond	Complied. 03 Numbers of silos having capacity 1500 MT established for collection of dry ash for end users. Bulker loading facility developed under the silos for bulk ash dispatch to cement manufacturing plants. Facility also developed for loading of railway rake. Please refer Annexure-2 .
6	Ash pond shall be lined with suitable impervious lining. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached	Bottom of the ash pond compacted at high dry density soil and provided with 600mm impervious clay lining. Sides of the ash pond lined with HDPE lining and tiles. Ash pond provided with garland drains to collect run-off water and seepages if any from the pond. Ash water recovery system i.e. the supernatant is collected and treated in settling tank and routed to ash handling system.
7	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	Adequate air pollution control measures such as dust extraction system (bag filters followed by Cyclone) in the coal crusher and coal conveying transfer points (JNTs). Rain gun type dust suppression system in coal yard and dry fog type dust suppression system in belt conveyor have been provided.
8	Water requirement shall not exceed 830 m ³ /hr	Water requirement is well within prescribed limit of 830 m ³ /hr. during the reporting period.
9	Closed cycle cooling system with cooling towers shall be provided. The effluent shall be treated to conform to the prescribed norms	Complied. Induced draft cooling tower (IDCT) is being constructed. Amendment to shift from Natural draft cooling tower (NDCT) to IDCT, MOEF (Gol). Vide letter no. J-13012/75/ 2008-1A.II (T), dated 30th November, 2010. State of art ETP is in operation in which Effluent are treated to meet the prescribed norms.

10	The treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon for storm water. Arrangements shall be made so that effluents and storm water do not get mixed	All the effluent treated adequately & is being reused within the plant. The concept of "Zero Liquid Discharge" implemented except during monsoon period. Separate drainage network established for storm waste
11	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation	Sewage Treatment Plant (STP) with the capacity of 25 KLD has been installed and is in operation to take care of domestic effluents. Treated water from STP is used in Green Belt Development activities/plantation.
12	Regular monitoring of ground water in and around the ash pond area shall be carried out, records maintained and six monthly reports shall be furnished to the Regional Office of this Ministry	Regular Monitoring of ground water in and around the ash pond area is being carried out and analysis results of the same are also submitted to MPCB and MoEF & CC regional office on quarterly basis. Annexure - 3
13	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	Rain Water harvesting system is in place as per the recommendation by ground water board for ground water recharge. 17273 m3 of rainwater were harvested in fiscal year 2023-24. Regular monitoring of ground water level is done through piezometers. Water Level Data is also submitted Six Monthly to CGWA. Annexure-4
14	A green belt of adequate width and density shall be developed around the plant periphery covering about 42 ha of project area preferably with local species	41% of plant area is under green belt, with more than 95% survival rate in and around the periphery and open land of the plant premises. Additionally, organic farming is also carried out along with fruit bearing plants. Please refer Annexure-5 for green belt development.
15	LeQ of Noise levels emanating from turbines shall be limited to 75 dB. 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 steam & gas turbines, 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	Being complied. Noise generating from turbines are well within the prescribed limits. Personal protective Equipment's like earplugs/ear muffs etc. are provided to people working in the high noise area. Periodic medical checkup conducted for workers engaged in noisy areas such as turbine area, air compressors etc. and their audiometric records are also maintained.
16	A plan for conservation of fauna reported in the study area shall be prepared in consultation with state forests and wildlife depart within 3 months and shall be implemented immediately	Complied. GIB and other Schedule-1 wildlife conservation plan for EMCO Energy Ltd for Rs. 24.91 Lakhs has been prepared by Divisional Forest officer, Chandrapur via letter No:Desk-5/survey/Land/2128/ 2013-14, dated 19.03.2014 as per guidelines of Ministry of Environment and forest, New Delhi on the basis of plan sanctioned by P.C.C.F.(Wildlife), M.S, Nagpur. Ref No:-Desk-WL/22(6)/CR69/5370/ 13-14, Nagpur Dated 07.03.2014. As per demand letter No: Desk-5/Survey/Land/2268 dated 26/03/2014 received from Divisional Forest officer- Chandrapur, EMCO Energy Ltd. deposited the amount of Rs. 24.91 in Ad-hoc Compensatory Afforestation Fund Management & Planning Agency (CAMPA)Savings Bank A/c No: SB 01025218 Corporation bank, Lodhi Road, New Delhi IFSC Code- CORP0000371 through RTGS on date 08/07/2014. The UTR no. for the payment done is "BRN-RTGS-UTIBH14189021366-AD HOC COMPENS". Lakhs in CAMPA.

17	Regular monitoring of ground level concentration of SO ₂ , NO _x , Hg, SPM and RSPM shall be carried out in the impact zone and records maintained. If at any stage, these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Six monthly reports shall be submitted to the Regional Office of this Ministry at Bhopal.	Regular Monitoring of ground level concentration of SO ₂ , NO _x , PM2.5, PM10 & CO is carried out by MoEF & CC & NABL accredited Lab and reports were submitted to MPCB on monthly basis. Please refer Annexure - 6 enclosed for monthly Ambient Air Quality monitoring reports.
18	Appropriate safeguard measures shall be taken to guard against fire hazards in coal storage area. DMP shall be prepared to handle such situation.	Fire Hydrant system and water monitors are installed around coal stock yard to safeguard against fire incident. The systems are maintained in pressurized condition through Fire water pump house for ready to use. DMP is in place.
19	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 the clearance letter, informing that the project has been accorded EC and copies of clearance letter are available with the state pollution control board/committee and may be also be seen at website of the MoEF at http://envfor.nic.in	Complied
20	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards	Environment Management Cell is in place lead by General Manager & supported by qualified Environment Engineers and Horticulturist team for implementation & compliance of environmental standards. • Environmental Management System (Standard - ISO 14001:2015) implemented under Integrated Management System
21	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards shall be submitted to this Ministry/ Regional Office/CPCB/SPCB	We are regularly submitting six monthly compliance reports to the Board and ministry as per the guidelines. Last report was submitted on 28 th Oct 2023.
22	Regional Office of the Ministry of Environment & Forests located at Bhopal will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring	Noted
23	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	Being Complied. We have allocated separate budget for Environment Management for implementation of environmental protection measures from which various environmental works is carried out. The budget is solely dedicated for the purpose of Environment Management only.

UNIT-I: ISSUED BY MOEF VIDE LETTER No J-13011/2/2008-IA.II(T) DATED 4th JUNE, 2009

Sr. No	Terms and Conditions	Action to be Taken
1	An amount of Rs.1.6 Crores as capital and Rs.30 Lakhs as recurring expenditure per annum should be earmarked for taking up activities under CSR.	Being Complied
2	Copy of conservation plan of fauna in the study area, reported to be prepared, should be submitted to the Ministry within 15 days of the issue of this letter.	GIB and other Schedule-1 wildlife conservation plan for EMCO Energy Ltd for Rs. 24.91 Lakhs has been prepared by Divisional Forest officer, Chandrapur via letter No:Desk-5/survey/Land/2128/ 2013-14, dated 19.03.2014 as per guidelines of Ministry of Environment and forest, New Delhi on the basis of plan sanctioned by P.C.C.F.(Wildlife), M.S, Nagpur. Ref No:-Desk-WL/22(6)/CR69/5370/ 13-14, Nagpur Dated 07.03.2014. As per demand letter No: Desk-5/Survey/Land/2268 dated 26/03/2014 received from Divisional Forest officer- Chandrapur, EMCO Energy Ltd. deposited the amount of Rs. 24.91 in Ad-hoc Compensatory Afforestation Fund Management & Planning Agency (CAMPA) Savings Bank A/c No: SB 01025218 Corporation bank, Lodhi Road, New Delhi IFSC Code- CORP0000371 through RTGS on date 08/07/2014. The UTR no. for the payment done is "BRN-RTGS-UTIBH14189021366-ADHOC COMPENS". Lakhs in CAMPA.
3	First aid and sanitation arrangements shall be made for the drivers and the contract workers during construction phase.	Full-fledged Occupational Health Centre with experienced MBBS Doctor and Paramedic Staff is operational in the plant for first aid arrangement. Ambulance is available round the clock. Well devised schedule is developed for carrying out the sanitization of the plant areas.
4	Regular monitoring of ground level concentration of SO _x , NO _x , Hg, SPM and RSPM shall be carried out in the impact zone and records maintained. If at any stage, these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	Regular Monitoring of ground level concentration of SO ₂ , NO _x , PM2.5, PM10 & CO is carried out by MoEF & CC & NABL accredited Lab and reports were submitted to MPCB on monthly basis. Please refer Annexure - 6 enclosed for monthly Ambient Air Quality monitoring reports.
5	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied

6	<p>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 be sent to the Regional office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels, namely SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectorial parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.</p>	<p>Six monthly EC compliance report are regularly submitted to MoEF & CC regional office as well as to regional offices of MPCB</p> <p>The pollutant levels, namely SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) are being monitored and displayed at the main gate of the company and also in the public domain through the company website.</p>
7	<p>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 email) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.</p>	<p>We are regularly submitting six monthly compliance reports to the Board and ministry as per the guidelines. Last report was submitted on 28th Oct 2023.</p>
8	<p>Project proponent will upload the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels (stack and ambient levels of NO_x) will be displayed at the main gate of the power plant.</p>	<p>Six monthly EC compliance report are uploaded in the company website and updated time to time. The criteria pollutant levels, namely SPM, RSPM, SO₂, NO_x (ambient levels as well as stack emissions) are being monitored and displayed at the main gate of the company continuously.</p>

Compliance Status on Environmental Clearance

Phase—I (1x 300 MW): ISSUED BY MOEF&CC VIDE LETTER No J J-13012/75/2008-IA.II (T)

DATED 25th MAY, 2010

Sr. No	Terms and Conditions	Compliance Status
A. Specific Conditions.		
1	<p>Environmental clearance is subjected to submission of a time bound implementation of a wildlife conservation plan particularly with respect to protection of great Indian Bustard and other Schedule-1 species, to be prepared in consultation with the office of the Chief Wildlife Warden concerned and the Wildlife Institute of India.</p> <p>The plan shall have an in-built monitoring mechanism and annual audit, report of which shall be submitted to the Regional Office of the Ministry and concerned department in the state government.</p>	<p>GIB and other Schedule-1 wildlife conservation plan for GMR Warora Energy Ltd. of Rs. 24.91 Lakhs has been prepared by Divisional Forest officer, Chandrapur, letter No: Desk-5/survey/Land/2128/ 2013-14, dated 19.03.2014 as per guidelines of Ministry of Environment and forest, New Delhi on the basis of plan sanctioned by P.C.C.F.(Wildlife), M.S, Nagpur. Ref No:- Desk-WL/22(6)/CR69/5370/ 13-14, Nagpur Dated 07.03.2014. As per demand letter No: Desk-5/Survey/Land/2268 dated 26/03/2014 received from Divisional Forest officer- Chandrapur, EMCO Energy Ltd. deposited the amount of Rs. 24.91 in Ad-hoc Compensatory Afforestation Fund Management & Planning Agency (CAMPA) Savings Bank A/c No: SB 01025218 Corporation bank, Lodhi Road, New Delhi IFSC Code- CORP0000371 through RTGS on date 08/07/2014. The UTR no. for the payment done is "BRN-RTGS-UTIBH14189021366-AD HOC COMPENS". Lakhs in CAMPA.</p>
2	It shall be ensured that the natural drainage in the region is not disturbed due to activities associated with operation of the plant.	<p>Complied. Proper care has been taken to ensure that the natural drainage in the region is not disturbed due to activities with operation of the plant.</p>
3	Provision for installation of FGD shall be provided. High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm ³ . 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.	<p>Noted. Space for installation of FGDs have been provided since construction stage. As per MoEF&CC' Notification dated 05.09.2022, GWETPP is falling under Category "C" Non-retiring TPP & the timelines for compliance of SO₂ emission is up to December 2026. Accordingly, the work is under progress & will be installed within the schedule.</p> <p>ESP designed efficiency of 99.98% (ESPs of 10 fields) installed for each boiler to meet permissible norm for particulate emission of less than 50 mg/Nm³</p> <p>Adequate dust extraction system installed in coal bunker and dry fog type dust suppression system provided at wagon tippers, coal stock piles, crusher house, and transfer houses to take care of fugitive emissions.</p>
4	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; SPM, RSPM (PM _{2.5} & PM ₁₀), 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.	<p>Being Complied. Six monthly EC compliance report are uploaded in the company website and updated time to time. The criteria pollutant levels, namely SPM, RSPM (PM_{2.5} & PM₁₀), SO₂, NO_x (ambient levels as well as stack emissions) are being monitored and displayed at the main gate of the company continuously.</p>

5	No irrigation and drinking water requirements out of the Barrage / reservoir shall be diverted for the power plant.	Being Complied.
6	No ground water shall be extracted for use in operation of the power plant even in lean season.	Being Complied. Plant is getting water from MIDC, warora for requirements.
7	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.	Hydrogeological study of the area is being carried out in annual basis and report submitted to Ministry and state board. No adverse impact is observed is ground water quantity and quality. Hydrogeological study report was submitted on 23 rd Mar. 2024. Please refer Annexure - 7 .
8	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers even in lean season.	Plant is getting water from MIDC, Warora. Minimum required environmental flow suggested by the irrigation department is being well maintained in the channel rivers even in lean season.
9	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.	Rain Water harvesting system is in place as per the recommendation by ground water board for ground water recharge. 17273 m3 of rainwater were harvested in fiscal year 2023-24. Regular monitoring of ground water level is done through piezometers. Water Level Data is also submitted Six Monthly to CGWA. Annexure-4
10	Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	Soil for levelling of the site is generated within the site in order to well protect the natural drainage system of the area.
11	Utilization of 100% Fly Ash generated shall be made from 4 th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Effective Utilization of Fly ash is in place and same is being sent to the nearby cement manufacturing units & also to brick manufacturers. Ash utilization status is convened to state board regularly.
12	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed of in the ash pond in the form of slurry form. Mercury and other heavy metals {As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed of in low lying area.	Complied. 03 Numbers of silos having capacity 1500 MT established for collection of dry ash for end users. Bulker loading facility developed under the silos for bulk ash dispatch to cement manufacturing plants. Facility also developed for loading of railway rake. Please refer Annexure-2 .
13	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.	Bottom of the ash pond compacted at high dry density soil and provided with 600mm impervious clay lining. Sides of the ash pond lined with HDPE lining and tiles. Ash pond provided with garland drains to collect run-off water and seepages if any from the pond. Ash water recovery system i.e. the supernatant is collected and treated in settling tank and routed to ash handling system is in place.
14	For disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) it shall be ensured that the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Noted

15	Closed cycle cooling system with natural draft cooling towers shall be provided. The effluents shall be treated as per the prescribed norms.	<p>Complied. Induced draft cooling tower (IDCT) is being constructed. Amendment to shift from Natural draft cooling tower (NDCT) to IDCT, MOEF (Gol). Vide letter no. J-13012/75/ 2008-1A.II (T), dated 30th November, 2010.</p> <p>State of art ETP is in operation in which Effluent are treated to meet the prescribed norms.</p>
16	Shelter 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 %. To meet the expenditure of development of this, Shelter Belt, a Green Endowment Fund shall be created out of EMP budget and status of implementation shall be submitted to the Regional Office of the Ministry from time to time.	Complied
17	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 form the date of issue of this letter.	Project is in industrial area of MIDC, Warora. Hence not applicable.
18	An amount of Rs 12.0 Crores shall be earmarked as one-time capital cost for CSR program. Subsequently a recurring expenditure of Rs 2.5 Crore 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.	Being Complied. CSR works carried out by the plant is attached as Annexure- 8.
19	As part of CSR program 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 program. Company shall provide separate budget for community development activities and income generating program. This will be in addition to vocational training for individuals Imparted to take up self-employment and jobs. In addition to above a special scheme for upliftment of SC/ST's and marginalized farmers population in the study area out of CSR program shall be formulated and submitted to the Ministry within six months along with firm commitment of implementation. The scheme shall have an in-built monitoring mechanism.	<p>Activities being taken up for the upliftment of SC/ST's and marginalized farmers and poor section of the society.</p> <p>CSR activities is vigorously carried out by the project proponent through its wing Varalakshmi Foundation. Details of the CSR activities being carried out is attached for reference. (Annexure-8)</p>
B. General Conditions:		
1	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 do not get mixed.	The treated effluents conforming to the prescribed standards are recirculated and reused within the plant. Arrangement has been made to ensure zero discharge outside the plant boundary except during monsoon.

2	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation.	Sewage Treatment Plant with the capacity of 25 KLD has been installed. Treated water from STP is being use in green Belt development/ plantation. Treated Effluent Analysis Reports of last six months is attached as Annexure - 9
3	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.	Adequate Fire Hydrant system and water monitors are installed around coal stack yard to check/minimize spontaneous fires in coal yard. The system is always in pressurized condition through Fire water pump house to deal with any situation.
4	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 auxiliary liquid fuel such as LDO are made in the plant area in consultation with Department of Explosives, Nagpur. Storage license obtained. Sulphur content in the liquid fuel is not exceeding 0.5%. Disaster Management Plan is prepared to meet any eventuality in case of an accident taking place due to storage of oil.
5	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.	Regular Monitoring of ground water in and around the ash pond area is being done and analysis report of the same are also submitted to state board on regular basis. Heavy metals are being analyzed in the ash pond water and report shared with concerned authorities.
6	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase	Full-fledged medical Centre with experienced MBBS Doctor and Paramedic Staff are deployed in the plant for efficient First Aid.
7	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 db. 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	Noise levels from turbines are controlled and are well within the limits. Personal protective Equipment's like earplugs/ear muffs etc. are provided for people working in the high noise area. Periodic medical checkup conducted for workers engaged in noisy areas such as turbine area, air compressors etc. Audiometric record maintained. Ambient and Work Zone Noise Monitoring reports. (Annexure-10)
8	Regular monitoring of ground level concentration of SO _x , NO _x , 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 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.	Regular Monitoring of ground level concentration of SO ₂ , NO _x , PM2.5, PM10 & CO is carried out by MoEF & CC & NABL accredited Lab and reports were submitted to MPCB on monthly basis. Please refer Annexure - 6 enclosed for monthly Ambient Air Quality monitoring reports.
9	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied

10	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 .	Complied. Published in Local Newspaper- Hidwada and Lokmat on 30th May, 2010. Copy of the same is already submitted with first half yearly report vide letter no. EMCO/SITE/MoEF/001, 28th August, 2010
11	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 project proponent	Plant is located in notified industrial area (MIDC), Environment Clearance letter is uploaded on the website of the company.
12	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	Environment Management Cell is in place lead by General Manager & supported by qualified Environment Engineers and Horticulturist team for implementation & compliance of environmental standards. <ul style="list-style-type: none"> • Environmental Management System (Standard - ISO 14001:2015) implemented under Integrated Management System • Vermicomposting Unit Established for recycling of Green Waste (Annexure - 11).
13	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.	Being complied. Six monthly reports on the status of compliance of the stipulated EC conditions including results of monitoring data are being submitted to the respective regional office of MoEF & CC & the state board.
14	The environment statement for each financial year ending 31st March in Form V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e mail.	Being complied. The environment statement for each financial year is submitted regularly. Last Environment statement submitted on 29 th Sep 2023. Six monthly reports on the status of compliance of the stipulated EC conditions including results of monitoring data are being submitted to the respective regional office of MoEF & CC & the state board.
15	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 and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Being complied. Six monthly reports on the status of compliance of the stipulated EC conditions including results of monitoring data are being submitted to the respective regional office of MoEF & CC & the state board. Last Six monthly compliance report was submitted on 27 th Apr 2023.

16	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring.	Noted.
17	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 have allocated separate budget for Environment Control Measures for implementation of environment control measures. The above budget is dedicated to Environment Management only.
18	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.	Date of Financial closure of the project: October 2009. Final approval by the Concerned authorities: 1) Letter of support from Govt. of Maharashtra dated 1st May 2007 is already submitted with First Compliance report. 2) Environment clearance letter MoEF submitted. 3) Date of start of land development work: June 2010. 4) Unit-I COD- March 2013. 5) Unit-II COD- September 2013.
19	Full cooperation shall be extended to the Scientists/Officers from the Ministry/Regional Office of the Ministry at Bangalore, CPCB/ SPCB who would be monitoring the compliance of environmental status.	Noted.
20	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.	Noted.
21	The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant.	Noted.
22	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	Noted.
23	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 the condition(s) imposed and to add additional environmental protection measures required, if any.	Noted.

24	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.
25	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.	Noted.



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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0550231008	Date: 13.10.2023
ULR No.:	TC748723000016200F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # 1	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	07.10.2023	Date of Receipt of Sample	08.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	09.10.2023	Date of Completion of Analysis	11.10.2023

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	10:45 to 11:15

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1233801	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	33	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1084	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	333	450	IS 11255 (Part 7): 2005

Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

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TEST REPORT



Report No.:	ME-0550231008	Date:	13.10.2023
ULR No.:	TC748723000016200F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0027	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #. Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
 4. Results of SO₂, NO_x & PM are corrected to 6% O₂, on dry basis.
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-0551231008	Date:	13.10.2023
ULR No.:	TC748723000016201F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	07.10.2023	Date of Receipt of Sample	08.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	09.10.2023	Date of Completion of Analysis	11.10.2023

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:30 to 12:00

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	131	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1232604	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	34	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1130	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	339	450	IS 11255 (Part 7): 2005

Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

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TEST REPORT



Report No.:	ME-0551231008	Date:	13.10.2023
ULR No.:	TC748723000016201F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0025	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #. Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1868231029	Date:	03.11.2023
ULR No.:	TC748723000017424F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabaia, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	28.10.2023	Date of Receipt of Sample	29.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	30.10.2023	Date of Completion of Analysis	02.11.2023

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:05 to 11:35

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	128	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1251614	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	32	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1150	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	328	450	IS 11255 (Part 7): 2005





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TEST REPORT



Report No.:	ME-1868231029	Date:	03.11.2023
ULR No.:	TC748723000017424F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0029	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
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 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1869231029	Date:	03.11.2023
ULR No.:	TC748723000017425F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	28.10.2023	Date of Receipt of Sample	29.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	30.10.2023	Date of Completion of Analysis	02.11.2023

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:50 to 12:20

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1250782	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	30	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1131	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	335	450	IS 11255 (Part 7): 2005





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TEST REPORT



Report No.:	ME-1869231029	Date:	03.11.2023
ULR No.:	TC748723000017425F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0030	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-0350231104	Date:	09.11.2023
ULR No.:	TC748723000017815F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # 1	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	03.11.2023	Date of Receipt of Sample	04.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	04.11.2023	Date of Completion of Analysis	09.11.2023

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:00 to 11:30

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	128	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1236877	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	36	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1069	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	345	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-0350231104	Date:	09.11.2023
ULR No.:	TC748723000017815F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0031	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	7.8	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No: ME-0351231104	Date: 09.11.2023
ULR No.: TC748723000017816F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	03.11.2023	Date of Receipt of Sample	04.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	04.11.2023	Date of Completion of Analysis	09.11.2023

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:50 to 12:20

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Stack Emission)</u>				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1233801	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	39	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1116	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	363	450	IS 11255 (Part 7): 2005

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Harish Mendhi
Technical Manager
Chemical Testing

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0361231104	Date:	09.11.2023
ULR No.:	TC748723000017816F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0033	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. # Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr No. 25)
 4. Results of SO₂, NO_x & PM are corrected to 6% O₂, on dry basis.
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
 6. This report is not to be reproduced except in full, without the written approval of the laboratory.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1896231126	Date:	30.11.2023
ULR No.:	TC748723000019196F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	25.11.2023	Date of Receipt of Sample	26.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	27.11.2023	Date of Completion of Analysis	29.11.2023

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	11:10 to 11:40

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1239503	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	33	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1133	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	336	450	IS 11255 (Part 7): 2005

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TC-1447



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TEST REPORT



Report No.:	ME-1896231126	Date:	30.11.2023
ULR No.:	TC748723000019196F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7.	Mercury	mg/Nm ³	0.0035	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1897231128	Date:	30.11.2023
ULR No.:	TC748723000019197F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	25.11.2023	Date of Receipt of Sample	26.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	27.11.2023	Date of Completion of Analysis	29.11.2023

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	12:05 to 12:35

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	130	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1241373	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	34	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1161	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	342	450	IS 11255 (Part 7): 2005

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18.07.2023

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TEST REPORT



Report No.:	ME-1897231126	Date:	30.11.2023
ULR No.:	TC748723000019197F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0034	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.,	ME-0608231209	Date:	14.12.2023
ULR No.,	TC748723000019981F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	08.12.2023	Date of Receipt of Sample	09.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	09.12.2023	Date of Completion of Analysis	13.12.2023

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	12:30 to 13:00

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	128	-	IS 11255 (Part 3) 2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3) 2008
3	Flue gas Flow Rate	Nm ³ /h	1236877	-	IS 11255 (Part 3) 2008
4	Particulate Matter (PM)	mg/Nm ³	39	50	IS 11255 (Part 1) 1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1081	600	IS 11255 (Part 2) 1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	348	450	IS 11255 (Part 7) 2005

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TEST REPORT



Report No.:	ME-0608231209	Date:	14.12.2023
ULR No.:	TC748723000019981F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0037	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.4	-	IS 13270:1982

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
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 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-0609231209	Date:	14.12.2023
ULR No.:	TC748723000019982F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabaia, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	08.12.2023	Date of Receipt of Sample	09.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	09.12.2023	Date of Completion of Analysis	13.12.2023

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	13:10 to 13:40

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	130	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1235663	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	33	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1116	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	340	450	IS 11255 (Part 7): 2005

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18.07.2023

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TC-7487



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TEST REPORT



Report No.:	ME-0609231209	Date:	14.12.2023
ULR No.:	TC748723000019982F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0039	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1774231228	Date:	02.01.2024
ULR No.:	TC748723000021068F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	27.12.2023	Date of Receipt of Sample	28.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.12.2023	Date of Completion of Analysis	02.01.2024

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	203
Load at the time of monitoring (MW)	303
Time of Monitoring (h)	11:30 to 12:00

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	130	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1244039	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	38	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	954	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	330	450	IS 11255 (Part 7): 2005

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Harish Mendhi
Technical Manager
Chemical Testing

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18.07.2023



TC-1487



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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1774231228	Date:	02.01.2024
ULR No.:	TC748723000021068F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0036	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
 4. Results of SO₂, NO_x & PM are corrected to 6% O₂, on dry basis.
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TEST REPORT



Report No.:	ME-1775231228	Date:	02.01.2024
ULR No.:	TC748723000021069F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	27.12.2023	Date of Receipt of Sample	28.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.12.2023	Date of Completion of Analysis	02.01.2024

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	197
Load at the time of monitoring (MW)	300
Time of Monitoring (h)	12:10 to 12:40

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1242165	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	35	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	914	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	328	450	IS 11255 (Part 7): 2005

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TC-1487



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TEST REPORT



Report No.:	ME-1775231228	Date:	02.01.2024
ULR No.:	TC748723000021069F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0035	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
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 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TC-1487



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TEST REPORT



Report No. ME-1279240120

Date: 27.01.2024

ULR No: TC748724000001188F

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # 1	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg 200mL X 2 No. PVC Bottle
Date of Sampling	19.01.2024	Date of Receipt of Sample	20.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	20.01.2024	Date of Completion of Analysis	25.01.2024

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	196
Load at the time of monitoring (MW)	298
Time of Monitoring (h)	11:10 to 11:40

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
<u>Discipline: Chemical Testing;</u>					
<u>Product Group: Atmospheric Pollution (Stack Emission)</u>					
1	Flue gas Temperature	°C	130	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1238332	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	42	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1120	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	337	450	IS 11255 (Part 7): 2005

Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

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Mahabal Enviro Engineers Pvt. Ltd.

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1279240120	Date:	27.01.2024
ULR No.:	TC748724000001188F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0040	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/60/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
 4. Results of SO₂, NO_x & PM are corrected to 6% O₂ on dry basis.
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-1280240120	Date:	27.01.2024
ULR No.:	TC748724000001189F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date. 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	19.01.2024	Date of Receipt of Sample	20.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	20.01.2024	Date of Completion of Analysis	25.01.2024

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	182
Load at the time of monitoring (MW)	289
Time of Monitoring (h)	11:50 to 12:20

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	131	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1239575	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	39	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1102	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	332	450	IS 11255 (Part 7): 2005

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Harish Mendhi
Technical Manager
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TEST REPORT



Report No.:	ME-1280240120	Date:	27.01.2024
ULR No.:	TC748724000001189F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0038	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS:80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
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 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr No. 25)
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TEST REPORT



Report No.:	ME-1840240130	Date:	03.02.2024
ULR No.:	TC748724000001728F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # 1	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	29.01.2024	Date of Receipt of Sample	30.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	31.01.2024	Date of Completion of Analysis	02.02.2024

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	189
Load at the time of monitoring (MW)	303
Time of Monitoring (h)	11:00 to 11:30

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	131	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1246277	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	40	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1098	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	330	450	IS 11255 (Part 7): 2005

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TC-2487



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TEST REPORT



Report No.:	ME-1840240130	Date:	03.02.2024
ULR No.:	TC748724000001728F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0038	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1841240130	Date:	03.02.2024
ULR No.:	TC748724000001729F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	29.01.2024	Date of Receipt of Sample	30.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	31.01.2024	Date of Completion of Analysis	02.02.2024

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	180
Load at the time of monitoring (MW)	303
Time of Monitoring (h)	11:40 to 12:10

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	132	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1241431	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	38	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1085	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	326	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-1841240130	Date:	03.02.2024
ULR No.:	TC748724000001729F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0037	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-0857240211	Date:	15.02.2024
ULR No.:	TC748724000002628F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800189725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	10.02.2024	Date of Receipt of Sample	11.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.02.2024	Date of Completion of Analysis	14.02.2024

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	192
Load at the time of monitoring (MW)	300
Time of Monitoring (h)	11:40 to 12:10

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	127	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1259710	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	38	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1080	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	325	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-0857240211	Date:	15.02.2024
ULR No.:	TC748724000002628F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0041	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	7.8	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
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 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-0858240211	Date:	15.02.2024
ULR No.:	TC748724000002629F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	10.02.2024	Date of Receipt of Sample	11.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.02.2024	Date of Completion of Analysis	14.02.2024

Stack Details	
Stack Identity	Unit -II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	190
Load at the time of monitoring (MW)	300
Time of Monitoring (h)	12:25 to 12:55

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	129	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1253443	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	36	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1062	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	320	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-0858240211	Date:	15.02.2024
ULR No.:	TC748724000002629F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0039	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-1810240226	Date:	29.02.2024
ULR No.:	TC748724000003506F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # I	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	24.02.2024	Date of Receipt of Sample	26.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.02.2024	Date of Completion of Analysis	29.02.2024

Stack Details	
Stack Identity	Unit -I
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	160
Load at the time of monitoring (MW)	281
Time of Monitoring (h)	11:10 to 11:40

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	130	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1236680	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	36	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	908	800	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	319	450	IS 11255 (Part 7): 2005

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Kishor Yeole
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Chemical Testing

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TEST REPORT



Report No.:	ME-1810240226	Date: 29.02.2024
ULR No.:	TC748724000003506F	

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0038	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/60/2013-14
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. #: Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
 4. Results of SO₂, NO_x & PM are corrected to 6% O₂ on dry basis.
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Reviewed and
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Kishor Yeole
Branch Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1811240226	Date:	29.02.2024
ULR No.:	TC748724000003507F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit # 2	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	24.02.2024	Date of Receipt of Sample	26.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.02.2024	Date of Completion of Analysis	29.02.2024

Stack Details	
Stack Identity	Unit -2
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	159
Load at the time of monitoring (MW)	260
Time of Monitoring (h)	11:55 to 12:25

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	131	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1238301	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	34	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	900	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	316	450	IS 11255 (Part 7): 2005

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1811240226	Date:	29.02.2024
ULR No.:	TC748724000003507F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0037	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
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 3. # Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0810240312	Date:	16.03.2024
ULR No.:	TC748724000004423F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory:
Sampling Location	Unit No.#	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	11.03.2024	Date of Receipt of Sample	12.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.03.2024	Date of Completion of Analysis	16.03.2024

Stack Details	
Stack Identity	Unit No.#
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	175
Load at the time of monitoring (MW)	295
Time of Monitoring (h)	14:40 to 15:10

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	133	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1232201	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	39	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	996	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	330	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-0810240312	Date:	16.03.2024
ULR No.:	TC748724000004423F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0040	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
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 3. #. Limit as per Environmental protection Rule 1986, Amd Rules 2015 (Schedule-I Sr.No. 25)
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TEST REPORT



Report No.:	ME-0811240312	Date:	16.03.2024
ULR No.:	TC748724000004424F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit No.# II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	11.03.2024	Date of Receipt of Sample	12.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.03.2024	Date of Completion of Analysis	16.03.2024

Stack Details	
Stack Identity	Unit No.# II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	191
Load at the time of monitoring (MW)	289
Time of Monitoring (h)	15:20 to 15:50

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	134	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1229801	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	42	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1090	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	335	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-0811240312	Date:	16.03.2024
ULR No.:	TC748724000004424F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0042	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/60/2013-14
8	Oxygen (O ₂)	%	7.8	-	IS 13270:1992

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1900240323	Date:	29.03.2024
ULR No.:	TC748724000005454F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit No.# 1	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ :30 mL X 1 No. PVC Bottle NO _x :25 mL X 1 No. PVC Bottle O ₂ :2L X 1 No. Gas Bladder Hg:200mL X 2 No. PVC Bottle
Date of Sampling	22.03.2024	Date of Receipt of Sample	23.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	23.03.2024	Date of Completion of Analysis	29.03.2024

Stack Details	
Stack Identity	Unit No.# 1
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	155
Load at the time of monitoring (MW)	246
Time of Monitoring (h)	11:15 to 11:45

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	131	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1242320	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	40	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	876	800	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	318	450	IS 11255 (Part 7): 2005

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TEST REPORT



Report No.:	ME-1900240323	Date:	29.03.2024
ULR No.:	TC748724000005454F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0036	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1901240323	Date:	29.03.2024
ULR No.:	TC748724000005455F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Stack Emission	Sampling Done by	Laboratory
Sampling Location	Unit No.# II	Sample Quantity / Packing	Thimble: 1 X 1 No. SO ₂ : 30 mL X 1 No. PVC Bottle NO _x : 25 mL X 1 No. PVC Bottle O ₂ : 2L X 1 No. Gas Bladder Hg: 200mL X 2 No. PVC Bottle
Date of Sampling	22.03.2024	Date of Receipt of Sample	23.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	23.03.2024	Date of Completion of Analysis	29.03.2024

Stack Details	
Stack Identity	Unit No.# II
Stack attached to	ESP Outlet
Material of construction	RCC
Stack height above ground level (Meter)	275
Stack Diameter (Meter)	5.0
Stack shape at top	Round
Type of fuel	Coal
Fuel Consumption (t/h)	142
Load at the time of monitoring (MW)	250
Time of Monitoring (h)	12:05 to 12:35

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)				
1	Flue gas Temperature	°C	132	-	IS 11255 (Part 3):2008
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008
3	Flue gas Flow Rate	Nm ³ /h	1246483	-	IS 11255 (Part 3):2008
4	Particulate Matter (PM)	mg/Nm ³	38	50	IS 11255 (Part 1):1985
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	801	600	IS 11255 (Part 2):1985
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	307	450	IS 11255 (Part 7): 2005

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1901240323	Date:	29.03.2024
ULR No.:	TC748724000005455F		

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0033	0.03 max.	CPCB Guidelines on Methodologies for Measurement of source emission monitoring LATS/80/2013-14
8	Oxygen (O ₂)	%	8.0	-	IS 13270:1992

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
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Safe Ash Transportation through Bulklers & Trucks







Mahabal Enviro Engineers Pvt. Ltd.

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TEST REPORT



Report No.:	ME-1480231222	Date:	29.12.2023
ULR No.:	TC748723000020782F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date 10.04.2023
Sample Description / Type	Ground Water	Sampling done by	Laboratory
Sampling Location	Piezometer Well-Ash pond-Near Switch Yard Area	Sample Quantity / Packing	2 L X 1 No. PVC Can 500 mL X 1 No. PVC Can
Date of Sampling	21.12.2023	Date of Receipt of Sample	22.12.2023
Sampling Procedure	IS: 3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	22.12.2023	Date of Completion of Analysis	28.12.2023

Hydrological Data

Coordinates	R.L. (ft)	Depth (m)	Diameter (inch)	Water Level from Ground Level (m)
E 078° 58.408 N 20° 16.560	706	35.35	5	4.65

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Water(Ground Water)			
1.	pH	-	7.9	APHA 24 th Ed. 2023, 4500-H-B
2.	Electrical Conductivity	µS/cm	1030	APHA 24 th Ed. 2023, 2510-B
3.	Total Dissolved Solids	mg/L	660	IS 3025 (Part 16): 2023
4.	Alkalinity Total (as CaCO ₃)	mg/L	334	APHA 24 th Ed. 2023, 2320-B
5.	Total Hardness (as CaCO ₃)	mg/L	330	APHA 24 th Ed. 2023, 2340-C
6.	Chloride (as Cl)	mg/L	90.0	APHA 24 th Ed. 2023, 4500-Cl-B
7.	Sulphate (as SO ₄)	mg/L	61.2	APHA 24 th Ed. 2023, 4500-SO ₄ -E
8.	Dissolved Oxygen	mg/L	6.7	APHA 24 th Ed. 2023, 4500-O, B & C
9.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	3.0	IS 3025 (Part 44): 2023
10.	Chemical Oxygen Demand	mg/L	10	APHA 24 th Ed. 2023, 5220-B

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1905240323	Date:	02.04.2024
ULR No.:	TC748724000005459F		

/Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ground Water	Sampling done by	Laboratory
Sampling Location	Piezometer Well-Ash pond-Near Switch Yard Area	Sample Quantity / Packing	2 L X 1 No. PVC Can 500 mL X 1 No. PVC Can
Date of Sampling	22.03.2024	Date of Receipt of Sample	23.03.2024
Sampling Procedure	IS: 3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	23.03.2024	Date of Completion of Analysis	02.04.2024

Hydrological Data				
Coordinates	R.L. (ft)	Depth (m)	Diameter (inch)	Water Level from Ground Level (m)
E 078° 58.408 N 20° 16.560	706	34.02	5	5.98

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing: Product Group: Water(Ground Water)</u>			
1.	pH	-	7.4	APHA 24 th Ed. 2023, 4500-H-B
2.	Electrical Conductivity	µS/cm	1125	APHA 24 th Ed. 2023, 2510-B
3.	Total Dissolved Solids	mg/L	675	IS 3025 (Part 16):2023
4.	Alkalinity Total (as CaCO ₃)	mg/L	278	APHA 24 th Ed. 2023, 2320-B
5.	Total Hardness (as CaCO ₃)	mg/L	300	APHA 24 th Ed. 2023, 2340-C
6.	Chloride (as Cl)	mg/L	64.0	APHA 24 th Ed. 2023, 4500-Cl-B
7.	Sulphate (as SO ₄)	mg/L	179	IS 3025 (Part 24):2022
8.	Dissolved Oxygen	mg/L	6.6	APHA 24 th Ed. 2023, 4500-O, B & C
9.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	1.8	IS 3025 (Part 44): 2023
10.	Chemical Oxygen Demand	mg/L	7	APHA 24 th Ed. 2023, 5220-B

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Rainwater Harvesting Structures & Its Utilization in GMR Warora Energy Limited





Rainwater Reused in FY 2023 – 24:

Month	Rain Water Reused QTY from Near Water Reservoir (m3)	Rain Water Reused QTY from Near Main Gate (m3)
April	0	0
May	0	0
June	1760	1700
July	2760	2420
August	2606	2340
September	2220	1466
October	0	0
November	0	0
December	0	0
January	0	0
February	0	0
March	0	0
Total	9346	7926
Total Reused QTY		17272 m3

RAIN WATER HARVESTING FOR 2023

1. Roof Top Rain Water Harvesting Rainwater Harvesting (RTRWH):

Total Area = 12840 Sq. mt.

Total Avg. Rainfall = 1200 mm

Efficiency Factor = 0.8

Total RTRWH= 12326.4 m³

2. Roof, Paved, Ramp, DG and Cemented Area water for Artificial Recharge (AR):

Total Area = 122200 Sq. mt.

Total Avg. Rainfall = 1200 mm

Efficiency Factor = 0.8

Total AR= 117312m³

3. Open Area water for Artificial Recharge (AR):

Total Area = 585000 Sq. mt.

Total Avg. Rainfall = 1200 mm

Efficiency Factor = 0.3

Total AR = 210600 m³

4. Green Belt Area water for Artificial Recharge (AR):

Total Area = 420000 Sq. mt.

Total Avg. Rainfall = 1200 mm

Efficiency Factor = 0.2

Total AR= 100800 m³

Total RWH was 441038.40.4m³

GREENBELT DEVELOPMENT AT GMR WARORA ENERGY LIMITED









Mahabal Enviro Engineers Pvt. Ltd.

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0112231003	Date:	11.10.2023
ULR No.:	TC748723000015799F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	02.10.2023 to 03.10.2023	Date of Receipt of Sample	03.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	04.10.2023	Date of Completion of Analysis	09.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	55	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	1.05	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
7	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

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Technical Manager
Chemical Testing



TC-1487



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TEST REPORT



Report No.:	ME-0112231003	Date:	11.10.2023
ULR No.:	TC748723000015799F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0113231003	Date:	11.10.2023
ULR No.:	TC748723000015800F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	02.10.2023 to 03.10.2023	Date of Receipt of Sample	03.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	04.10.2023	Date of Completion of Analysis	09.10.2023

Sr. No.	Parameter	Unit	Result	#NAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	12.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	59	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	21	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.92	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
7	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



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ULR No.:	TC748723000015800F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0114231003	Date:	11.10.2023
ULR No.:	TC748723000015801F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	02.10.2023 to 03.10.2023	Date of Receipt of Sample	03.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	04.10.2023	Date of Completion of Analysis	09.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	50	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	19	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.98	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
7	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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Report No.:	ME-0114231003	Date: 11.10.2023
ULR No.:	TC748723000015801F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0603231010	Date:	14.10.2023
ULR No.:	TC748723000016244F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	09.10.2023 to 10.10.2023	Date of Receipt of Sample	10.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.10.2023	Date of Completion of Analysis	12.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	12.0	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	57	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	16	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.87	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Chemical Testing





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TEST REPORT



Report No.:	ME-0603231010	Date: 14.10.2023
ULR No.:	TC748723000016244F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia, 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0604231010	Date:	14.10.2023
ULR No.:	TC748723000016245F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	09.10.2023 to 10.10.2023	Date of Receipt of Sample	10.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.10.2023	Date of Completion of Analysis	12.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	46	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	14	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.94	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 15-22, (NDIR method)

END OF REPORT

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TC-1487



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TEST REPORT



Report No.:	ME-0604231010	Date: 14.10.2023
ULR No.:	TC748723000016245F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0505231010	Date:	14.10.2023
ULR No.:	TC748723000016246F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	09.10.2023 to 10.10.2023	Date of Receipt of Sample	10.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.10.2023	Date of Completion of Analysis	12.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-5
2	Nitrogen Dioxide (NO ₂)	µg/m ³	12.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	50	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	13	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.98	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 18-22, (NDIR method)

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TEST REPORT



Report No.:	ME-0605231010	Date: 14.10.2023
ULR No.:	TC748723000016246F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1117231017	Date:	23.10.2023
ULR No.:	TC748723000016723F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	16.10.2023 to 17.10.2023	Date of Receipt of Sample	18.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.10.2023	Date of Completion of Analysis	20.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	7.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	10.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	54	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	17	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.75	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-1117231017	Date:	23.10.2023
ULR No.:	TC748723000016723F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification,
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1118231017	Date:	23.10.2023
ULR No.:	TC748723000016724F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.10.2023 to 17.10.2023	Date of Receipt of Sample	18.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.10.2023	Date of Completion of Analysis	20.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-5
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	44	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	14	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.81	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1118231017	Date:	23.10.2023
ULR No.:	TC748723000016724F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1119231017	Date:	23.10.2023
ULR No.:	TC748723000016725F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	16.10.2023 to 17.10.2023	Date of Receipt of Sample	18.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.10.2023	Date of Completion of Analysis	20.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	45	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	15	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.86	84	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1119231017	Date:	23.10.2023
ULR No.:	TC748723000016725F		

- Note:**
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 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1605231025	Date:	30.10.2023
ULR No.:	TC746723000017188F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.10.2023 to 24.10.2023	Date of Receipt of Sample	25.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.10.2023	Date of Completion of Analysis	27.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	12.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	62	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.80	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1605231025	Date:	30.10.2023
ULR No.:	TC748723000017188F		

- Note:**
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 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1606231025	Date:	30.10.2023
ULR No.:	TC748723000017189F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.10.2023 to 24.10.2023	Date of Receipt of Sample	25.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.10.2023	Date of Completion of Analysis	27.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	50	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	18	50	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.76	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Report No.:	ME-1606231025	Date:	30.10.2023
ULR No.:	TC748723000017189F		

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 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1607231025	Date:	30.10.2023
ULR No.:	TC748723000017190F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.10.2023 to 24.10.2023	Date of Receipt of Sample	25.10.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.10.2023	Date of Completion of Analysis	27.10.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	11.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	53	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	16	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
6	Carbon Monoxide (CO)	mg/m ³	0.75	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1607231025	Date:	30.10.2023
ULR No.:	TC748723000017190F		

- Note:**
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 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.: ME-0552231107	Date: 11.11.2023
ULR No.: TC748723000017898F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	06.11.2023 to 07.11.2023	Date of Receipt of Sample	07.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	08.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	10.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	54	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	21	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.76	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NIR method)

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TEST REPORT



Report No.:	ME-0552231107	Date:	11.11.2023
ULR No.:	TC748723000017998F		

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 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0553231107	Date:	11.11.2023
ULR No.:	TC748723000017999F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	06.11.2023 to 07.11.2023	Date of Receipt of Sample	07.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	08.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#NAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	11.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	52	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	17	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.74	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Issue No 03
Date 05.12.2019.
Amd 04 Date
18.07.2023

Reviewed and authorised by


Harish Mendhi
Technical Manager
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TEST REPORT



Report No.:	ME-0553231107	Date:	11.11.2023
ULR No.:	TC748723000017999F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.: ME-0554231107	Date: 11.11.2023
ULR No.: TC748723000018000F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO _x : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	06.11.2023 to 07.11.2023	Date of Receipt of Sample	07.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	08.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	11.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	46	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.77	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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TEST REPORT



Report No.:	ME-0554231107	Date:	11.11.2023
ULR No.:	TC748723000018000F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. # NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1144231114	Date:	21.11.2023
ULR No.:	TC748723000018513F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	13.11.2023 to 14.11.2023	Date of Receipt of Sample	14.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	14.11.2023	Date of Completion of Analysis	17.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.75	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDR method).

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TEST REPORT



Report No.:	ME-1144231114	Date:	21.11.2023
ULR No.:	TC748723000018513F		

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. # NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1145231114	Date:	21.11.2023
ULR No.:	TC748723000018514F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	13.11.2023 to 14.11.2023	Date of Receipt of Sample	14.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	14.11.2023	Date of Completion of Analysis	17.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.88	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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TEST REPORT



Report No:	ME-1145231114	Date: 21.11.2023
ULR No:	TC748723000018514F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia, 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1146231114	Date:	21.11.2023
ULR No.:	TC746723000018515F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	13.11.2023 to 14.11.2023	Date of Receipt of Sample	14.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	14.11.2023	Date of Completion of Analysis	17.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	11.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	65	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.78	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



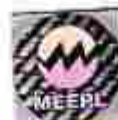
Report No.:	ME-1146231114	Date:	21.11.2023
ULR No.:	TC748723000018515F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No: ME-1529231121	Date: 27.11.2023
ULR No: TC748723000018840F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3 No. Gas Bladder
Date of Sampling	20.11.2023 to 21.11.2023	Date of Receipt of Sample	21.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	22.11.2023	Date of Completion of Analysis	23.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	61	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.80	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1529231121	Date:	27.11.2023
ULR No.:	TC748723000018840F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1530231121	Date:	27.11.2023
ULR No.:	TC748723000018841F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	20.11.2023 to 21.11.2023	Date of Receipt of Sample	21.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	22.11.2023	Date of Completion of Analysis	23.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	64	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	50	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.91	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDR method)

END OF REPORT

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18.07.2023

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Harish Mendhi
Technical Manager
Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1530231121	Date:	27.11.2023
ULR No.:	TC748723000018841F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No: ME-1531231121	Date: 27.11.2023
ULR No: TC748723000018842F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	20.11.2023 to 21.11.2023	Date of Receipt of Sample	21.11.2023
Sampling Procedure	As per method reference.		
Date of Start of Analysis	22.11.2023	Date of Completion of Analysis	23.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	54	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	21	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.82	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)

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TEST REPORT



Report No: ME-1531231121	Date: 27.11.2023
ULR No: TC748723000018842F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1991231128	Date:	02.12.2023
ULR No.:	TC748723000019283F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.11.2023 to 28.11.2023	Date of Receipt of Sample	28.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.11.2023	Date of Completion of Analysis	30.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10.
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	57	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.81	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT

Report No.:	ME-1991231128	Date:	02.12.2023
ULR No.:	TC748723000019283F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification,
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT

Report No.: ME-1992231128	Date: 02.12.2023
ULR No.: TC746723000019284F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.11.2023 to 28.11.2023	Date of Receipt of Sample	28.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.11.2023	Date of Completion of Analysis	30.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	55	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.79	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT

Report No.:	ME-1992231128	Date:	02.12.2023
ULR No.:	TC748723000019284F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}; Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT

Report No.: ME-1993231128	Date: 02.12.2023
ULR No.: TC748723000019285F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No PVC Bottle NO ₂ : 30 mL X 6 No PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.11.2023 to 28.11.2023	Date of Receipt of Sample	28.11.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.11.2023	Date of Completion of Analysis	30.11.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	22	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.60	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22 (NDIR method)

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TEST REPORT

Report No.:	ME-1993231128	Date:	02.12.2023
ULR No.:	TC748723000019285F		

- Note:**
1. BQL: Below Quantification Limit.
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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0294231205	Date:	11.12.2023
ULR No.:	TC748723000019694F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	04.12.2023 to 05.12.2023	Date of Receipt of Sample	05.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	11.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	64	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.86	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-0294231205	Date:	11.12.2023
ULR No.:	TC748723000019694F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0295231205	Date:	11.12.2023
ULR No.:	TC748723000019695F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	04.12.2023 to 05.12.2023	Date of Receipt of Sample	05.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	11.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	61	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.73	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-0295231205	Date:	11.12.2023
ULR No.:	TC748723000019695F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0296231205	Date:	11.12.2023
ULR No.:	TC748723000019696F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabaia, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	04.12.2023 to 05.12.2023	Date of Receipt of Sample	05.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	11.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	60	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	21	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
6	Carbon Monoxide (CO)	mg/m ³	0.79	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Amd 04 Date
18.07.2023

Reviewed and
authorised by

Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0296231205	Date:	11.12.2023
ULR No.:	TC748723000019696F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
 7. The result listed refers only to the tested sample(s) and applicable parameter(s).
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0744231212	Date:	20.12.2023
ULR No.:	TC748723000020096F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : B(a), Ni, As, Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle NH ₃ : 10 mL X 24 No. PVC Bottle O ₃ : 10 mL X 24 No. PVC Bottle Charcoal Tubes: 1 X 6 No. CO: 2L X 3No. Gas Bladder
Date of Sampling	11.12.2023 to 12.12.2023	Date of Receipt of Sample	12.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.12.2023	Date of Completion of Analysis	20.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	15.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	52	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Ozone (O ₃)	µg/m ³	BQL (LOQ:19.6)	180	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.31-34

Reviewed and authorised by

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Chemical Testing

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0744231212	Date:	20.12.2023
ULR No.:	TC748723000020095F		

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
6	Lead (as Pb)	$\mu\text{g}/\text{m}^3$	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
7	Carbon Monoxide (CO)	mg/m^3	0.79	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)
8	Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	20.0	400	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.35-39
9	Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	1.25	05	IS 5182 (Part 11): 2006
10	Benzo(a)Pyrene (Particulate phase only)	ng/m^3	BQL (LOQ:0.5)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.40-47
11	Arsenic (as As)	ng/m^3	BQL (LOQ:0.3)	06	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
12	Nickel (as Ni)	ng/m^3	3.07	20	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}; Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0745231212	Date:	20.12.2023
ULR No.:	TC746723000020097F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : B(a), Ni, As, Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle NH ₃ : 10 mL X 24 No. PVC Bottle O ₃ : 10 mL X 24 No. PVC Bottle Charcoal Tubes: 1 X 6 No. CO: 2L X 3No. Gas Bladder
Date of Sampling	11.12.2023 to 12.12.2023	Date of Receipt of Sample	12.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.12.2023	Date of Completion of Analysis	20.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	67	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Ozone (O ₃)	µg/m ³	BQL (LOQ:19.6)	180	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.31-34

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0745231212	Date:	20.12.2023
ULR No.:	TC748723000020097F		

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
6	Lead (as Pb)	$\mu\text{g}/\text{m}^3$	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
7	Carbon Monoxide (CO)	mg/m^3	0.75	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
8	Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	BQL (LOQ:20)	400	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.35-39
9	Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	1.16	05	IS 5182 (Part 11): 2006
10	Benzo(a)Pyrene (Particulate phase only)	ng/m^3	BQL (LOQ:0.5)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.40-47
11	Arsenic (as As)	ng/m^3	BQL (LOQ:0.3)	06	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
12	Nickel (as Ni)	ng/m^3	BQL (LOQ:3)	20	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

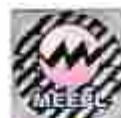
END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. # NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0746231212	Date:	20.12.2023
ULR No.:	TC748723000020098F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : B(a), Ni, As, Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle NH ₃ : 10 mL X 24 No. PVC Bottle O ₃ : 10 mL X 24 No. PVC Bottle Charcoal Tubes: 1 X 6 No. CO: 2L X 3 No. Gas Bladder
Date of Sampling	11.12.2023 to 12.12.2023	Date of Receipt of Sample	12.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.12.2023	Date of Completion of Analysis	20.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing: Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	41	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Ozone (O ₃)	µg/m ³	BQL (LOQ:19.6)	180	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.31-34

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TC-148F



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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0746231212	Date:	20.12.2023
ULR No.:	TC748723000020098F		

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
6	Lead (as Pb)	$\mu\text{g}/\text{m}^3$	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
7	Carbon Monoxide (CO)	mg/m^3	0.80	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
8	Ammonia (NH ₃)	$\mu\text{g}/\text{m}^3$	21.3	400	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.35-39
9	Benzene (C ₆ H ₆)	$\mu\text{g}/\text{m}^3$	1.15	05	IS 5182 (Part 11): 2006
10	Benzo(a)Pyrene (Particulate phase only)	ng/m^3	BQL (LOQ:0.5)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.40-47
11	Arsenic (as As)	ng/m^3	BQL (LOQ:0.3)	06	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55
12	Nickel (as Ni)	ng/m^3	BQL (LOQ:3)	20	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1264231219	Date:	25.12.2023
U.L.R No.:	TC748723000020573F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.12.2023 to 19.12.2023	Date of Receipt of Sample	19.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.12.2023	Date of Completion of Analysis	23.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	15.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	56	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.82	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1284231219	Date:	25.12.2023
ULR No.:	TC748723000020573F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1265231219	Date:	25.12.2023
ULR No.:	TC748723000020574F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.12.2023 to 19.12.2023	Date of Receipt of Sample	19.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.12.2023	Date of Completion of Analysis	23.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	61	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	22	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.92	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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18.07.2023

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Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-1265231219	Date:	25.12.2023
ULR No.:	TC748723000020574F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1266231219	Date:	25.12.2023
ULR No.:	TC748723000020575F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.12.2023 to 19.12.2023	Date of Receipt of Sample	19.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.12.2023	Date of Completion of Analysis	23.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No. 1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No. 7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	63	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No. 11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No. 15-30
5	Carbon Monoxide (CO)	mg/m ³	0.78	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TC-7487



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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1266231219	Date:	25.12.2023
ULR No.:	TC748723000020575F		

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 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1692231225	Date:	01.01.2024
ULR No.:	TC748723000020986F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	25.12.2023 to 26.12.2023	Date of Receipt of Sample	26.12.2023
Sampling Procedure:	As per method reference		
Date of Start of Analysis	26.12.2023	Date of Completion of Analysis	29.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	56	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.79	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 15-22, (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1692231225	Date:	01.01.2024
ULR No.:	TC748723000020986F		

- Note:**
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 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1693231225	Date:	01.01.2024
ULR No.:	TC748723000020987F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	25.12.2023 to 26.12.2023	Date of Receipt of Sample	26.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.12.2023	Date of Completion of Analysis	29.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.87	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDir method)

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TEST REPORT



Report No.:	ME-1693231225	Date:	01.01.2024
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 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1694231225	Date:	01.01.2024
ULR No.:	TC748723000020988F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	25.12.2023 to 26.12.2023	Date of Receipt of Sample	26.12.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	26.12.2023	Date of Completion of Analysis	29.12.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	54	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	21	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.82	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1694231225	Date:	01.01.2024
ULR No.:	TC748723000020988F		

- Note:**
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 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.: ME-0031240102	Date: 08.01.2024
ULR No.: TC748724000000017F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	01.01.2024 to 02.01.2024	Date of Receipt of Sample	02.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	02.01.2024	Date of Completion of Analysis	08.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	53	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.74	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0031240102	Date: 08.01.2024
ULR No.:	TC748724000000017F	

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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h, TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h, TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0032240102	Date:	08.01.2024
ULR No.:	TC748724000000018F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	01.01.2024 to 02.01.2024	Date of Receipt of Sample	02.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	02.01.2024	Date of Completion of Analysis	08.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	22	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.89	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0032240102	Date	08.01.2024
ULR No.:	TC748724000000018F		

- Note:**
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 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0033240102	Date:	08.01.2024
ULR No.:	TC748724000000019F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	01.01.2024 to 02.01.2024	Date of Receipt of Sample	02.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	02.01.2024	Date of Completion of Analysis	08.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	61	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.97	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

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Chemical Testing



TC-7487



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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0033240102	Date:	08.01.2024
ULR No.:	TC748724000000019F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0461240109	Date:	13.01.2024
ULR No.:	TC748724000000416F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	08.01.2024 to 09.01.2024	Date of Receipt of Sample	09.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	17.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	21.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	72	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	31	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.82	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-0461240109	Date:	13.01.2024
ULR No.:	TC748724000000418F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0462240109	Date:	13.01.2024
ULR No.:	TC74872400000417F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	08.01.2024 to 09.01.2024	Date of Receipt of Sample	09.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	16.0	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	19.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants; Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	67	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	29	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.97	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 15-22, (NDIR method)

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TEST REPORT



Report No.:	ME-0462240109	Date:	13.01.2024
ULR No.:	TC748724000000417F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.: ME-0463240109	Date: 13.01.2024
ULR No.: TC74872400000418F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	08.01.2024 to 09.01.2024	Date of Receipt of Sample	09.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	19.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	70	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.91	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0463240109	Date:	13.01.2024
ULR No.:	TC748724000000418F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.: ME-1028240116	Date: 20.01.2024
ULR No.: TC748724000000939F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	15.01.2024 to 16.01.2024	Date of Receipt of Sample	16.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	17.01.2024	Date of Completion of Analysis	19.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	16.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	19.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	77	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	30	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.88	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1028240116	Date:	20.01.2024
ULR No.:	TC748724000000939F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1029240116	Date:	20.01.2024
ULR No.:	TC74872400000940F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	15.01.2024 to 16.01.2024	Date of Receipt of Sample	16.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	17.01.2024	Date of Completion of Analysis	19.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	17.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	20.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	67	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	27	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.97	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1029240116	Date:	20.01.2024
ULR No.:	TC748724000000940F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. # NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1030240116	Date:	20.01.2024
ULR No.:	TC748724000000941F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.:	4800169725
			SO Date:	10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory	
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder	
Date of Sampling	15.01.2024 to 16.01.2024	Date of Receipt of Sample	16.01.2024	
Sampling Procedure	As per method reference			
Date of Start of Analysis	17.01.2024	Date of Completion of Analysis	19.01.2024	

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	16.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	20.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	68	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	1.02	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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18.07.2023

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Harish Mendhi
Technical Manager
Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1030240116	Date:	20.01.2024
ULR No.:	TC748724000000941F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-1526240124	Date:	27.01.2024
ULR No.:	TC748724000001427F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.01.2024 to 24.01.2024	Date of Receipt of Sample	24.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	24.01.2024	Date of Completion of Analysis	25.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	17.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	20.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	70	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.86	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22 (NDIR method)

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TEST REPORT



Report No:	ME-1526240124	Date:	27.01.2024
ULR No.:	TC748724000001427F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1527240124	Date:	27.01.2024
ULR No.:	TC748724000001428F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.01.2024 to 24.01.2024	Date of Receipt of Sample	24.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	24.01.2024	Date of Completion of Analysis	25.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-5
2	Nitrogen Dioxide (NO ₂)	µg/m ³	12.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	57	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	29	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.94	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1527240124	Date:	27.01.2024
ULR No.:	TC748724000001428F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1528240124	Date:	27.01.2024
ULR No.:	TC748724000001429F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	23.01.2024 to 24.01.2024	Date of Receipt of Sample	24.01.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	24.01.2024	Date of Completion of Analysis	25.01.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	62	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.87	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0353240206	Date:	10.02.2024
ULR No.:	TC748724000002171F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO 2L X 3No. Gas Bladder
Date of Sampling	05.02.2024 to 06.02.2024	Date of Receipt of Sample	06.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants: Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	55	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	1.05	84	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0353240206	Date:	10.02.2024
ULR No.:	TC748724000002171F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0354240206	Date:	10.02.2024
ULR No.:	TC748724000002172F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Pb. Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	05.02.2024 to 06.02.2024	Date of Receipt of Sample	06.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	17.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	20.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10.
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	63	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	29	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.94	64	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0354240206	Date:	10.02.2024
ULR No.:	TC748724000002172F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0355240206	Date:	10.02.2024
ULR No.:	TC748724000002173F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	05.02.2024 to 06.02.2024	Date of Receipt of Sample	06.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	06.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No. 1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	60	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.89	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ 0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0355240206	Date:	10.02.2024
ULR No.:	TC748724000002173F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}; Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0924240213	Date:	17.02.2024
ULR No.:	TC748724000002691F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	12.02.2024 to 13.02.2024	Date of Receipt of Sample	13.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.02.2024	Date of Completion of Analysis	16.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-5
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	76	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	30	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.78	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Chemical Testing



TC-1481



Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0924240213	Date:	17.02.2024
ULR No.:	TC748724000002691F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0925240213	Date:	17.02.2024
ULR No.:	TC748724000002692F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	12.02.2024 to 13.02.2024	Date of Receipt of Sample	13.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.02.2024	Date of Completion of Analysis	16.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	71	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.81	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0925240213	Date:	17.02.2024
ULR No.:	TC748724000002692F		

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0926240213	Date:	17.02.2024
ULR No.:	TC748724000002693F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	12.02.2024 to 13.02.2024	Date of Receipt of Sample	13.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.02.2024	Date of Completion of Analysis	16.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	55	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	20	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30.
5	Carbon Monoxide (CO)	mg/m ³	0.84	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.: ME-0926240213	Date: 17.02.2024
ULR No.: TC748724000002693F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1499240220	Date:	24.02.2024
ULR No.:	TC748724000003216F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	19.02.2024 to 20.02.2024	Date of Receipt of Sample	20.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	21.02.2024	Date of Completion of Analysis	23.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	56	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.94	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1499240220	Date:	24.02.2024
ULR No.:	TC74872400003216F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1500240220	Date:	24.02.2024
ULR No.:	TC748724000003217F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	19.02.2024 to 20.02.2024	Date of Receipt of Sample	20.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	21.02.2024	Date of Completion of Analysis	23.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	65	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.73	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22 (NDIR method)

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TEST REPORT



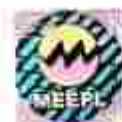
Report No.:	ME-1500240220	Date:	24.02.2024
ULR No.:	TC748724000003217F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1501240220	Date:	24.02.2024
ULR No.:	TC748724000003218F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Pb. Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	19.02.2024 to 20.02.2024	Date of Receipt of Sample	20.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	21.02.2024	Date of Completion of Analysis	23.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	46	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	22	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.88	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)

END OF REPORT

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Chemical Testing





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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-1501240220	Date:	24.02.2024
ULR No.:	TC748724000003218F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. # NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1894240228	Date:	04.03.2024
ULR No.:	TC748724000003590F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.02.2024 to 28.02.2024	Date of Receipt of Sample	28.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.02.2024	Date of Completion of Analysis	29.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	20.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	49	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.80	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Reviewed and authorised by

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1894240228	Date:	04.03.2024
ULR No.:	TC748724000003590F		

- Note:**
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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Kishor Yeole
Branch Manager
Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1895240228	Date:	04.03.2024
ULR No.:	TC748724000003591F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.02.2024 to 28.02.2024	Date of Receipt of Sample	28.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.02.2024	Date of Completion of Analysis	29.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	10.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	73	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	31	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.97	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1895240228	Date:	04.03.2024
ULR No.:	TC748724000003591F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-1896240228	Date:	04.03.2024
ULR No.:	TC748724000003592F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	27.02.2024 to 28.02.2024	Date of Receipt of Sample	28.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.02.2024	Date of Completion of Analysis	29.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	70	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	27	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.70	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)

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TEST REPORT



Report No.:	ME-1896240228	Date:	04.03.2024
ULR No.:	TC748724000003592F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0282240305	Date:	09.03.2024
ULR No.:	TC748724000003949F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	04.03.2024 to 06.03.2024	Date of Receipt of Sample	05.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	05.03.2024	Date of Completion of Analysis	09.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQs	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	12.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	78	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	31	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.89	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0281240305	Date:	09.03.2024
ULR No.:	TC748724000003948F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0281240305	Date:	09.03.2024
ULR No.:	TC748724000003948F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	04.03.2024 to 05.03.2024	Date of Receipt of Sample	05.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	05.03.2024	Date of Completion of Analysis	09.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	51	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.85	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ: 0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0280240305	Date:	09.03.2024
ULR No.:	TC748724000003947F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0280240305	Date:	09.03.2024
ULR No.:	TC748724000003947F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. : 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No: Gas Bladder
Date of Sampling	04.03.2024 to 05.03.2024	Date of Receipt of Sample	05.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	05.03.2024	Date of Completion of Analysis	09.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	14.0	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	62	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	27	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.73	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0282240305	Date:	09.03.2024
ULR No.:	TC748724000003949F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0805240312	Date:	16.03.2024
ULR No.:	TC74872490000418F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ , Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	11.03.2024 to 12.03.2024	Date of Receipt of Sample	12.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.03.2024	Date of Completion of Analysis	16.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	59	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.96	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0805240312	Date:	16.03.2024
ULR No.:	TC748724000004418F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0806240312	Date:	16.03.2024
ULR No.:	TC748724000004419F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No. 4800169725 SO Date 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	11.03.2024 to 12.03.2024	Date of Receipt of Sample	12.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.03.2024	Date of Completion of Analysis	16.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	11.7	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	57	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.70	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

END OF REPORT

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Harish Mendhi
Technical Manager
Chemical Testing





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PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0806240312	Date:	16.03.2024
ULR No.:	TC748724000004419F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0807240312	Date:	16.03.2024
ULR No.:	TC748724000004420F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	11.03.2024 to 12.03.2024	Date of Receipt of Sample	12.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	12.03.2024	Date of Completion of Analysis	16.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	15.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-5
2	Nitrogen Dioxide (NO ₂)	µg/m ³	21.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.99	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0807240312	Date:	16.03.2024
ULR No.:	TC748724000004420F		

- Note:**
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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1446240319	Date:	23.03.2024
ULR No.:	TC748724000004898F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.03.2024 to 19.03.2024	Date of Receipt of Sample	19.03.2024
Sampling Procedure:	As per method reference		
Date of Start of Analysis	19.03.2024	Date of Completion of Analysis	22.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.5	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	16.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	64	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	27	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	1.02	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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ULR No.:	TC748724000004898F		

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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia, 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel
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TEST REPORT



Report No.:	ME-1447240319	Date:	23.03.2024
ULR No.:	TC748724000004899F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.03.2024 to 19.03.2024	Date of Receipt of Sample	19.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.03.2024	Date of Completion of Analysis	22.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing:</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	19.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	59	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	28	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.98	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.:	ME-1447240319	Date:	23.03.2024
ULR No.:	TC748724000004899F		

- Note:**
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 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.	ME-1448240319	Date:	23.03.2024
ULR No.	TC748724000004900F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.03.2024 to 19.03.2024	Date of Receipt of Sample	19.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.03.2024	Date of Completion of Analysis	22.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Ambient Air)</u>				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.3	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	50	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.90	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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TEST REPORT



Report No.: ME-1448240319	Date: 23.03.2024
ULR No.: TC748724000004900F	

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-2309240327	Date:	03.04.2024
ULR No.:	TC748724000005843F		


Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near CHP	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	26.03.2024 to 27.03.2024	Date of Receipt of Sample	27.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	27.03.2024	Date of Completion of Analysis	03.04.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	13.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	19.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	56	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	23	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.95	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Branch Manager
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TEST REPORT



Report No.: ME-2309240327	Date: 03.04.2024
ULR No.: TC748724000005843F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No:	ME-2310240327	Date:	03.04.2024
ULR No:	TC748724000005844F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Reservoir	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	26.03.2024 to 27.03.2024	Date of Receipt of Sample	27.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	27.03.2024	Date of Completion of Analysis	03.04.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	16.1	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	22.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	53	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	24	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	1.02	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-2310240327	Date:	03.04.2024
ULR No.:	TC748724000005844F		

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PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-2311240327	Date:	03.04.2024
ULR No.:	TC748724000005845F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Near Switch Yard	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	26.03.2024 to 27.03.2024	Date of Receipt of Sample	27.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	28.03.2024	Date of Completion of Analysis	03.04.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	11.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	18.4	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	60	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.78	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22. (NDIR method)

END OF REPORT

Reviewed and authorised by

Kishor Yeole
Branch Manager
Chemical Testing

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QF/SALE/03
Issue No 03
Date 05.12.2019.
Amd 04 Date
18.07.2023





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TEST REPORT



Report No.:	ME-2311240327	Date:	03.04.2024
ULR No.:	TC748724000005845F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
 7. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-1449240319	Date:	23.03.2024
ULR No.:	TC748724000004901F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Anandwan Warora	Sample Quantity / Packing	PM ₁₀ : Pb. Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.03.2024 to 19.03.2024	Date of Receipt of Sample	19.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.03.2024	Date of Completion of Analysis	23.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	15.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No 1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	17.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	56	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	27	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No 15-30
5	Carbon Monoxide (CO)	mg/m ³	0.96	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

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Harish Mendhi
Technical Manager
Chemical Testing





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 3. Duration of Sampling: 24h
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 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia, 1 h. TWA in case of Carbon Monoxide, Ozone, Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1450240319	Date:	23.03.2024
ULR No.:	TC748724000004902F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Temporary Township	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	18.03.2024 to 19.03.2024	Date of Receipt of Sample	19.03.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	19.03.2024	Date of Completion of Analysis	23.03.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	7.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	15.2	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	58	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	26	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.79	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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Harish Mendhi
Technical Manager
Chemical Testing



REPORT ON HYDROGEOLOGICAL STUDY OF GMR WARORA ENERGY LIMITED



**TEHSIL - WARORA
DIST - CHANDRAPUR
MAHARASHTRA**

PREPARED BY

S.J
CONSULTANTS

915/ I, KHARE TOWN, DHARMPETH, NAGPUR - 440010

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Chapter 1: Introduction

1.1 Preamble

M/S. GMR WARORA ENERGY LTD a subsidiary of **GMR Energy Limited** Mohabala MIDC, Warora Growth Centre Post Warora Taluka Warora District Chandrapur has established a Thermal Power Unit of 2x 300 MW. The hydro-geological study of the area is to be conducted for to fulfill the environmental requirement with respect of hydro geological conditions of the area. The study of the project area, as well as the buffer zone of 5 km, around the project site taking the Thermal station as center is discussed herewith.

1.2 Scope of Work

The scope of work is as under.

1. Hydro geological study to assess the impact on the plant with respect to ground-water regime.
2. Impact on hydrogeology of surrounding areas with respect to hydrology and usage of water.
3. Impact on water regime by abstracting and discharge of water.
4. Details of rainwater harvesting plan.

Accordingly, **GMR WARORA ENERGY LTD** Warora has engaged us for the above assignment as per the order of **GMR WARORA ENERGY LTD** vide Service order no.4800173185.

1.3 Approach of the Study

The entire buffer zone is considered as a study area. The complete study area is surveyed physically. Probable geological formations, dug wells (DW) / bore-wells (BW) inventory data is collected. The depths of winter and summer static water levels (SWL), their fluctuations, status of irrigation and domestic DW/BW, were recorded. This statistic

helps to draw the water balance and status of ground water development of the area. (Annexure - 1).

Some geophysical probes were also taken up for to confirm the nature of aquifers.

Watersheds are drawn from the drainage pattern of the area. The drainages mostly follow the geological formations, their tectonic behavior and geological structures like faults, folds and intrusions etc. Accordingly with the data and calculation of Water balance of each watershed is the difference between the recharge into water shed and drawl from that watershed. The field data in all villages in watershed was collected and water table fluctuation is determined. Actually, the water shed in which plant is situated will be important. Other watersheds will not affect the plant area zone as discussed in previous pares.

Chapter 2: Study Area

2.1 Location

GMR Warora Energy Ltd. Plant is located near a town Warora in Warora taluka of Chandrapur district. It is within the $78^{\circ}58'38.54''\text{E}$; $20^{\circ}17'16.34''\text{N}$ to $78^{\circ}58'32.69''\text{E}$, $20^{\circ}16'31.54''\text{N}$ and is covered in parts of Survey of India Topo-sheet no. 55 p/3; 55p/4, 55L/15 and 55L/16. (Fig.1)

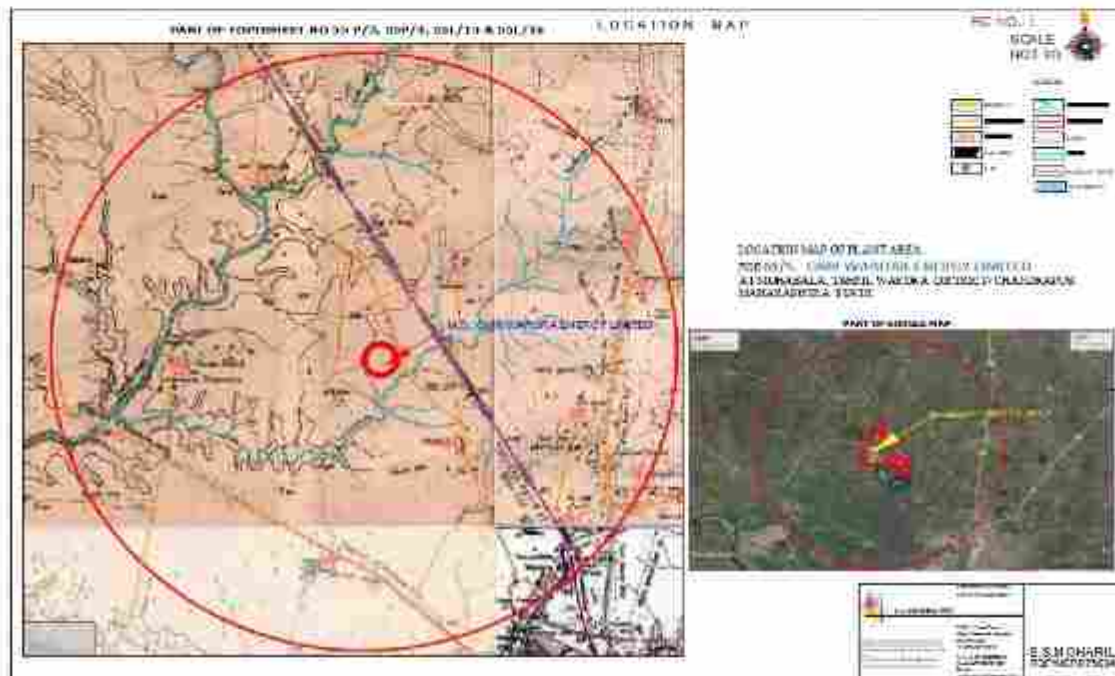


Fig-1

The site is approachable in all seasons by tar roads from all directions. The State highways from Nagpur to Chandrapur and Chandrapur-Yavatmal passes through the buffer zone area. The Grand Trunk railway from Delhi to Chennai passes adjacent to the area. All infrastructure facilities like Electricity, Post-Office, Rest House, Railway Station and bus stand etc. are available within a range of 0.5 to 3 km from the site.

2.2 Climate

Rainfall– The rainfall in the area is received from the SW monsoon nearly for four months i.e., from June to September every year. The year wise rainfall data from 1994 to 2023 is collected from Warora meteorological station of Warora taluka and yearly average rainfall is 1048. Total rainy days are 50 to 60 in a year.

Temperature – The normal temperature in the area remains from 27⁰C to 38⁰ C. The maximum temperature in summer months' touches to 40⁰C to 47⁰C, while minimum temperature is 20⁰C to 26⁰C in December/January months. This data has been obtained from the IMD stations.

2.3 Topography

The area is having a gentle southwesterly slope. Wardha River a major river flows in same direction and is in buffer zone and is 8 to 9 Kms. away from the site. Nearly all the drainages flow in to Wardha River, Outside of Buffer Zone. The general altitude of the area is minimum 200 m to maximum 220m above mean sea level. The northern portion is elevated than the southern part. The average falls of 20 mts is located, that means there is a slope of 2 mts within a span of 1 km; hence it is a gentle slope.

The drainage is simple and is controlled by two seasonal Nala i.e., Shirna Nala and Lendi Nala, which is a tributary of Wardha River. The Shirna Nala is flowing in north to south direction on the eastern boundary of block. The second Lendi Nala is flowing in southwest forming a western boundary. There is no any minor, medium or major irrigation plant in buffer zone & not having the command area of any irrigation project. (Fig.2).

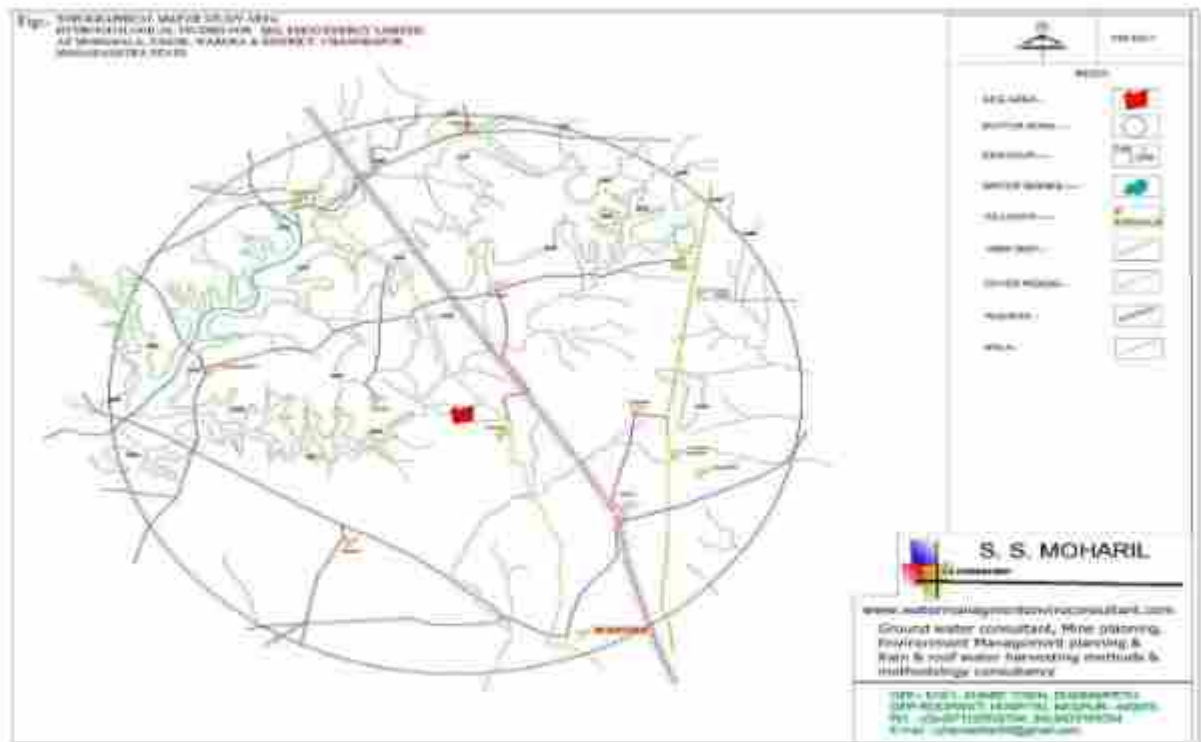


Fig-2

2.4 Geology

The geology of the block has been evolved by CMPDI based on borehole data. DGM Maharashtra & G.S.I. has also worked extensively in this area. (Fig-3)



Regional Geology:

The Warora area constitutes the northern part of the Wardha Valley Coalfield and falls in the eastern limb of the regional anticline structure. Most of area of the field is covered by younger formations like the Kamthi's, Lametas and the Basalt's. The older Barakar's are exposed as narrow isolated in layers at places.

The Achaean's and the Vindhyan's formations form the basement on which the lower Gondwanas formations were deposited. There is a distinct unconformity between the Barakar's, Mottur's and the overlying Kamthi's.

The Mottur's formation is deposited towards north after village Majra where they are overlain by Mangli's near Village Yensa. Mangli's are of upper Gondwanas formation. Similarly, Mottur's are exposed below soil at NW portion of Warora town below soil cover. They occur near village Karanji, Tulana and beyond Wardha River in Wane taluka also.

The southern area of buffer zone consists of basaltic formation near village Chinora etc. underlain either by Mottur's or Barakar's.

There are two major faults near Majra village due north of area between Mottur's and Kamthi's and due NW near village Dongargaon between Gondwanas and Vindhyan's.

The generalized stratigraphic sequence of the buffer zone is tabulated below. This sequence is prepared and produced as per the general geology of the area as narrated by Geological Survey of India.

**TABLE –1 STRATIGRAPHIC SEQUENCE OF BUFFER ZONE AREA
AS PER GEOLOGICAL SURVEY OF INDIA**

Age	Formation	Lithology
Recent	Detrial mantle	Soil
Upper Cretaceous to Eocene	Deccan trap	Basalt
Cretaceous	Lametas	Cherty limestone, cherty, silicified sand stone.

UNCONFIRMITY

Lower Triassic	Mangli	Yellowish, hard cherty sandstone
Upper Permian	Kamthi's	Yellow, red, brown colored, Sandstone with clay and shale bands.

UNCONFIRMITY

Middle Permian	Mottur's Barakar's	Variegated clays with thin fine grained sand beds. Whitish brown, medium grained sandstone with Crab shale and coal seams.
Lower Permian Carboniferous	Talc hair	Green colored shale's

UNCONFIRMITY

Pre Cambrian	Vindhyan	Siliceous limestone and shales
--------------	----------	--------------------------------

Local geology of project and buffer block: –

↗ The area is mostly covered by a soil mantle, the average thickness of which is 3m to 7m. Rock exposures are very rare in this area.

↗ The Lametas underlies the trap in the northern part. The Lametas occur below a shallow soil cover. These formations are characterized by cherty limestone. The maximum thickness of Lametas proved in the area is 28.44 m.

↗ The Kamthi's occurs unconformable below the Lametas. Kamthi's comprises reddish sandstone and shale. The maximum recorded thickness of Kamthi's in Warora block is 212.44 m. A profound unconformity exists between Kamthi's and Barakar's, in a block.

↗ Motors are absent in the area.

▲ The average thickness of Barakar's is 150m to 170m. Upper 40m to 70m and lower 60m to 80 m. is barren of any coal seams. While middle 20 m is composed of crab shales and coal seams.

▲ Barakar's are underlain by Talchairs and the known thickness is 71.68 m.

TABLE – 2 DETAILS OF STRATIGRAPHIC UNITS IN BLOCK AREA

Formation	Lithology	Thickness range in meters
Soil	Black cotton soil	0.90 to 19.85
Deccan trap	Basalt	24.99 to 39.00
Laments	Cherty limestone, silicified Sandstone & clay	18.90 to 28.44

UNCONFIRMITY

Kamthi's	Yellowish, reddish S. St. and shale	7.95 to 212.44
----------	-------------------------------------	----------------

UNCONFIRMITY

Barakar's	Grey Sand Stone, Shale, Crab-shale and coal	5.49 to 192.02
Talc hair	Green to dark gray shale	71.63 and more

UNCONFIRMITY

Vindhyan's	Siliceous limestone & shale	-
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2.5 Hydrogeology

Hydrogeology relates to groundwater conditions with respect of geological formations of that area. Hence the entire buffer zone is considered as a study area. The complete study area is surveyed physically. Probable geological formations, dug wells (DW) / bore-wells (BW) inventory data is collected. The depths of winter and summer static water levels (SWL), their fluctuations, status of irrigation and domestic DW/BW, were recorded. This statistic helps to draw the water balance and status of ground water development of the area. (Annexure - 1).

Some geophysical probes were also taken up for to confirm the nature of aquifers.

WATERSHEDS:

Watersheds are drawn from the drainage pattern of the area. The drainages mostly follow the geological formations, their tectonic behavior and geological structures like faults, folds and intrusions etc. Mostly the watersheds are drawn basin wise such as Wardha, Godavari etc. (Fig. 4).

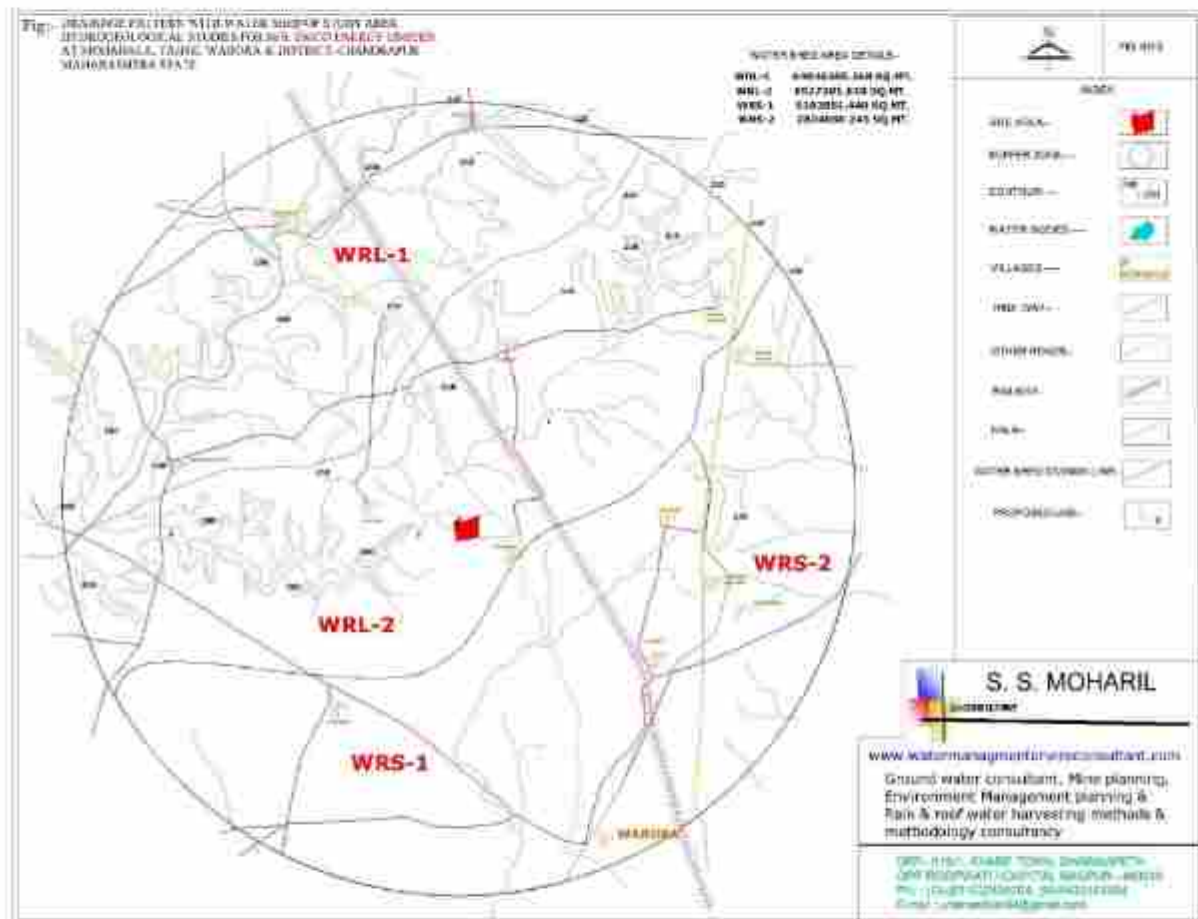


Fig-4

Groundwater Surveys & Development Agency (G.S.D.A), Government of Maharashtra has drawn the watersheds for whole of Maharashtra. The watersheds are basin wise. Warora block is in Wardha basin and actually in watershed no WREC-2. The extract of above watershed as per G.S.D.A. is as given below:

TABLE – 3 DETAILS FROM GROUNDWATER SURVEYS AND DEVELOPMENT AGENCY (GSDA), GOVT.OF MAHARASHTRA WATERSHED

Sr. No.	Dist.	Water Shed	Index	Dev. stage	Pre monsoon trend	Post monsoon trend	Category
1380	Chandrapur	WREC2	826	23-22	Rising	Rising	Safe

As per G.S.D.A., the Study area is under safe category for development.

▲To facilitate the proper hydro geological study, the buffer zone is divided into four mini watersheds within the radius of 5 km from the center of the plant. These watersheds are as per the drainage of the area. The groundwater movements generally do not cross the divide line of the watershed and hence the flow of surface water and groundwater restrict themselves to the boundaries of each watershed. Out of these four watersheds, the surface and groundwater movements of three watersheds are away from the watershed. The plant area is located in WRL-II. WRL-I, WRS-1 & WRS-2 is having water flowing away from the area and hence they don't have any effect on water shed no. WRL - II.

▲The details of these watersheds are as follow:

TABLE – 4 DETAILS OF WATERSHED IN STUDY AREA

Sr. No.	Water shed	Area in Hect.	No. of villages	No. of DW/BW/ With EM- OE	Average SWL summer in mts	Average SWL in winter in mts	Average fluctuation in mts
1	WRL-1	6403.64	4	210/185	10.24	6.85	3.39
2	WRL-2	652.73	5	232/205	9.90	4.62	5.28
3	WRS-1	518.28	4	127/87	10.90	7.54	3.36
4	WRS-2	282.49	1	557/546	13.05	9.97	3.68

Abbreviations used

DW—Dug Well BW --- Bore Well EM--- Electric Motor OE --- Oil Engine

SWL—Static Water Level

All these watersheds are in plain terrain. But the recuperation will be slow as most of the areas where thick soil and clays are present.

From the study of watersheds derived in the buffer zone area the fluctuation in SWL in WRS-1 is less than the other water sheds. This may be due to Basaltic formation and Lametas. Lametas is geological formations. The numbers of wells are more in WRS-2. It means that the development and use of groundwater is more. But this development will not be affecting the water regime of plant area as the groundwater discharge will be away from the plant. This watershed comprises of only one village i.e., Warora. This town is having a population of nearly 1 lakh. Hence the numbers of wells/bore wells are more than the other areas.

Chapter 3: Methodology of data Collection

Soil– Soil is the most important factor in the process of water balance study. Its thickness, texture, consistency has little variance from place to place in the project area. On the extreme north there is a deep and rich black loamy soil overlying the traps which is largely composed of disintegrated trap. The impervious nature of the underlying trap makes soil extremely retentive of moisture. Further south occurs a belt of shallower brown or yellow loam, silt loam overlying sandstone and Lametas formation. This soil drains rapidly and would be of little value without irrigation. Further eastward, again black loam reappears along the banks of Nala section, geologically known as alluvium.

Soil moisture: - To determine the available water capacity the type of soil at WARORA is found out from the soil map. Corresponding to the soil type the average soil type of the area may be considered as silt loam. This is based on basic textural classification coupled with grain size. Thornth Waite and Mather 1957 has published provisional water holding capacities with different combination of soil and vegetation. The same has been taken as accepted value by IMD for all calculation of water balance. Based on the above publication the available water capacity for plant area soil is tabulated in the following table;

TABLE-5 -WATER CAPACITY

Location	Soil type	Available water mm/m	Root Zone	Available moisture retention
Warora	Silt loam	200	1.00	200

The value 200 mm/m has been taken as available water capacity AWC for all climatic water balance calculation of the plant.

Infiltration through Soil: - Rainfall reaching the earth surface infiltrate into the ground. Soil has fine in capacity to absorb the water. The movement of water through the soil surface is known as infiltration and it plays a very significant role in the runoff process by affecting the timing, distribution and magnitude of the surface runoff. Further

infiltration is the primary step in the natural groundwater recharge. Infiltration is inversely proportional to surface runoff. High infiltration contributes less surface runoff of the designated basin.

If the rainfall rate is lower than the initial infiltration capacity of soil, there will be no overland flow, while comparing the infiltration capacity of different conditions in the present study it is found that high infiltration rate is associated with mining activity in the area. The top soil layer become more porous during mining activity in the area due to loosening of the material compared to the non – mining areas.

Infiltration capacity: - Infiltration studies were conducted at selected places to know the soil characteristics. Double ring inflictor-meter technique was used for measuring the infiltration rate. The infiltration rate measured was plotted against cumulative infiltration capacity. The results of infiltration test are mentioned in TABLE No. 2 below.

TABLE-6 INFILTRATION TESTS

Type of area	Type of soil	Site infiltration capacity mm/m	Average infiltration capacity mm/m
Pre-mining area A	Clayey	14.0	31.53
B	Sandy clay loam	37.17	31.53
C	Sandy clay loam	37.17	31.53
D	Sandy clay loam	37.17	31.53
B	Sandy loose loam	111.51	31.53

Resistivity surveys were carried out in 08 places to know the sequence and probable thickness of the formation encountering beneath the project and villages occurring in the buffer zone. The Geophysical surveys comprised of resistivity profiling and Vertical Electrical Soundings (VES) were carried out to cover the entire area of GMR project and buffer zone at Mohabala Village, in Chandrapur district, Maharashtra.

To get the desired information about the prevailing aquifer conditions beneath the GMR project area, the maximum current electrode (AB) spacing for VES were kept 100 m. The VES curves obtained from the area are H, KH, HKH and AKH type in nature, which indicate the wide variation in subsurface hydro geological conditions. The VES curves were interpreted manually by two- and three-layer master curves and by computer software IPI2 Win to get the geo-electric layer parameters. These results were further refined with help of computer aided program SCHLUM through automatic curve matching technique. In this computer aided curve matching technique, an initial model is given for which the computer arrives at the theoretical curve and compares with the field data; then it takes difference between the recomputed and field curves and modifies old model parameters to start with a new model for reducing this difference (error). Again, computed new theoretical curve and compares with the field curve, and sets another new model to reduce the differences. This process of interaction goes on till the error is minimized and finally displays the match between the field and theoretical curves giving the final model parameters. The final results were corroborated with the known hydro geological conditions existing in the area.

The VES curves obtained from the area are H, KH, HKH and AKH type in nature, which indicate the wide variation in subsurface hydro geological conditions. The measured apparent resistivity values have indicated wide variation in resistivity, which vary between 16 ohm-m and 4000 ohm-m. The interpreted results of VES show the presence of 2 to 4 Geo electrical layer sequences in the area within the depth range of about 80 m BGL under the investigated depth range of 100 m. It is also observed that the interpreted layer parameters have the wide range of resistivity variations in different layers. The tube wells have been recommended to drill at VES-1 of 65 m depth and VES-2 of depth 60m.and at VES-3 of 52 mts VES-4 is devoid of water.

As the 5 KM, area under survey around plant is having the Gondwanas sandstone's and Mottur's, thus the tube wells with the combination of blank and perforated casing are proposed. The final interpreted Geo- electrical layer parameters of VES's (layer resistivity and layer thicknesses) are given in table. The above observations are derived from the Geo physical probe taken in 2023 survey.

Seven Geo-physical surveys were carryout in year 2023. The details are given in below table. The same procedure as mentioned above is carried out to calculate probes. It is noticed that at all the seven places, clays are predominant. In Mohabala – Warora road a thin layer of sandstone encountered.

Interpreted Geo-Electrical Layer Parameters of VES Conduct

Geophysical Results 2024

TABLE-7- Geophysical Results

Sr. No	VES No.	Layer's Resistivity (ohm-m)					Layer's Thickness (m)				Total Thickness (m)
		ρ_1	ρ_2	ρ_3	ρ_4	ρ_5	h_1	h_2	h_3	h_4	
1	1	08	16	22	28	105	04	11	41	44	100
2	2	14	22	35	73	350	02	06	27	65	100
3	3	16	20	42	35	85	06	06	22	66	100
4	4	16	17	19	12	38	02	13	40	45	100
5	5	14	24	17	11	49	02	14	33	51	100
6	6	11	26	21	23	--	03	10	36	51	100
7	7	07	20	18	16	92	03	18	23	56	100
8	8	15	24	24	12	70	03	27	37	33	100

Chapter 4: Result and Discussion

Water balance of each watershed is the difference between the recharge into watershed and drawl from that watershed. The field data in all villages in watershed was collected and water table fluctuation is determined. Actually, the watershed in which plant is situated will be important. Other watersheds will not affect the plant area zone as discussed in previous pases.

The watershed wise balance is computed as below. Specific yield and rain water infiltration are taken from estimation methodology established by Central Ground Water Board. (C.G.W.B.2015).

Water Shed No. WRL-1:

▲ Recharge by way of rainfall infiltration method as a fraction. As per C.G.W.B 2015

Area Hectare	Rainfall mts	Rainfall infiltration factor as a fraction	Recharge Ham
6403.64 x	1.048 X	0.08 =	536.88 ham

Recharge by Water Table fluctuation method:

Area Hectare	Water-table fluctuation in mts	Sp. Yield (As a fraction)	Total recharge
6403.64 x	3.39 x	0.015 =	325.62ham

The complete area of watershed is taken into consideration.

▲ WITHDRAWAL IN WATER SHED. The withdrawal in this water shed is limited. The crop pattern is mostly cotton. This crop requires a protective irrigation. This irrigation is limited to three months when there are no rains. Hence fraction of water is withdrawn in the year. Hence 1/3 withdrawal is considered for the calculation of annual draft from the existing irrigated dug wells / bore wells.

Rainfall infiltration recharge is considered as a reliable recharge processes. Hence it is considered for further calculations.

1. Total DW/BW = 210
2. Total DW/BW with EM/OE = 185
3. Domestic DW/BW = 25

4. Draft by OE/EM @ 0.52Ham/year = 96.2 Ham

(1/3 of 1.57 Hams as suggested by C.G.W.B)

5. Draft of DW/BW for domestic purpose @ 0.1 Ham annually = 2.5Ham

6. Hence total draft = 98.7 Ham

7. Additional recharge by DW/BW for irrigation purpose

Total water draft in water shed in Ham	Return Water factor for recharge	for	Recharge
98.7	X	0.25	= 24.675 Ham

Total water recharge + return water = Recharge total
Hence Total recharge=536.88 + 24.675 = 561.55Ham

Total recharge - Total withdrawal = Hence balance
561.55 - 98.7 = 462.85 Ham

(Ham --- Hector-meter).This watershed has a balance as mentioned.

Water Shed No. WRL -II

▲ Recharge by way of Rainfall infiltration method

Area Hectare	Rainfall mts	Rainfall infiltration factor as a fraction	Recharge Ham
652.73	X 1.048	X 0.08	= 54.72 Ham.

Recharge by Water Table Fluctuation Method

Area Hectare	Water table fluctuation in mts	Sp. Yield as a fraction	Total recharge
652.73	X 5.28	X 0.015	= 51.69 Ham

The complete area of watershed is taken into consideration.

▲ Withdrawal in water shed.

1. Total DW/BW = 232

2. Total DW/BW with EM/OE = 205

3. Domestic DW/BW = 27

4. Draft by OE/EM @ 0.52Ham/year = 106.6 Ham

5. Draft of DW/BW for domestic purpose @ 0.1 Ham annually = 2.7 Ham

6. Hence total draft. = 109.3 Ham

7: Additional recharge by DW/BW through irrigation wells

Total water draft in water shed in Ham		Return water		Recharge
109.3	X	0.25	=	27.32 Ham

In additions to the recharge by all means in this water shed a rain water harvesting (roof water and surface) is tabulated in artificial recharge chapter. The recharge through this source comes to 83.89ham.

Hence Total recharge = $54.72 + 27.32 + 83.89 + 0.23 = 166.16\text{Ham}$

$$\begin{aligned} \text{Total recharge} - \text{Total draft} &= \text{Hence balance} \\ 166.16 - 109.3 &= 56.86 \text{ ham} \end{aligned}$$

(Ham --- Hector-meter). This watershed is having a balance of 54.65 ham.

Additional Recharge in the factory area:

There is no any major, medium or minor project in the area. Even Nala bandhara of any type is rarely seen. The required water for thermal generation is from Wardha River which is not in our study area.

In addition to above factor, there are two small tanks in this water shed. One is near plant area having nearly two acres and another MAMA Talav near village Majra having nearly 05 acres' area. Thus, totally a spread of water in season comes to 07 acres i.e., 2.8 Hect. Actual in monsoon season the water spread remains to be 1.95 Hect. And that is for nearly 85 days. Hence the recharge through these tanks will be.

$$\begin{aligned} \text{Recharge} &= \frac{1.44 \times \text{recuperating days}' \times \text{spread of water in Hect.}}{1000} \\ &= \frac{1.44 \times 85 \times 1.95}{1000} \\ &= 0.23 \text{ Ham.} \end{aligned}$$

In addition to the rain water harvesting & recharge structures in the factory premises, may develop the bandhara etc. in an around the watershed. Thus, this watershed after artificial recharge projects, as discussed in following pages, will have sufficient balance and thus turn into undeveloped watershed.

Water Shed No. WRS -I:

↗ Recharge by way of Rainfall Infiltration Method

Area Hectare	Rainfall mts	Rainfall Infiltration factor	Recharge Ham
518.28 X	1.048 X	0.08 =	43.45 Ham

The complete area of watershed is taken into consideration.

Recharge by way of Water Table Fluctuation Method

Area Hect	W.T fluctuation in mts	Sq. Yield	Recharge
518.28 X	3.36 X	0.015 =	26.12 Ham

↗ Withdrawal in water shed.

1. Total DW/BW = 127
2. Total DW/BW with EM/OE = 87
3. Domestic DW/BW = 40
4. Draft by OE/EM @ 0.52Ham/year = 45.24Ham
5. Draft of DW/BW for domestic purpose @ 0.1 Ham annually = 4.0 Ham
6. Hence total draft. = 49.24 ham
7. Additional recharge by DW/BW for irrigation

Total water recharge In water shed	Return flow factor	Recharge
49.24 X	0.25 =	12.31 Ham

$$\begin{aligned}
 \text{Hence Total recharge} &= 43.45 + 12.31 = 55.76 \text{ ham.} \\
 \text{Total recharge} &- \text{Total withdrawal} = \text{Hence balance} \\
 55.76 &- 49.24 = 6.52 \text{ Ham}
 \end{aligned}$$

This watershed is having nearly equal recharge and discharge. Only 8.51ham is the balance in water shed. Hence the different recharge schemes should be formulated and implemented for to increase the water balance in this water shed. (Ham=Hector-meter) this watershed will not have any effect on the water regime of the actual project area.

Water Shed No. WRS -II:

▲ Recharge by way of Rainfall Infiltration Method

Area Hect		Rainfall mts		Rainfall infiltration factor		Recharge ham
282.49	X	1.048	X	0.08	=	23.68 Ham

The complete area of watershed is taken into consideration.

Recharge by way of Water Table Fluctuation Method

Total area Hect		W.T Fluctuation in mts		Sq. Yield		Recharge
282.49	X	3.68	X	0.015	=	15.59 Ham

▲ Withdrawal in water shed.

1. Total DW/BW = 557
2. Domestic DW/BW = 557
3. Draft of DW/BW for domestic purpose @ 0.1 Ham annually = 57 ham
4. Hence total draft. = 57 hams

Hence Total recharge = 22.82

Total withdrawal - Total recharge = overdraft Ham

$$57 - 23.68 = 33.32 \text{ ham}$$

Hence this watershed is over drafted. This watershed is small; and is having one village only. Warora is big township having 557 wells/bore-wells in use.

Hence the withdrawal is huge rather than the recharge. Hence rainwater harvesting methods in this town must be taken up in large quantity. The recharge methods should be made compulsory. This watershed is having its drainage system flowing away from the plant area. Hence this watershed will not affect our plant area.

This watershed is having only one town i.e. Warora is developed at the higher ridges. Actually, the small Nallas originates from this town. Hence the recharge through surface water will not be possible. Only roof water harvesting will be the only solution for additional recharge. The municipality of Warora town must take the artificial recharge schemes compulsorily.

This figure 526.23 ham is the total addition water balance of water sheds no. WRL-1, WRL-2, and WRS-1. The water shed no. WRS-2 is over drafted which come to

33.32 hams. This over drafted draft is minuses from total balance of three water sheds. Thus, the total balance of water in the buffer area comes to 492.91 ham.

WATER BALANCES IN CORE ZONE— The core zone of the area is actually the plant area which comes to 174.06 Hect. The water recuperation through all means comes to 78.63 ham.

The yield from the bore well is calculated from the aquifer present in bore well. The aquifer is clay mixed with sandy portion. Hence the yield is poor.

DATA FROM BHATADIH WELL FIELD UNDP

The aquifer parameter data as recorded above will be used for drain-able aquifer into underground based on the best hydro geological consideration in the area.

AQUIFER PARAMETERS:

TABLE – 8 AQUIFERPARAMETER

Sr. No.	Aquifer parameter	Unit	Kamthi's as aquifer	Barakar's as aquifer	Basalt as aquifer
1	Transmissivity	M ² /day	105.5	0.80	0.13
2	Conductivity	---	3.52	0.82	0.01
3	Horizontal	m/day	0.04	0.02	--
4	Specific yield	---	3.20	0.08	--
5	Anastrophy	---	1 x 10 - 3	1.5 x 10 -5	3.6 x 10 -3
6	Conductivity vertical	---	11.26	0.066	--

Aquifer parameter is the most important tool in plant inflow estimation. There is no field constructed by MSMC in the study area. However, with the help of secondary data the aquifer parameters are considered. During UNDP study of Wardha Valley Coalfield two piezometer were constructed, and tested in the study area. The data of these two piezometers are in Kamthi's aquifer and in Barker aquifer, have been considered for the study area and given below in table. As well as the aquifer performance has already been conducted in basaltic terrain of which the parameter is mentioned below

GEOPHYSICAL SURVEY:

Totally seven geophysical probes were taken to know the aquifer thickness of the different formations. The probes are taken with the help of resistivity meter, using schlumbereger configurations. After field data on two cycles the apparent resistivity values were calculated & a graph was plotted on log paper. True resistivity values are to be calculated to know the thicknesses & nature of aquifers up-to certain depth.

TABLE NO-9 DETAILS OF GEOPHYSICAL SURVEY- 2023

Sr. no.	Village	Direction From block	Probable geological Formation	water shed no.	probe done in mts	True Resistivity values ohm/mts
(1)	Charur Khati	NNW	Weathered& Hard basalt	WRL-1	100	5-8-13
(2)	Naydev	NNW	Clay & S.Stone	WRL-2	100	4-6-7-10
(3)	Chinora	E	Basalt with clay	WRS-1	100	14-15-16
(4)	Wanoja	NW	Clay & W. basalt	WRS-1	100	3-7-13-29
(5)	Kondala	WNW	Hard Basalt	WRL-1	100	13-25-42
(6)	Majra (M)	SE	Sand stone	WRL-2	100	9-13-23-33
(7)	Dahegaon	NE	Hard Massive basalt	WRL-1	100	7-8-10-12



TABLE NO-10 DETAILS OF GEOPHYSICAL SURVEY - 2024

Sr. no.	Village	Direction From block	probable geological Formation	water shed no.	probe in mts	True Resistivity values ohm/mts
(1)	Kondala	WNW	Fractured & Hard basalt	WRL-1	100	8-12-22-28-105
(2)	Dahegaon	NE	Clays; Hard massive basalt	WRL-1	100	7-8-10-12
(3)	Nimsada	WE	Basalt with clay	WRL-2	100	16-20-42-32-85
(4)	Township	SE	S. Stone & Clays	WRL-2	100	7-16-22-19-36
(5)	Plant(A)	W	Clays; Sandy clay Lametas	WRL--2	100	14-14-19-11-49
(6)	Plant(A.P.)	W	Clays; Fractured Lametas	WRL-2	100	11-15-22-14-14
(7)	Plant(Z.A)	W	Fractured Lametas	WRL-2	100	7-20-18-16-92
(8)	Majra(M)	SE	Loose' Sandy soil & S. Stone	WRL-2	100	9-13-23-33
(9)	Wanoja	NW	Clays & W. basalt	WRS-1	100	3-7-13-29
(10)	Chinora	E	Fra. Basalt with clays	WRS-1	100	14-17-21-27- 42

GEOPHYSICAL DETAILS

(1) KONDALA

- 1 Type of Survey : Resistivity
- 2 Spread & its Direction : 100 mts (EAST-WEST)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 08	1.5	04	Soil, Clay
Second Layer - 12	06	10	Soil with clays
Third Layer - 22	10	20	Highly weathered rock
Fourth Layer -- 28	20	40	Weathered fractured, basalt formation
Fifty Layer -- 105	60	100	Hard basalt



(2) DHAHEGAON

1 Type of Survey : Resistivity

2 Spread & its Direction : 100 mts (EAST-WEST)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 07	1.5	04	Soil, Clay
Second Layer - 08	06	10	Sandy clays
Third Layer - 10	52	62	Collapsible, sandy clay
Fourth Layer -- 12	38	100	Collapsible, sandy clay
Fifty Layer -- --	---	--	-----



(3)NIMSADA

- 1 Type of Survey : Resistivity
- 2 Spread & its Direction : 100 mts (EAST-WEST)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 16	1.5	2.5	Soil
Second Layer - 20	9.5	12	Clays with weathered rock
Third Layer - 42	22	34	Little fractured basalt
Fourth Layer -- 32	38	72	Fractured basalt
Fifty Layer -- 85	28	100	Hard massive basalt



(4) TOWNSHIP

1.Type of Survey : Resistivity

2 Spread & its Direction : 100 mts (NE/SW)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 07	1.5	2.0	Soil
Second Layer - 16	09	12	Clays with weathered rock
Third Layer - 22	28	40	Little fractured S. Stone
Fourth Layer -- 19	28	68	Clays
Fifty Layer -- 36	32	100	Fractured basalt



(5) IN PLANT (ADMIN PARKING)

1.Type of Survey : Resistivity

2 Spread & its Direction : **100 mts (EAST-WEST)**

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 14	2.5	2.5	Soil
Second Layer - 14	1.5	04	Clays
Third Layer - 19	06	10	Sandy soil with clays
Fourth Layer -- 11	25	35	Sandy soil with clays
Fifty Layer -- 44	65	100	Highly Fractured basalt



(6) IN PLANT (ASA POND AREA)

1 Type of Survey : Resistivity

2 Spread & its Direction : 100 mts (EAST-WEST)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 11	1.5	1.5	Soil
Second Layer - 15	01	2.5	Clays with weathered rock
Third Layer - 22	2.5	05	Little fractured basalt
Fourth Layer -- 14	25	30	Hard fractured Lametas
Fifty Layer -- 14	70	100	Hard massive Lametas



(7) IN PLANT (LAST AREA)

1. Type of Survey : Resistivity

2 Spread & its Direction : 100 mts (NORTH-SOUTH)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 07	1.5	1.5	Soil
Second Layer - 20	03	4.5	Clays with weathered rock
Third Layer - 18	7.5	12	Little fractured rock
Fourth Layer -- 16	11	23	Hard fractured Lametas
Fifty Layer -- 92	77	100	Hard massive Lametas



(8) MOTHA MAJRA

- 1 Type of Survey : Resistivity
2 Spread & its Direction : 100 mts (SOUTH-NORTH)

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 09	1.5	03	Soil
Second Layer - 13	29	33	Clays with soil
Third Layer - 23	20	53	Highly fractured S. Stone
Fourth Layer - 33	47	100	Hard s. stone



(9) WANOJA

1 Type of Survey : Resistivity

2 Spread & its Direction : 100 mts

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 03	1.5	10	Soil
Second Layer - 07	10	20	Loose Soil
Third Layer - 13	10	30	Soil with clays
Fourth Layer -- 29	30	60	Highly fractured basalt
Fifty Layer -- 65	40	100	Little fractured basalt



(10) CHINORA

1 Type of Survey : Resistivity

2 Spread & its Direction : 100 mts

True Resistivity values in Ohms/Meters	Thickness in Meters		Geological Formation/Rock Type
	Individual	Total	
First Layer - 14	1.5	1.5	Soil
Second Layer - 17	1.0	2.5	Soil with clays
Third Layer - 21	15.5	18	Weathered Fractured may be loose basalt
Fourth Layer -- 27	32	50	Hard basalt little fractured
Fifty Layer -- 42	50	100	Highly fractured basalt



Hydrology of the study area i.e., a buffer zone including the core zone is controlled by the rivers, Nallas or streamlets, present in that area. Wardha River which is flowing along NW to SE is a perennial river. The drainage of the area is mostly simple. All the drainages in buffer zone flow towards south and southeast direction and ultimately drain in to Wardha River. The prominent Nala near to project area are Shirna & Lendi Nala flowing along east of the block towards south direction.

▲ With this nature of drainages, the buffer zone can be divided in to four mini segments or water sheds. The rainwater of a particular area flowing towards one direction, forming a Nala or river and is bounded by an imaginary line of division, called a water shed. (Fig.4).

▲ The buffer zone is divided accordingly in to four mini watersheds namely WRL-1, WRL-2, WRS-1 and WRS-2. The word WR stands for Wardha River while the word S is for Shirna and L is for Lendi Nala which ultimately meets with Wardha River. The Thermal Project falls in WRL-2 water shed.

▲ Hydro geologically, the area does not follow the different geological formations. The drainage of WRL-1 and WRL-2 flows from a fault between Gondwanas and Vindhyan. But drainages in WRS-1&2 are flowing across Mangli's, Mottur's; Kamthi's and even Basalt formations. It means that all these formations are deposited or interrupted after forming the basin type structures and hence are nearly at one level.

▲ It is also noticed that the drain water after rainfall does not have a prominent aquifer which may help to recharge. Hence the surface water will not affect the water regime of the study area.

Run Off

In the present study rainfall/runoff model has been developed for the Warora block based on model development under UNDP study. The model is for complete Warora block i.e., Warora belt including the study area. The relationship in the model between rainfall and the resulting runoff is quite complex and is influenced by host of factors relating to catchment and climatic environment.

The present model has been developed for two specific conditions:

- 1) Rainfall runoff in pre-monsoon conditions.
- 2) Rainfall runoff in post monsoon conditions.

TABLE-11 RAINFALL – RUNOFF

Condition	Rain fall (m)	Area $M^2 \times 10^6$	Runoff factor	Runoff generation $M^3 \times 10^6$
Pre monsoon	1.048	78.63	0.25	20.60
Post monsoon	1.048	78.63	0.23	18.95

The study area is having thick mantle of black cotton soil and the gradient of the area is very gentle, hence runoff in the area will not affect the water regime of block area.

This data is incorporated from MINE WATER INFLOW ESTIMATION prepared by Maharashtra State Mining Corporation Ltd. for Warora Coal Block.

HYDROLOGICAL STUDIES

The main source of water for Thermal Power Plant is MIDC which has Pump house at Wardha River. The detailed hydrological report of Wardha River at picks up point is already prepared and submitted by the MIDC authority.

The hydrological studies already submitted involves (i) The importance of studies (ii) Factors involved in studies (iii) Probability and statistics in Hydrological computation and (iv) Objectives of statistics in Hydrology.

Importance of the Studies:

Hydrological Studies play a vital role in the design and formulation of a Water Resources in around the Plant.

The ultimate outcomes expected from the hydrological studies are –

- Availability of the inflow both in quantum as well as in the periodicity.
- Maximum floods that may have to be faced with various Return periodicities.

The first outcome helps in identifying the availability of the River flow in various months which in turn helps in properly planning the plant operations.

The second one helps in safeguarding the structures / installations from over running by the flood waters, submergence and other related damages, by locating them at suitable elevations as well as making provisions for safe evacuation from the floods.

Thus, the Hydrological Studies involve: ---

Determination of the inflows in the River at a particular location both in terms of the maximum and minimum and the variations over the period of a year for various levels of dependability's in order to assess the viability of locating the plant proposed. The levels of dependability's that cater to the various needs such as Irrigation, Domestic Water Supply, Navigation, Hydro power generation and other usages such as replenishment supply for thermal power plants vary from 50% to 90%. The 75% dependability is enough to initiate an irrigation plant whereas the highest of 90% dependability is the requirement indeed for investing in a hydro- electric plant. For this thermal power project also, a dependability of 90% is considered.

Working out the probable flood discharges in the river with their water levels for various return periods of their occurrence i.e., 50 years, 100 years, 200 years, 1000 years or the Plant Maximum Flood anytime in the life of the plant, depending upon the type of structure being designed such as weirs, barrages, storage behind the structure that has the potential to create the human and economic disasters in case of failure of the structure.

Probability and Statistics in Hydrological computation: ---

Most of the hydrological processes such as precipitation, run-off are rather random processes. Statistics and Probability are therefore essentially required to analyze and interpret the observed data of such processes.

Planning and designing of water resources projects needs information on different hydrological events that are not governed by the known physical and chemical laws, but are governed by laws of chance. For example, stream flow in any given river varies from day to day and from year to year. The fact is that no one can predict the discharge of Wardha at Ghughus or any given location on any particular day. Since the exact discharge cannot be predicted, the hydrologist has to be content with the probability with which a certain discharge value, say x cum sec, is likely to exceed, so as to determine the risk involved in designing the structure for that discharge. This can only be determined through the statistical and probabilistic analysis of past observed hydrological data. Statistics deals with the computation of sampled data, while Probability deals with the measure of chance or likely hood based on the sampled data.

The fact is that many hydrological phenomena are highly erratic, complex and random in nature and hence they can be interpreted only in a probabilistic sense. One of the important problems in hydrology deals with interpreting a past record of hydrologic events in terms of future probabilities of occurrence. This problem arises in the estimates of frequencies of floods, droughts, storages, rainfall etc. The procedure involved is known as frequency analysis.

Data required for hydrological analyses can be classified into two kinds: experimental data and historical data. The experimental data are measured through experiments and usually can be obtained repeatedly by experiments. On the other hand, historical data are collected from natural phenomena that can be observed only once and then will not occur again. Most hydrological data are historical data that were observed from natural hydrological phenomena, e.g., stream flow data of a river.

Thus, statistical analysis involves two basic sets of problems; one descriptive and the other inferential. The former is a straightforward application of statistical methods requiring few decisions and representing little risk. The latter, on the other hand, entails decisions bearing some risks and requires an understanding of the methods employed and the dangers involved in predicting and estimating.

Objectives of Statistics in Hydrology:

The objectives of statistics in hydrology may be listed as follows:

1. Interpretation of observations;
2. Search for hydrological probabilistic regularities;
3. Extraction of maximum information from hydrological data; and
4. Presentation of hydrological information in condensed form as graphs, tables of numbers and mathematical equations, basically for decision-making in water resources planning.

Thus, the basic objective of applying statistics in hydrology is to derive information from the past observed hydrologic phenomena and then to make inferences about what is expected in the future.

DETAILS OF WASTEWATER TREATMENT

Waste water will be generated from cooling towers in the Power plant & domestic waste water from plant.

Total waste water generation from the plant will be 259 M³/Hr. Out of the total waste water, 75 M³/Hr. will be used in ash handling and disposal system, 16 M³/Hr. in plantation activities, 24M³/Hr. in dust suppression, 45 M³/Hr. in cooling system and remaining 126 M³/Hr. will be routed to guard pond, out of which, 100M³/Hr. will be recycled into process. The domestic/sanitary waste water from plant will be treated in STP and utilized in greenbelt development. The sludge generated in the raw water treatment plant will be used as manure in the greenbelt development.

Waste water generated from the plant is treated in Effluent Treatment Plant (ETP) to neutralize and reduce the suspended solids, oil & grease and prescribed effluent parameters to limits prescribed by CPCB& MPCB. The guard pond has been provided with proper lining to prevent seepage and avoid contamination of ground water.

An effluent management scheme implemented to optimize various water systems so as to reduce intake water requirement as well as effluent discharge. The scheme involve collection, treatment and re circulation/disposal of various effluents.

RAIN WATER HARVESTING:

THE PRINCIPLE OF RAIN WATER HARVESTING:

Rain water falling on the ground and absorbed by the earth consisting of the loose soil (permeable) and weathered rocks beneath the earth's surface, just as sponge, stores water is called aquifer. All this can happen only if the rain water is allowed to touch the loose earth called aquifer. Similarly, deficit of ground water, in that aquifer has to be studied; otherwise, potential in the rich ground water potential recharging will cause flooding and water logging of shallow overburden.

In the last three decades an exponential growth in number of ground water structures has been observed. This has led to enormous withdrawal of groundwater for various uses of agricultural, industrial and other domestic needs. This resource has become an important source of drinking water and food security for teeming millions of the state.

RECHARGING UNDERGROUND AQUIFER:

When the impervious layer is at shallow depth i.e., 38.00 mts to 50.00 mts, the top aquifer is subsurface aquifer which normally gets recharged during the rainy season without any effort. Hence water in the open well (dug well) is not generally ground water in true sense.

Water in the bore well or tube well generally 65.00 mts deep is actually the ground water which contains minerals in it, which is of utmost importance from ecological point of view.

Due to urbanization, population growth, industrial growth & irrigation millions of bore wells/tube wells are drilled & ground water is continuously being pumped out, leaving thereby a permanent decline in underground water potential. Therefore, rain water harvesting in real sense is that branch of engineering which studies and finds the suitable solutions in the vicinity of targeted area, for recharging to carry roof top rain water up-to ground water.

TECHNIQUES OF RAIN WATER HARVESTING:

There are two main techniques of rain water harvesting.

- A Storage of rainwater on surface for future use.
- B Recharge to ground water.

The storage of rain water on surface is a traditional techniques and structures used were underground tanks, ponds, check dams, weirs etc. Recharge to ground water is a new concept of rain water harvesting and the structures generally used are: -

Pits: - Recharge pits are constructed for recharging the shallow aquifer. These are constructed 1 to 2 m, wide and to 3 m. deep which are back filled with boulders, gravels, coarse sand, which forms a filter screen

Trenches: - These are constructed when the permeable strata are available at shallow depth. Trench may be 0.5 to 1 m. wide, 1 to 1.5m deep and 10 to 20 m long depending upon availability of water. These are back filled with filter materials.

Dug wells: - Existing dug wells may be utilized as recharge structure and water should pass through filter media before putting into dug well.

Recharge wells/bore: -Recharge wells of 100 to 300 mm diameter are generally constructed for recharging the deeper aquifers and water is passed through filter media to avoid choking of recharge wells.

Recharge Shafts: - For recharging the shallow aquifer which is located below clayey surface, recharge shafts of 0.5 to 3 m. diameter and 10 to 15 m. deep are constructed and back filled with boulders, gravels & coarse sand.

Lateral shafts with bore wells: - For recharging the upper as well as deeper aquifers lateral shafts of 1.5 to 2 m wide & 10 to 30 m long depending upon availability of water with one or two bore wells is constructed. The lateral shaft is back filled with boulders, gravels & coarse sand.

Spreading techniques: - When permeable strata start from top then this technique is used. Spread the water in streams/Nallas by making check dams, Nala bund's, cement plugs, gabion structures or a percolation pond may be constructed.

DIVERSION OF RUN-OFF INTO EXISTING SURFACE WATER BODIES:

Construction activity in and around the city is resulting in the drying up of water bodies and reclamation of these tanks for conversion into plots for houses. Free flow of storm runoff into these tanks and water bodies must be ensured. The storm runoff may be diverted into the nearest tanks or depressions, which will create additional recharge.

Urbanization effects on Groundwater Hydrology:

- ↓ Increase in water demand
 - ↓ More dependence on ground water use.
 - ↓ Over exploitation of ground water
 - ↓ Increase in run-off, decline in well yields and fall in water levels
 - ↓ Reduction in open soil surface area
 - ↓ Reduction in infiltration and deterioration in water quality
- Some Methods of artificial recharge in urban areas are:
- ↓ Water spreading.
 - ↓ Recharge through pits, trenches, wells, shafts.
 - ↓ Rooftop collection of rainwater.
 - ↓ Induced recharge from surface water bodies.

Computation of artificial recharge from Roof top rainwater collection:

- Factors taken for computation:
- ↓ Roof top area in sq.mt. for individual house and for multi-storied building.
 - ↓ Average annual monsoon rainfall – as per data in mm.
 - ↓ Effective annual rainfall contributing to recharge 90% of Average annual rainfall.

Benefits of Artificial Recharge in Urban Areas:

- ↓ Improvement in infiltration and reduction in run-off.
- ↓ Improvement in groundwater levels and yields.
- ↓ Reduces strain on Special Village Panchayats/ Municipal / Municipal Corporation water supply.
- ↓ Improvement in groundwater quality.
- ↓ Methods and techniques for ground water recharge.

Roof Top Rain Water / run off harvesting can be conducted through:

- ↓ Recharge Pit
- ↓ Recharge Trench
- ↓ Tube-well/Bore wells
- ↓ Recharge Well

Rain Water Harvesting through:

- ↓ Contour Bund
- ↓ Percolation tank
- ↓ Check Dam/ Cement Plug/ Nala Bund
- ↓ Recharge shaft
- ↓ Dug well Recharge

Rainwater harvesting from the factory area will have to be consider for recharge factor. They are roof-water harvesting and surface water harvesting.

1 ROOF WATER HARVESTING

The ground water system is maintained and replenished to its maximum extent during the rainy season. Rain water harvesting has assumed significance as it artificially augments the recharging to the depleted aquifers and facilitates them to restore over period of time. The surplus runoff generated during monsoon is to be conserved and recharge to augment ground water resources.

Out of the various techniques of rain water harvesting, Roof top rain water harvesting through direct injection into tube well has although good intake capacity, yet it is found to be the most suitable under the prevailing hydro geological condition. The other surface water recharging schemes are not technically feasible inside the building area. The selection of suitable location of recharging two tube wells no.01 and 02 has been considered to achieve desired results. Roof top rain water harvesting is the direct collection of rain water from roof top which is to be channelized through

gutters and then transport the water from the roof, through down pipes, to the existing two tube well. In addition, there will be a first flush system to divert the dirty water which contains roof debris collected on the roof during non-rainy periods and a filter unit to remove debris and contaminants before water enters the tube well. The roof water is directly connected to ground water systems; precautionary measures need to be taken to ensure that recharging water is free of contaminant before get diverted for recharging into the subsurface. The various components to be used for installation of Roof top rain water harvesting system are as described below;

Gutters: Gutters are channels fixed to the edges of roof all around to collect and transport the rainwater from the roof. They can be in semi-circular or rectangular in shapes.

Downpipe: Down pipe is the pipe, which carries the rainwater from the gutters to the tub well. Down pipe is joined with the gutters at one end, and the other end is connected to the filter unit. Each PVC pipes of 100 mm to 150 mm (4 inch to 6 inch) diameter as down-pipe is to be used for every 50sq.m. Of roof area.

First Flush Pipe: A first flush system is incorporated to dispose of the water from 'first rain' so that debris, dirt and dust collected on the roofs during non-rainy periods is washed out through first flush rain water pipe. After the first rain is washed out through first flush pipe, the valve is closed to allow the water to enter the down pipe and reach the filter unit.

Filter Unit: The filter unit is a container or chamber filled with filter media such as coarse sand, gravels, and pebbles separated by fine mesh wire to remove the debris and dirt from water that enters the tank. The container is provided with an outlet pipe to allow the passage of water into bore well. The filter unit is placed between the down pipes and bore well. The horizontal slope of inlet and out let pipe at the filter is 1:1.

Roof water recharge is the direct method to recharge the aquifer. Actually 90%of rainfall could be recharged from roof.

There are 9 structures from which rainwater can be collected and reused. They are:

Sr. No.	Name	Area
1	Security building	218.05 sq. mts
2	Coal sourcing building	236.50 sq. mts
3	Admin. building	1122.50 sq. mts
4	Fire station	503.96 sq. mts
5	Tech. building	544.81 sq. mts
6	F.O.P.H. building	664.50 sq. mts
7	C.H.P. control building	638.00 sq. mts
8	B.T.G.	15056.2 sq. mts
	Total	18984.52 sq. mts

The first 9 installations may be clubbed and should be drained by suitable pipes in to the storage facility so that roof water of these installations will be used. The roof water may be filtered properly with the help of filtration media before using.

2 SURFACEWATER HARVESTING

The surface water recharge tabulated with roof water as per the area mentioned below. The surface water recharges through a big pit were the run off goes from the plant premises.

The surface water is being drained through piped drainage systematically; ultimately it goes to a natural drain or Nala. But this surface water should be checked by constructing bandharas across the Nala bed. It should be constructed with the guidance of irrigation engineer. There is no possibility of actual recuperation due to clay formation. Hence the flowing Nala which have a bandhara like structure should be deepened into its bed and widened to a considerable length so that there may be a lateral spreading. This structure should be widened up to its maximum width. This may help to increase the average static water levels of the watershed in which the project area falls. These bandharas will also increase the storage of Nala basin, thus increasing the irrigation to the surrounding area and thus will save the crops in draught period. Three locations of such bandharas are marked on the enclosed plate no-3.

The drain water which will flow into the existing surface body and which will have a Bandhara will increase the static water levels of that watershed where the project is standing. Hence this watershed will be treated as developed. This plant area falls under the water shed no. WRL -2.

The artificial recharge is tabulated as below:

A ESTIMATION OF ANNUAL RUNOFF POTENTIAL						
Sl. No.	Land Use / Type of Area	Area (Sq. meters)	Average Annual Rainfall (millimeter)	Average Annual Rainfall (meter)	Runoff Coefficient	Total Annual Runoff Potential Created (cu. m /year)
1	Roof Top Area	20630.37	1048	1.048	0.85	18377.53
2	Paved Area	1019705.63	1048	1.048	0.65	694623.47
3	Open Area	Nil	1048	1.048	Nil	Nil
4	Green Belt Area	700304	1048	1.048	0.10	73391.85
Total		1740640				786392.85
B ESTIMATION OF PEAK RAINFALL RUNOFF						
S. No.	Land Use / Type of Area	Area (Sq. meters)	Runoff Coefficient	Intensity of Rainfall (m/hr.)	Runoff for hourly peak intensity (cu. m/hour)	Runoff for 15 minutes peak intensity (cu. m)
1	Roof Top Area	20630.37	0.85	0.035	613.75	153.43
2	Paved Area	1019705.63	0.65	0.035	23198.30	5799.57
3	Open Area	Nil	Nil	Nil	NIL	Nil
4	Green Belt Area	700304	0.10	0.035	2451.06	612.76
Total		1740640			26263.11	6565.76

Thus 78.63 Ham is the artificial recharge directly through rain water in the plant premises.

Chapter 5: Finding and Recommendation

- i. Out of four watersheds two watersheds were underdeveloped. Only WRL -I have water balance and the watershed WRL -II will have a water balance after the recharge schemes are developed as mentioned earlier.
- ii. WRL -II watershed is developed, where the plant is standing, as the roof water and surface water harvesting plant as mentioned are already undertaken by the plant.
- iii. The remaining two watersheds (WRS-I & II) in general are not affecting the water regime of the plant area as the complete drainage systems of these watersheds runs away from our project watershed. These watersheds should be developed as a social obligation so that there will not be a problem on water regime. Hence there will not be an adverse impact on the water regime of the plant area.
- iv.

WELL, INVENTORY DATA (2024)

WRL-1

Sr. no.	Name of Village	Total no. of wells & b/w	No. of wells OE & EM	SWL		Fluct.
				winter	summer	
(1)	Charur Kh.	64	51	7.62	11.01	3.39
(2)	Dahegaon	40	35	7.62	10.00	2.38
(3)	Kondala	46	44	4.57	8.01	3.44
(4)	Dongargaon	60	55	7.62	12.00	4.38
		210	185	6.86	10.25	3.39

WRL-2

Sr. No.	Name of village	No. of Wells & b/w	Total no. of well with o/e & e/m	SWL		Fluct.
				Winter	Summer	
1	Naydev	34	30	9.14	11.46	2.32
2	Mohabala	29	24	4.57	8.84	4.27
3	Nimsada	55	48	1.21	9.46	8.25
4	Majra (M)	62	58	3.65	10.84	7.19
5	Majra (C)	52	45	4.57	8.92	4.35
		232	205	4.62	9.90	5.28

WRS-1

Sr. No.	Name of village	No. of Wells & b/w	Total no. of well with o/e & e/m	SWL		Fluct.
				winter	Summer	
1	Wanoja	30	22	9.14	11.30	2.16
2	Anandwan	29	18	6.09	9.75	3.66
3	Khanji	29	20	8.84	12.80	3.96
4	Chinora	39	27	6.09	9.75	3.66
		127	87	7.54	10.90	3.36

WRS-2

Sr. No.	name of village	No. of Wells & b/w	Total no. of well with o/e & e/m	SWL		Fluct.
				Winter	Summer	
1	Warora	557	546	9.82	13.5	3.68
		557	546	9.82	13.5	3.68

PART OF TOPOSHEET NO 55 P/3, 55P/4, 55I/15 & 55I/16

LOCATION MAP

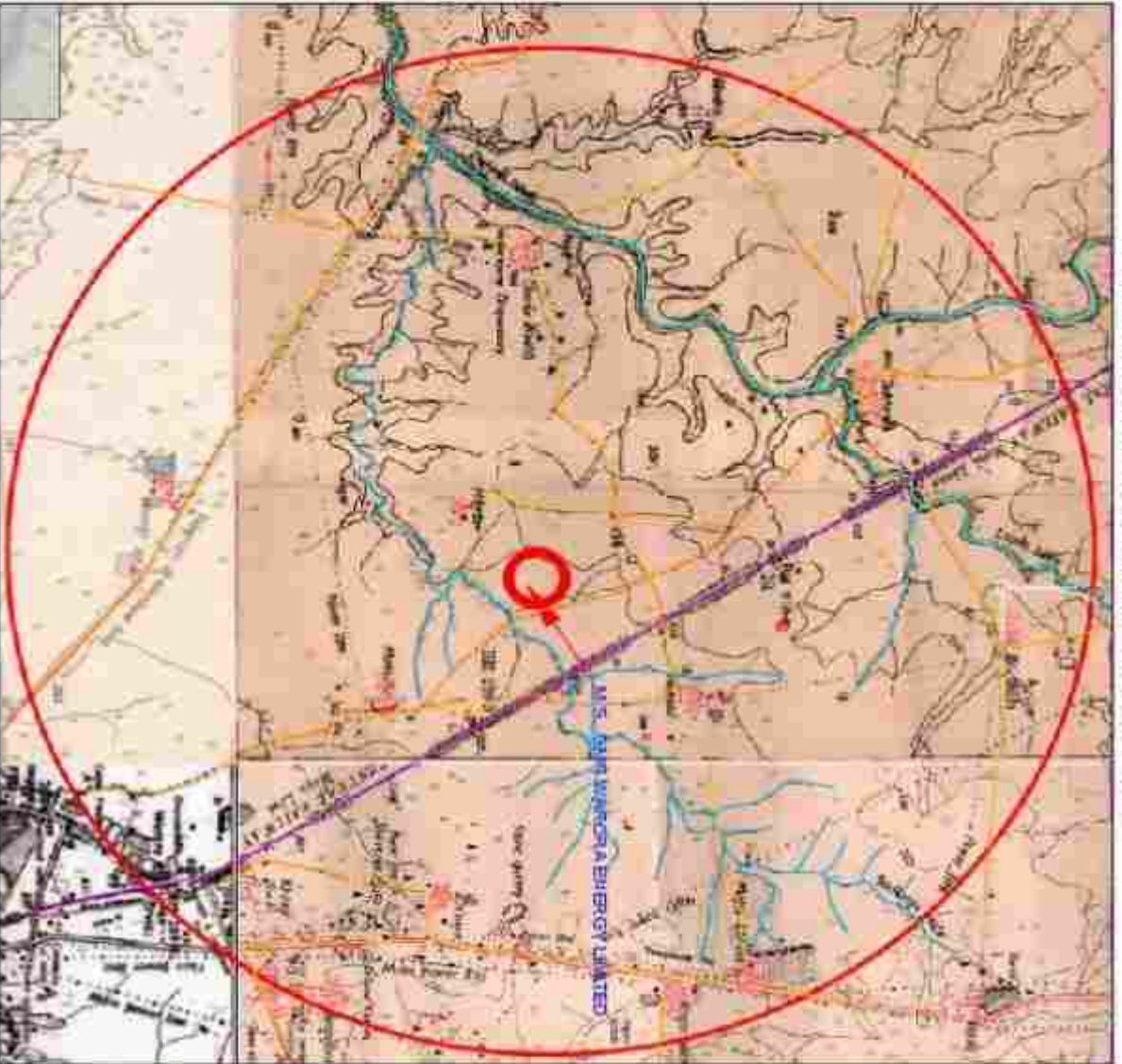
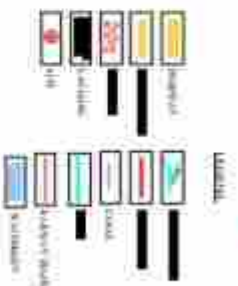


FIG NO. 1

SCALE
NOT TO



LOCATION MAP OF PLANT AREA
FOR M/S, GMR WARORA ENERGY LIMITED
AT MACHABAL, TAHSI WARORA DISTRICT CHANDRAPUR,
MAHARASHTRA STATE

PART OF GOOGLE MAP

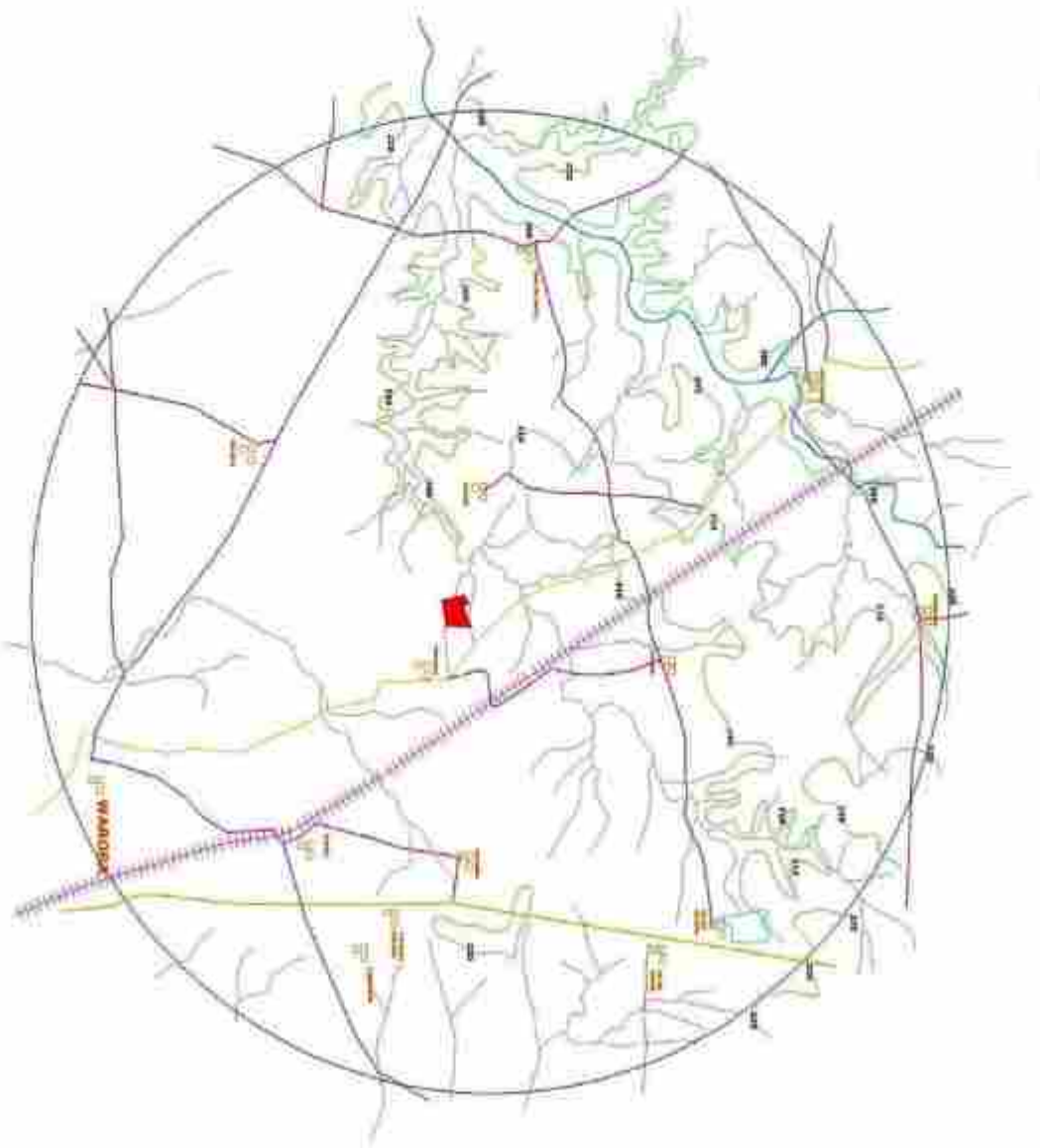


REVISIONS

Sl. No.	Revised Particulars	Date
1	As per requirement of the client	10/02/2023
2	As per requirement of the client	10/02/2023
3	As per requirement of the client	10/02/2023
4	As per requirement of the client	10/02/2023
5	As per requirement of the client	10/02/2023
6	As per requirement of the client	10/02/2023

PREPARED BY
S. S. MOHARIL
RCP/IN/P/07589A

Fig. 1. TOPOGRAPHICAL MAP OF STUDY AREA
 HYDROGEOLOGICAL STUDIES FOR M/S. ENDO ENERGY LIMITED,
 AT MOKHILMA, TANGSE, WAGORA & DISTRICT, CHANDRABAHU,
 MANIKGADITHA STATE.



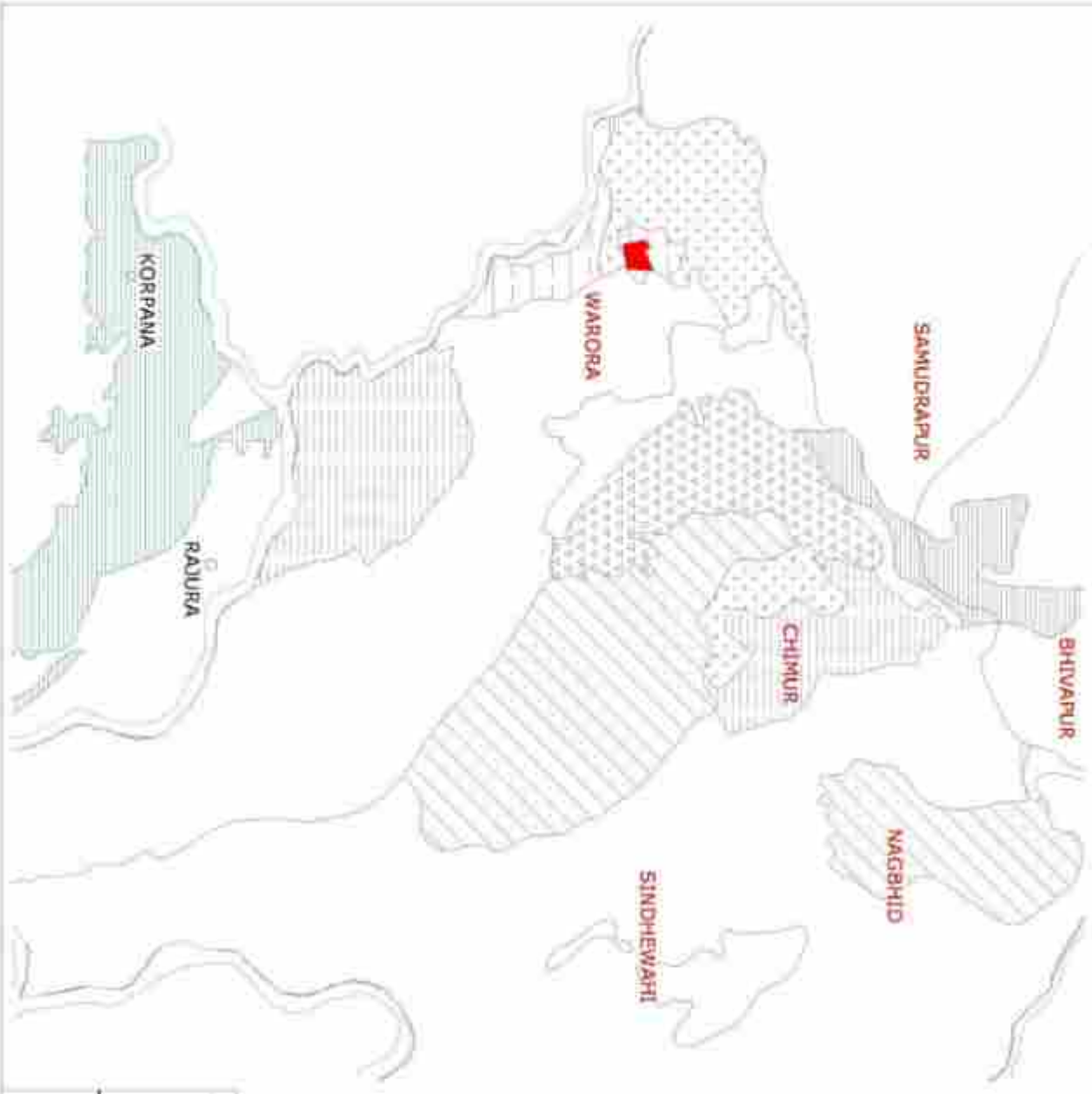
 N	FIG NO.1
LEGEND	
SITE AREA 	
BUFFER ZONE 	
CONTOUR 	
WATER BOILER 	
VILLAGES 	
HIGHWAYS 	
OTHER ROADS 	
RAILWAY 	
CANAL 	


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Fig. 1 GEOLOGICAL MAP OF STUDY AREA
 HYDROGEOLOGICAL STUDIES FOR SRS, INOCO ENERGY LIMITED
 AT SINDHAWALI, TAMBHI, WARORA & DISTRICT- CHANDRAPUR
 MAHARASHTRA STATE



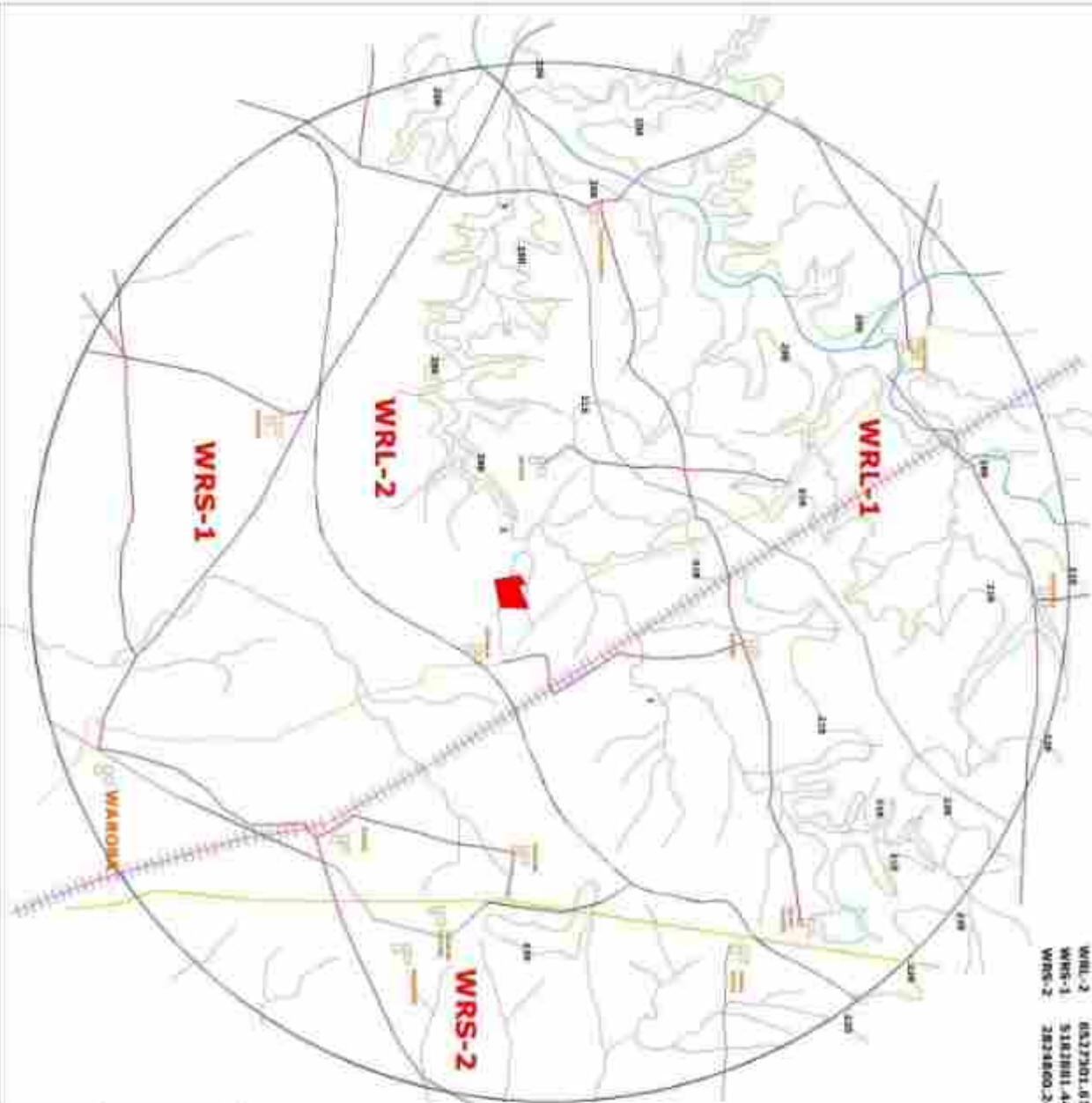
 INDEX	FIG NO.2
SITE AREA--	
	DECCAN TRAP WITH INTRATRAPEANS
	LAMETA BEDS
	UPPER GONDWANAS
	LOWER GONDWANAS
	VINHDYAN
	GRANITE GNEISES

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Fig:- DRAINAGE PATTERN WITH WATER SHIELD OF STUDY AREA
 HYDROLOGICAL STUDIES FOR SRM FACO ENERGY LIMITED
 AT MOHARIL, N. TAJISEL, WARORA & DISTRICT-CHANNARAJUR
 MADHARASHTRA STATE



WATER SHIELD AREA DETAILS:-

WRL-1	6400385.208 SQ.MT.
WRL-2	6527301.610 SQ.MT.
WRS-1	5182881.448 SQ.MT.
WRS-2	2823800.243 SQ.MT.

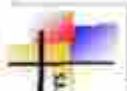


PWD NO.3

INDEX

- SITE AREA
- BUFFERED ZONE
- CONTOUR
- WATER BODIES
- VILLAGES
- HIGH WAY
- OTHER ROADS
- RAILWAY
- FIELD
- WATER SHIELD DRAINAGE LINE
- PROPOSED LINE

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PLANT MAIN GATE



ENTRY ROAD IN PLANT



PLANT MAIN ENTRANCE & EXIT ROAD TO PLANT MAIN GATE



DUGWELLS



BOREWELLS



HAND PUMP



LAKE



GEOPHYSICAL SURVEY 2024



RIVER (DAHEGAON)

NALA (DAHEGAON)



R.O. WATER PLANT

ANNEXURE -I

RAINFALL FOR THE PAST 30 YEAR (1994-2023) WARORA STATION

YEAR	ANNUAL RAINFALL (MM)
1994	1130.0
1995	1100.0
1996	1100.5
1997	1110.5
1998	1140.0
1999	1160.0
2000	1120.0
2001	1160.0
2002	1135.0
2003	1210.0
2004	1140.0
2005	1130.0
2006	1140.0
2007	1195.0
2008	1090.0
2009	1095.0
2010	1060.0
2011	1040.0
2012	1070.0
2013	910.0
2014	1045.0
2015	1060.0
2016	1040.2
2017	1030.0
2018	1010.0
2019	992.0
2020	1010.0
2021	1030.0
2022	1010.0
2023	1010.0

TOTAL AVERAGE — 1048.77

Six Monthly CSR Progress Report

October 2023 to March 2024



Corporate Social Responsibility
GMR Varalakshmi Foundation
and
GMR Warora Energy Ltd., Warora

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HIGHLIGHTS OF GWEL-CSR ACTIVITIES (OCT. 2023- MARCH 2024)

Education

- Smart Classes using Android TVs, Digital Interactive Board and Computers conducted in 10 ZP Schools benefitted 2360 students.
- Conducted After School Learning Centers (ASLCs), E-Centers and Navodaya classes covering 722 students.
- Coding classes conducted with 54 Students of Class VII & IX from two villages.
- Learning Navigator Tool (GOORU) implemented with 354 students.
- Capacitated 30 volunteers & ZP schoolteachers on computer based teaching.
- School Bus services benefitted 108 students of Class VIII – X.
- Pratibha Library benefitted 70 youth. Fifteen students selected in Govt. Jobs this year.

Health, Hygiene and Sanitation

- Health Clinic in 10 villages provided free treatment and medicines to over 21,100 people.
- Mobile Medicare Unit (MMU) provided free treatment to over 24,600 old aged people.
- Nutrition center benefitted 69 pregnant and lactating mothers from six villages.
- 17 RO Water Plants are functioning well & providing potable drinking water to nearly 4500 HHs.
- Fogging operation continued in 8 villages to keep villagers safe from vector borne diseases.
- 319 health awareness programs organized in villages that benefitted over 5,100 people.
- 34 Special Health camp conducted across 18 village that benefitted over 3400 people.

Empowerment & Livelihoods

- Total 156 students successfully completed the vocational training in self-employment courses.
- 1337 people supported for livelihood activities out of this 875 people are earning additional average Rs. 7,000/- annually.
- 350 farmers initiated wheat cultivation using innovative approach of System of Wheat Intensification(SWI)
- 87 women grown vegetable and earned more than Rs. 21 lakhs just in three months.
- 259 people donated blood during the year from two blood donation camps at GWEL.
- 710 employees participated in 101 community development programs and contributed 1372 voluntary hours.

Other:

- GWEL receive ISO 26000; 2010 certification for Corporate Social Responsibility.
- Symbiosis International (Deemed) University Nagpur conducted Impact Evaluation of CSR activities of GWEL.

DETAILS OF CSR ACTIVITIES

BACKGROUND OF THE PROJECT

GMR Warora Energy Limited (GWEL), formerly known as EMCO Energy Limited is a subsidiary of GMR Energy Limited (GEL). GWEL has established a 600 MW Thermal Power Plant at Warora in Chandrapur district of Maharashtra. The GWEL Power Plant has two units each of 300 MWs. Unit 1 of the project was commissioned in March 2013 and Unit 2 was commissioned in September 2013. The project is ideally located in terms of the connectivity by rail, road and air. It is also close to critical infrastructure such as housing, education, and medical facilities.

GMR Varalakshmi Foundation (GMRVF), which is the Corporate Social Responsibility (CSR) arm of the GMR Group, was tasked by GWEL to fulfil the corporate social commitments. GMRVF launched Education, Health, Hygiene and Sanitation, Empowerment and Livelihoods and Community Development programs to enhance the quality of life of people dwelling in and around GWEL Plant. The GMRVF team in Warora constitutes of five staff members headed by a Senior Program Leader.

As per the Companies Act requirement, a CSR committee is in place at GWEL and CSR Policy of the Company has been formulated and adopted. CSR Committee meetings were held during the reporting period and the Committee approved the annual CSR plan of GWEL as per mandatory CSR funds for this financial year. The following CSR activities undertaken as per CSR Policy are illustrated below:

GWEL CSR-PROGRAM COVERAGE AREA

GWEL initiated its CSR activities since April 2010. The CSR operation extended to 10 villages around the power plant covering an approximate population of 16,000. These villages are Naidev, Nimsada, Dahegaon, Dongargaon, Chinora, Marda, Charur Khati, Majra Khurd, Wanoja and Majra Rai. Apart from this, GWEL also covers more than 22 villages that fall under the transmission line reaching out to more than 27,000 people through Mobile Medicare Units (MMU).



DETAILED OF PROGRAM ACTIVITIES

EDUCATION

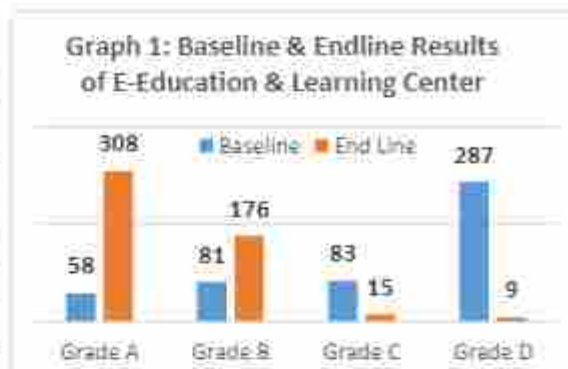
Digital Education is the focus of GMRVF and GWEL CSR activities in Warora. To enhance the quality of education below interventions undertaken during the year:

A. Support to Govt. Schools

A.1 Digital Education and Smart Classes at Villages: GMRVF and GWEL is conducting various digital education activities in villages in order to improve education quality in project affected villages. To promote quality education, various educational materials provided to Zilla Parishad (ZP) Schools such as digital TLM, computers, infrastructure development and furniture etc. Apart from this, GMRVF has conducted two health camps in each School to track the health status of students and developed school ambience by conducting white washing, providing necessary support to maintain gardening, sanitation facility for students. The E-Module of NEXT Education is installed in 4 ZP schools. NEXT Education is an E-Learning Service Provider specialized in designing e-modules on various topics of

school curriculum prescribed by state board. GWEL CSR also provided Android TV at ten schools, this is enabling to conduct computer-based classes at ZP schools. Total 2360 students covered from these Initiatives.

A.2 Computer Education at ZP School: GMRVF is operating eight computer education classes at 8 ZP school and providing computer education to students from STD I -VII. These classes are benefitting 509 students. The results of these classes show 308 students received A Grade marks, 176 students received B Grade marks and only 24 students achieve C & D Grade marks. The comparison of results of students in 23-24 with baseline to end line is presented in Graph 1.



A.3 Learning Navigator Classes – GOORU APP: GMRVF has enrolled 354 students of STD I–VII from 6 villages in learning Navigator program through Gooru App of Gooru India Foundation (GIF). All students enrolled in the system and boarded for different classrooms. 97% students are achieving 100% results in weekly test conducted through offline test.

A.4 Skill Education for Students – Coding Classes: GMRVF initiated coding classes with 54 students of STD VIII and IX to promote future skills in the schools. These classes organized with the technical support from Igebra.AI, Hyderabad. Students learned Level 0 and Level 1 coding program and shown confidence that in future they can make future career in new skills.

B. Pre-school Education

B.1 Infrastructure Support to Anganwadi: GMRVF is working with 18 Govt. Anganwadies to promote quality education and prepare 372 children for primary schools. GMRVF supported infrastructure and Teaching, learning Material (TLM) in Anganwadi centers to increase attendance and learning level of children. All Anganwadies are using TLM and regular classes are being conducted.

B.2 Capacity Building of Anganwadi Workers: GMRVF with the support from ICDS Department and Samriddhi Ladies Club (SLC) is conducting series of training to enhance capacity of Anganwadi workers in different aspects of service delivery. The effort of Foundation is to make each Anganwadi as Model and ISO Anganwadi in all its working villages. 36 Anganwadi workers were trained during the year.

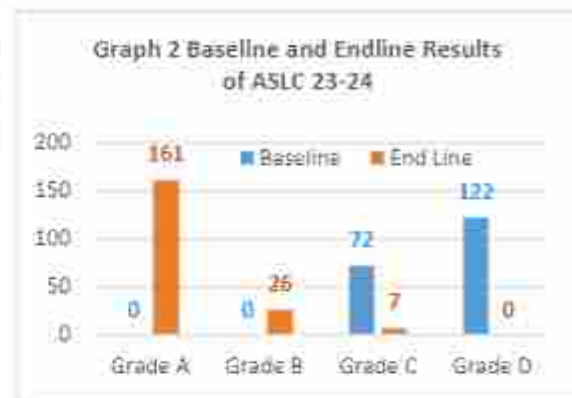
C. Direct support to Students:

C.1 After School Learning Center (ASLC): GMRVF is operating six ASLCs in six villages to enhance education quality among slow learner students of STD I-VII. Total 194 slow learner students identified from six villages this year and provided tuition using Joyful teaching Learning methods. The fortnightly test conducted in each ASLC to gauge the learning level of students. Total sixteen tests conducted during the year. The result of baseline and all fortnightly test evaluated in terms of grades and



presented in Graph 2. The Grade A assigned for highest and Grade D assigned for lowest performance. The first and last test result shows:

- The very first test at the time of start of session shows 0 students in Grade A & B and 72 students in Grade C and 122 students in Grade D marks.
- The last fortnightly test shows that 161 students scored A Grade; 26 students received B Grade and 7 students achieved C Grade result.



C.2 Navodaya Coaching Classes: GMRVF is running three Navodaya coaching in three villages with selected 20 students in 23-24 session while in 24-25 session 38 students selected from three villages and provided coaching for preparation of Navodaya Entrance Test. Special coaching arranged by GWEL employee under their social responsibility and each student track for their progress through weekly test. The last test results shows:

- Out of 27 students 85% students achieved A Grade and rest 15% students achieved B Grade marks. No students in Navodaya scored C&D marks.

C.3 Summer Classes: GMRVF conducted Summer Camp during the summer vacation in villages to engage students in education. 234 students from STD I – VII enrolled and learned various activities such as Yoga, Drawings, Origami and various fun activities, English speaking etc. Apart from this, special classes on MS Office organized for 233 students of Std VI to X.

C.4 Capacity Building of Vidya Volunteers: 24 fortnightly trainings with the education volunteers including ASLCs, E-Center and Navodaya was organized fortnightly during the year. Volunteers were oriented on conducting fortnightly assessments of student's learning. Total 16 Vidya volunteers attended the fortnightly trainings regularly and conducted online & offline classes as per plans.

D. Awareness programs and Day Celebrations:

D.1 Celebration of Important Days: To imbibe the value and significance of important days such as International Yoga Day, Children Day, Republic Day, Entrance Day were celebrated in schools and Anganwadi centers of 10 villages.

- Around 2300 children & villagers benefitted from the programs.

D.2 Adolescent Awareness Program: An adolescent awareness program conducted in villages during the year. Various topics covered in awareness sessions which was useful in development of girls folk in various stages of life. More than 400 girls benefitted from the program.



D.3 Health Camp in ZP Schools: Health camp organized at eight ZP Schools twice during the academic session this year. Qualified doctor visited the school and examined the students and provided free medicine as well as recommended for further treatment for malnourished students. 509 students benefitted from the camps.

D.4 Celebration of National Energy Conservation Program: Two awareness sessions conducted offline at two ZP Schools on Electrical Safety, conservation of energy, importance of saving energy. Total 190 students participated and learned the energy conservation tips.

D.5 Celebration of Road Safety Week: Road Safety awareness program conducted at Pratibha Library Yensa and Majra Rai at high school covering road and various safety related topics. Total 295 students participated in the program and learned the causes and effects of safety.

D.6 Safety Awareness Program: Two safety awareness program conducted by EHS department of GWEL at Pratibha Center and Vocational Training Center (VTC), Warora. The topics such as safety while using electrical appliances, fire safety and road safety issues were discussed during the occasion. Total 94 students participated in the program and benefitted.

E. Any other location specific initiatives

E.1 Pratibha Library: The Pratibha library established in Lokmanya Vidyalaya, Warora town with an objective of providing career-counselling services to aspirants for employment opportunities or higher education. The library provides a repository of books and offers services like conducting special classes for different subjects, group discussions on current topics, monthly test, mock interview and counselling sessions. More than 700 youths are registered in the library.

- This year more than 70 youths attended online and offline classes.
 - 15 aspirants successful this year in competitive exam of CRPF, CISF, Mumbai Police and other Govt Jobs.
 - 55 students completed online courses (Communication Skills and Fundamental Digital Marketing) under various online platforms.

E.2 Transportation Facility for Students: GMRVF is providing school bus service for students of STD. VIII to X from Dongargaon and Dahegaon villages. School bus facility is enabling students of these villages to continue education after class 7th as there is no education facility in village after class 7th.

- This year, total 108 students availed the facility and attended schools regularly.

E.3 Special Motivation Classes for 10th Students: Special motivational class conducted for 67 students of class-10th in online mode. It was conducted by an expert with an objective to remove the fear of exams and also provided various tips and guidance to students on how to prepare for exams and how to attempt question papers so as to achieve maximum score in board exam.

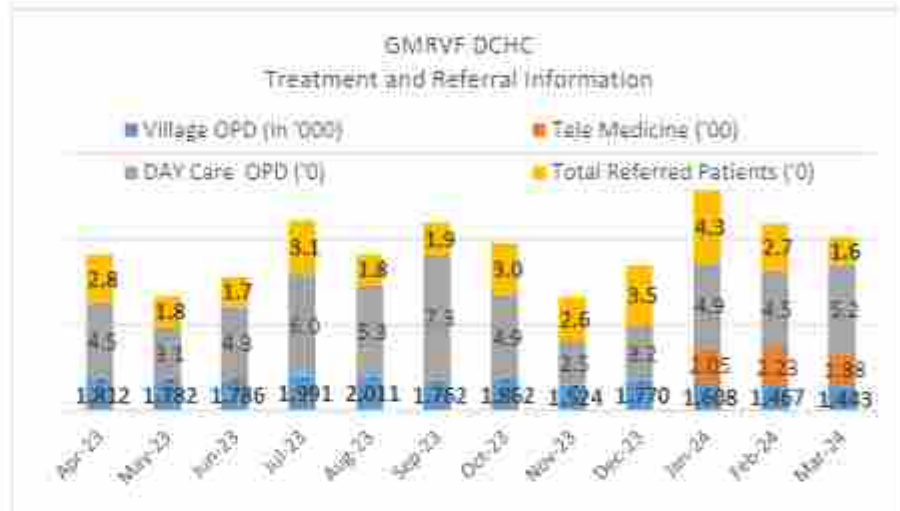


HEALTH HYGIENE SANITATION

A. Protective Health Care

A.1 Health Clinics: GMRVF is running ten Primary Health Clinics in ten project affected villages with the technical support from Acharya Vinoba Bhave Rural Hospital and providing basic health check-up and free medicines. Qualified doctors visited the clinics twice in a week and conducted clinic operation.

- This year, 21,143 people received free treatment and free medicines from 10 villages.



- Telemedicine Started at Marda village from Jan 24 and treated 616 patients by the end of financial year.
- Two village OPD stopped in villages (Majra Rai and Majra Khurd) and running at GMRVF Day Care Health Center from 25 August 2023 and treated 465 Patients including other patients.
- Referred 308 patients to higher hospital for critical ailments.
- Total 233 patients recovered from critical ailments.

A.2 GMR Varalakshmi Foundation Day Care Health Center: GWEL and GMRVF has collaborated with Acharya Vinoba Bhave Rural Hospital (AVBRH) to provide quality health services in all CSR villages and also to community living at other nearby villages. A Day Care Health Center has been established in Greenwood Township and providing 24X7 medical services.

- Total 558 OPD conducted this year at the Day Care Health Center.

A.3 Mobile Medicare Unit (MMU): The MMU at Warora is offering treatment facility and counselling services to the elders above 50 years of age in 22 surrounding villages of GWEL. MMU serve each village once in a week and treat free of cost to old aged and providing services at their door step. MMU is equipped with all basic healthcare and a team of Doctor, Nurse, Pharmacist and Supervisor who take care of patients.

- Total 24,668 Regular, Chronic and Seasonal old aged patients aged 50 and above received treatment and free medicine during this year.



A.4 Nutrition Centers: Realizing the importance of proper nutrition during pregnancy and lactating stage for the health of both mother and child, Nutrition Centers running in 6 villages. Nutritious food like chikki, dates, banana, and apple etc. are provided to 69 enrolled Pregnant and Lactating Mothers (PLM) and providing services such as health check-ups, weight measurements, building awareness on health related issues etc.

- Total 61 delivery taken place in 6 villages. It includes last year's & current year enrolled PLM.
- 100% delivery reported institutional delivery.
- Average baby weight at the time of birth reported to 2.8 kg with 95% normal delivery.

B. Preventive Health Care

B.1 Fogging Operation: To control mosquitoes and other vector borne diseases, fogging operation initiated in 8 villages. The fogging is conducting once in a week in each village. This activity has brought down the cases of vector borne diseases and no dengue and malaria patients reported during the year.

B.2 Providing Potable Drinking Water: GMRVF and GWEL installed 17 Water ATM in 17 villages in Warora Tehsil. These villages are Yensa, Dongargaon, Dahegaon, Chikini, Charur Khatl, Chinora, Majra Rai, Majra Khurd, Mohbala, Marda, Nimsada, Naidev, Wanoja and Bawane Layout, Wandhli, Kondala and Ekona villages. These Water ATM installed in past 5 years and providing clean and fluoride free water to more than 12,000 people (nearly 3000 households).

B.3 Individual and Community Toilets: Open defecation in villages of Warora is one of the major causes of community health hazards. To combat this, GWEL CSR initiated Individual Sanitary Lavatories (ISL) construction in the year 2015 in selected households. Later in line with Nirmal Bharat Abhiyan of GOI, GWEL & GMRVF has sponsored the construction of ISL in 14 villages.

- GWEL CSR has supported construction of 764 ISL in 14 villages as of 2023.
- GWEL CSR further support construction of 110 ISL in five villages this year 2023-24.
- The created ISL has been handed over to community in all villages. All toilets are functioning well and no damage reported during the year. It is also noticed that toilets are maintained by individual beneficiary.
- The community toilet provided its services throughout the year at Dongargaon, which is being used by 55 users daily.
- These efforts have helped to convert 8 villages as open defecation free (ODF).

B.4 Special Health Camp: 34 special health camp organized during the year in 18 villages with the support from Acharya Vinoba Bhave Rural Hospital, Wardha and Rashtra Sant Tukdoji Maharaj Cancer Hospital, Nagpur. The camps were planned to provide proper diagnosis and advises to all critical patients for bones, eyes, and other surgery, oral and cervical cancer. Total 3044 people visited the camps from villages and received free medicines and 184 advised for further treatments.



C. Health Awareness Session

C.1 General Awareness: 114 health awareness sessions conducted in 10 villages during this year to create community awareness on various health issues at clinic centers and other places in villages with the help of volunteers. Around, 2,710 villagers benefitted.

C.2 Nutrition Center Awareness Program: 205 awareness programs conducted on Gudiya Model, PDH hearth Sessions and Best Practice (Indian Traditional Knowledge- ITK) assessment sessions, Annaprashan and Healthy Baby Competition conducted with pregnant and lactating mothers and other women in the villages that talks about taking step by step proper homemade nutrition and care for pregnant women at nutrition centers. Total 2,460 women benefitted from these awareness sessions.

C.3 Support to TB Patients: Employees of GMR Warora Energy Ltd. (GWEL) with their family members have supported nutrition kits to seven TB Patients under National TB Eradication Program this year. GMRVF has supported seven patients two times through Government Hospital Warora.

EMPOWERMENT & LIVELIHOODS

GMRVF and GWEL focus on to channelize youth and women towards entrepreneurship and livelihood development, so that they may participate equitably in economic. Major interventions under empowerment & livelihood undertaken in reporting period are:

A. Vocational Training

A.1 Vocational Training Centre (VTC), Warora: GMRVF Center for Empowerment and Livelihoods, Warora (CEL-W), Warora, continued two self-employment courses at Warora this year. These are Smartphone Hardware Repairing Technician (SPHRT) and Assistant Beauty Therapist (ABT). Total 156 students successfully completed the course and 98 students have been settled in self-employment work or joined small shops this year. The training details are given below.

Table 1 : Vocational Training details of VTC Warora.

Name of the course	No. of batches	No. Trained		No. Settled	
		M	F	M	F
Smart Phone & Hardware Repairing Technicians	4	42	0	24	0
Assistant Beauty Therapist	4	0	115	0	74

VTC Warora celebrated important days during the year such as world youth skill day, Ambedkar Jayanti, Independence and Republic Day, Teachers days, Women Day etc. Apart from this, free service camp, exposure trip to industries, Heartfulness Education Learning Program (HELP) organized in the center to provide full orientation of subjects to youths. This all helps to start their business immediately after completion of course. Apart from this, GWEL CSR has sponsored 11 youths from Warora for job oriented vocational courses at GMRVF CEL Delhi.



B. In village skill training program

B.1 Training on System of Wheat Intensification (SWI), Mushroom and Vermicomposting: To promote new agricultural technologies in villages GWEL CSR has organized 5 days training in 10 batches on System of Wheat Intensification (SWI) for 10 village farmers and reached to more than 500 farmers. Apart from this, training conducted on Mushroom Cultivation, Vegetable cultivation and Vermicomposting with more than 300 women to increase the crop production and livelihood.

C. Self Help Groups

C.1 SHG Meetings and SHG MIS: To empower women and make them self-reliance GMRVF is intensively working with 91 Women SHGs (1136 women) and 7 Men SHGs (98 men) in 8 villages. The cumulative saving of all SHGs are more than Rs. 1.2 Cr. All 98 SHGs are linked with banks and maintaining records and involved in inter-lending activities within and outside group. Women of SHG have used their saving money for running income generation activities and also used for meeting their house hold requirement specially during crises.

C.2 SHG Trainings on Micro Enterprise Development: GMRVF has organized several round of formal and informal training with more than 1000 women from more than 75 SHGs cross eight villages during the year on enterprise development. Trainings covered topics on vermicomposting, mushroom cultivation, poultry farming, System of Wheat Intensification, Floriculture, Vegetable Cultivation, Collective Marketing and how does an enterprise work. These training are motivating women to initiate various activities in the villages.

C.3 Celebration of International Women Day: This year women day was celebrated in 6 villages and VTC under the theme of "Invest in Women : Accelerating Progress" aiming to close the gender gaps and promote women and girls empowerment. More than 500 girls and women from the 6 events from villages and VTC attended the program.

D. Support to micro-enterprises and other livelihood activities

D.1 Promotion of Small Income Generation Activities through SHGs: This year GMRVF has initiated promoting micro enterprises activities considering the crop losses due to flood. A reconnaissance survey conducted and based on the findings livelihood restoration plan was implemented with 1337 women and farmers. The details of Income Generation Activities (IGA) undertaken this year are attached as Annexure 1.

- There are total 1337 people actively engaged in IGA activities.
- 875 out of 1337 people are earning an additional income of Rs 7000/- per year.



E.1 Farmers Training: To improve farmer's income GWEL CSR has organized 30 trainings on SWI cultivation, vegetable cultivation and floriculture cultivation practices to farmers of 6 villages. Over 350 farmers attended the trainings and adopted improved agricultural practices.

E.2 Grain-Cash-Seed Bank: This year three GCS banks from Dongargaon, Charur Khati and Dahegaon have contributed 7.75 Lakhs and reached to 250 farmers under soybeans and cotton seeds farmers. GCS Bank used their own recourses and covered 250 acres land from their initiative.

E.3 Vegetable Cultivation & Collective Marketing: To promote livelihoods through farm based activity vegetable cultivation with SHG women initiated across six villages. GWEL CSR has distributed seeds in June 23 to 148 SHG women to enhance livelihood but the action failed due to heavy rains and flooding. GWEL CSR has again organized the women group and provided vegetable seeds in second round to 85 women from 24 SHGs to tap winter season crop. All women have grown vegetable successfully and earned more than 21 lakhs altogether from the sale of vegetables just in three months of period starting from January to March 24. However, 33 women from four villages formed producer groups to start selling vegetables collectively. All beneficiaries of this group has done collective marketing and earned more than Rs. 10.20 lakhs just in three months.

E.4 System of Wheat Intensification (SWI): GMRVF with the partnership of NABARD implemented a project on "Enhancing Income of Small and Marginal Farmers by Adopting System of Wheat Intensification (SWI) method and Internet of Things (IOT) in Agriculture in Warora, Chandrapur (MH)". The project has selected 350 small and marginal farmers from 10 villages and implemented SWI method of wheat cultivation. The crop performance study shows the yield of SWI Wheat from 10-14 quintal per acre. It is estimated that each beneficiary farmer has earned average Rs 16,891/- additional income from the crop cultivation under this project.

E.5 IOT In Agriculture: Under the GMRVF and NABARD project, IOT in agriculture has been introduced with 50 farmers during this year. SMARTH Mobile motor controller system is installed in the villages in farmers' field, which linked with android mobile, is enabling farmers to operate their pumping units remotely. The system is reducing drudgery of farmer, time and money. To enhance partnership and ownership of system each farmers has contributed Rs.1067/- as their contribution. The system is liked by all farmers and demand to install more unit is expressed by farmers during the discussion.

E.6 Precision Farming: GMRVF is introducing precision farming in agriculture to reduce agricultural input cost, increase production and profitability. GMRVF and Labhan Sarad FPO Khambada has agreed to conduct spraying using Drone Technology and extend services to farmers at very lowest prices compare to prevailing rates of spraying. The Drone technology will revolutionize the agriculture in Warora and help farmers to reduce 15-30% spraying cost and improve quality of produce.



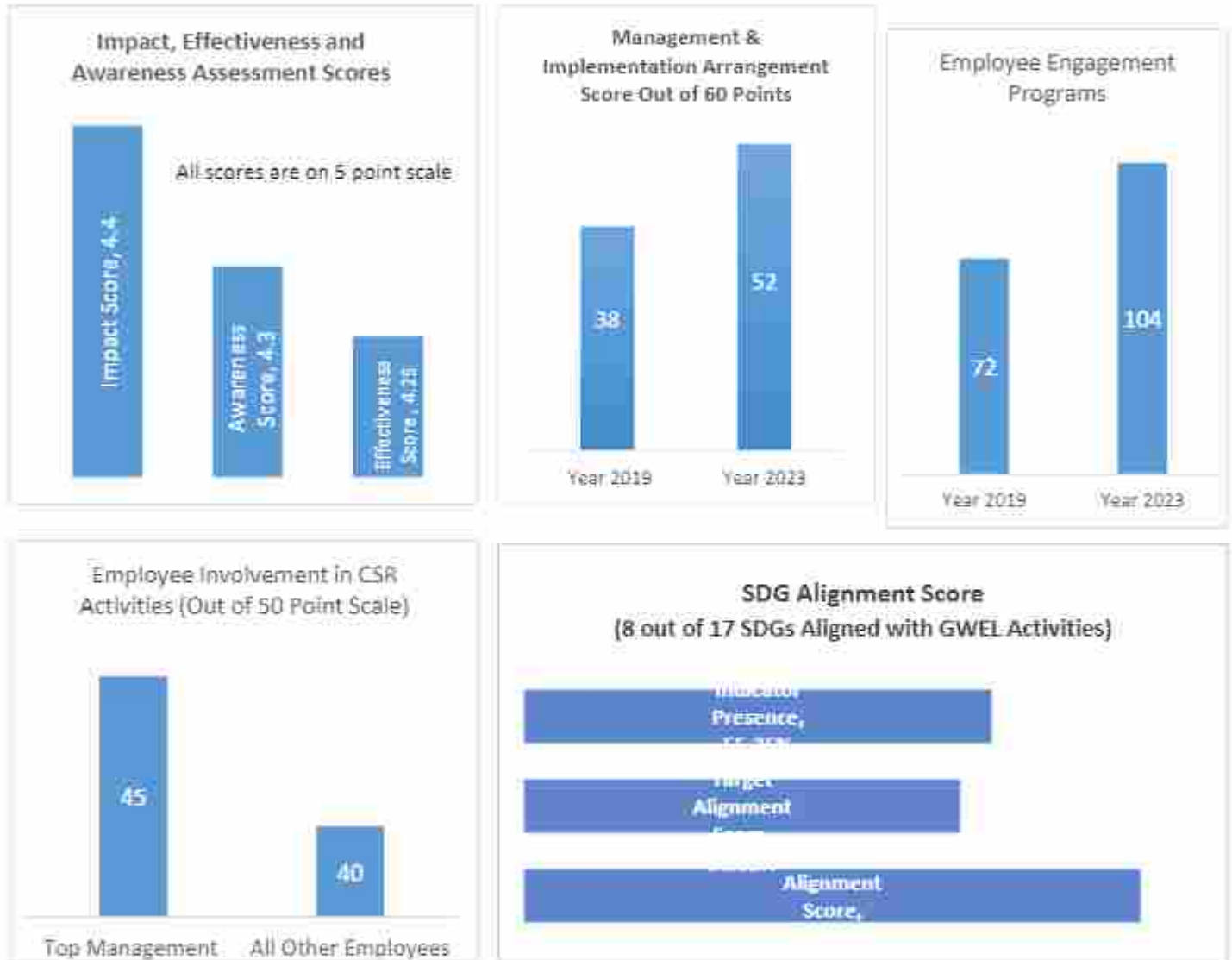
COMMUNITY DEVELOPMENT

- A. Village Resource Centers:** GWEL CSR is running four Village Resources Center (VRC) at Chinora, Majra Rai, Charur Khati and Dongargaon village. These centers are providing need base information like Education, Health, Empowerment, Agriculture and Govt. Scheme to community. These centers have provided information on Education, Health and Empowerment related schemes to more than 6900 people during the year.
- B. Blood Donation Camp:** This year, GWEL CSR has organizes two-blood donation program in plant where all employee participates to donate the blood. The camps were organized on 14th July 2023 and 13 March 2024 this year and total 259 units of blood donated by GWEL employees.
- C. Infrastructure Work:** In order to create cleanliness and hygiene in villages, GWEL and GMRVF supported construction of various works in villages. Following activities undertaken during this year:
1. Construction of Cement Concrete Drain – 400 meters at Mohbala village.
 2. Over 800 fruit plants transplanted in Majra Khurd.
 3. 26000 eucalyptus plants leveraged and planted at farmer's barren land in different villages.
 4. 250 meter Fencing laid out at cemetery yard and Old Aged Home Majra Khurd & Borda.
 5. 280 m drain of Stone lining constructed for flood protection at Majra Khurd.
 6. Culvert and lid constructed at Charur Khati and Nimsada villages.
 7. Old Age Home Building repaired at Borda, Warora
 8. White washing and minor repalring work undertaken at ZP School Chinora, Majra Khurd, Majra Rai.
 9. Shed work at community building Charur Khati undertaken.
 10. Platform construction in Community place and Water ATM at Dongargaon, Dahegaon and Chikani respectively.
 11. 110 ISL constructed at Chinora, Majra Rai, Majra Khurd, Mohbala (Naidev) and Charur Khati villages.
 12. Construction of Bore well at Majra Khurd Cemetery constructed this year.



IMPACT EVALUATION OF CSR ACTIVITIES

A.1 Impact Assessment of GWEL CSR: Symbiosis International (Deemed) University, Nagpur has conducted impact assessment of CSR activities of GWEL during this year. The study covered 5 year period from 2019 to 2023 and covered 100% villages. The result of the study shows as below:



EMPLOYEE INVOLVEMENT

GWEL have developed village guardian model and each employees including their families and senior management participate in community development programs. This year 710 employees participated in 101 community development programs and contributed 1372 voluntary hours which benefitted more than 5,844 people.



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Celebration of Daan Utsav: This year Daan Utsav was celebrated from 2-8 Oct in villages. Total 7 events conducted, in which 143 employees and SLC members participated in the events and contributed Rs.50,364/- from their Gullak to support 503 marginalized and vulnerable people of Warora block. All GMRites including SLC members contributed more than 190 person hours and demonstrated individual social responsibility.

Social Voluntary Project (SVP): This year, 13 Social Voluntary Projects were implemented by 216 GWEL employees. These employees contributed more than 559 hours of their time to implement projects.

CHALLENGES

- Huge demand for hardware activities and panchayat pressure for the same.
- Collective marketing of vegetables is time bound and require long term planning to capture large wholesale market like Nagpur. Serious planning with all women to make one product cluster is challenging.
- Internet connectivity in villages were challenging in conducting online events.
- Availability of technical expert for RO Water ATM created challenge at the time of damaged.
- Availability of quality faculty is challenging in small place like Warora and hampering the quality of program.

LEARNINGS

- Collective marketing is successfully expanded in four villages and hence it can be used to upscale the business, which can supply products to bigger market.
- Village Resources Center (VRC) played a vital role in helping community to access the benefit of Govt. Schemes. The library converted in to VRC is Implemented successfully this year without much investment of resources.
- SWI is an Innovative approach for wheat production enhancement and it is expended successfully across villages and farmers.
- Approach of making at-least three activities as model activities in villages helped in improving program quality.
- Special health camp and regular referral and constant follow up of patient helping in enhancing quality services of health sector as well as building good relation with communities.
- Partnership with NABARD has established in the location, which is helping in enhancing visibility in Govt. System.
- Implementation of simple and low cost new technologies (IOT in Agriculture and precision farming) is accepted by farmers and indicating a more scope in future agriculture.

WAY FORWARD

- Focusing more on digital education in the village to gain better results in coming year.
- Increasing more NABARD projects in order to bring more impact in agriculture and allied activities.
- Scaling up collective marketing and accessing Nagpur market for vegetable.
- Initiate more education activities as per new education policy.
- Start new activities as per strategy document of GMRVF and initiate precision farming with FPO.
- Maintaining ISO 26000 standard will be in focus throughout the year as ISO authorities will conduct assessment next year.

Progress Report: OCT 2023 - March 2024
GMR Warora Energy Ltd, Warora



REQUIRED INFORMATION RELATED TO CSR AS PER THE COMPANIES ACT

S.no	Point as per the Act	Details related to the point
1	Details of the amount available for set off and amount required for set off for the financial year, if any	Rs. 170,03,931.54
2	Details of CSR amount spent against ongoing projects and other than ongoing projects for the financial year.	Rs 269,11,772.80
3	Details of CSR amount spent against ongoing projects during the last FY and FYs preceding the same. (A) Amount spent in Ongoing projects 20-21 - Rs. 125,93,861.00 (B) Amount spent in Ongoing projects 20-21 - Rs. 125,93,861.00 (C) Amount Spent in Ongoing projects 22-23 - Rs. 195,58,463.54 (D) Total in previous Three years in Ongoing projects - Rs. 460,54,430.54	Rs. 460,54,430.54
4	Details of amount transferred to unspent CSR account during preceding three years.	Rs. 112,87,823.00
5	Amount transferred to any fund specified in Schedule VII	NIL
6	Amount spent on Administrative Overheads and Impact Assessment, if applicable. (A) Total Admin Expenses 23-24 - Rs. 9,47,105.01 (B) Total Impact Assessment Fee - Rs.7,67,000.00 TOTAL Amount under this = Rs. 17,14,105.01	Rs. 17,14,105.01
7	Details of Unspent CSR amount: (A) Amount Transferred in Unspent Account in 20-21 - Rs. 112,87,823.00 (B) Amount Spent from Unspent Account in 21-22 - Rs. 33,41,778.00 (C) Amount Spent from Unspent Account in 22-23 - Rs. 76,80,858.00 (D) Amount Spent from Unspent Account in 23-24 - Rs. 2,65,187.00 (E) Total Spending from Unspent Account (B)+(C)+(D) = Rs. 112,87,823.00 (F) Balance Unspent Account (A)-(D) = Rs.0.00	Rs. 0.00
8	Amount carried forward and set-off (A) Amt. setoff in 21-22 and carried forward for 22-23 - Rs. 51,26,531.00 (B) Amt. setoff in 22-23 and carried forward for 23-24- Rs. 118,77,605.54 (C) Amt. setoff in 23-24 and carried forward for 24-25 - Rs.229,77,592.01 (D) Total Amt. available in 24-25 for set off (A)+(B)+(C) - Rs. 399,81,523.55	Rs. 399,81,523.55
9	Asset-wise details of capital asset so created or acquired through CSR spent in the financial year	NIL
10	Details of impact assessment of CSR projects; if any	YES
11	State and district of CSR project	Warora Tahsil of Chandrapur districts of Maharashtra State

STAKEHOLDERS FEEDBACK ON AFTER SCHOOL LEARNING CENTER (ASLC)

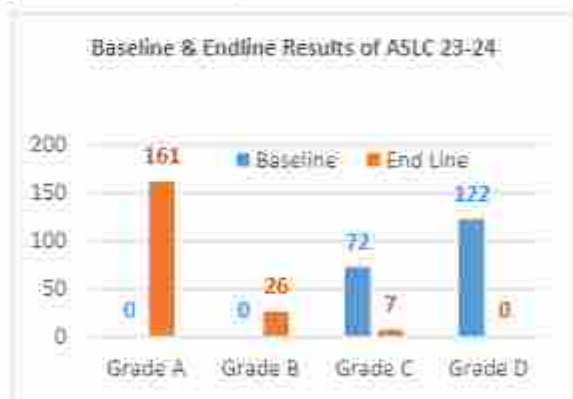
Brief about Targeted Activity: An after-school learning centre is a specialized educational facility designed to provide additional learning opportunities and support for students beyond their regular school hours. These centres offer a wide range of academic, extracurricular and enrichment activities to help students advance their education, develop important skills and explore their interests. The primary goal of an ASLC is to complement the traditional school curriculum by offering a more personalized and flexible learning environment.

Stakeholders: Students, Volunteer, Teacher, Education Department, Parents, Government Department, Panchayats (PRI), GWEL Employee, GMRVF staff.

Sample size & Survey Process: Total 30 students, 5 students from each.

What can be done better: Classes conducted regularly throughout the year. 100% children reported their ASLC Teacher is good and they liked him/her. 85% students said, they like Math's and English Subject. 86% of surveyed students' scores A++ and A or B Grade in past. Students under Grade C&D could have been brought under A&B category similarly teaching materials could have been develop which can meet the requirement of academic as well as provide interactive learning, and catering the diverse needs and interests of primary school children.

Overall Performance of ASLC: Children participating in the ASLC experience improved academic performance, reinforcing the foundational skills necessary for future success. The Initiative has opened up new opportunities for children, broadening their horizons beyond traditional classroom learning. The student's performance has improved significantly as the very first test at the time of start of session shows 0 students in Grade A & B and 72 students in Grade C and 122 students in Grade D marks. However, the last fortnightly test shows that 161 students scored A Grade; 26 students received B Grade and 7 students achieved C Grade result.



Views of other Stakeholders:

Volunteer: Subject matter volunteer deliver in-depth knowledge of the subject to the students and test their knowledge. The student's participation is very good.

Students: All the students are very happy about this center as they are getting lot of knowledge and achieving MLL in each subjects (Math, Marathi & English).

Parents: 98.2% of the parents understand the role of ASLC in improvement of academic performance of their children. 94.2% of the parents appreciated the changes brought due to ASLC and 93% of the parents appreciated that their children are no longer afraid to go to school. It is also expressed by many parents that their expenses have reduced significantly due to effort made by ASLC of GMRVF.

Progress Report: OCT 2023 - March 2024
GMR Warora Energy Ltd, Warora



Annexure 1: Details of Income Generation Activities in Warora.

#	Activities	Village	No of Beneficiaries	Total earning women/farmer	Av Annual Income
1	Mushroom Cultivation	Majra Khurd	10 women	10	750
2	Bengal Shop	Chinora	2 women	2	8500
3	General Stores & Stationary Shop	Chinora, Nimsada, Dahegaon, Majra Rai	11 women	11	8500
4	Utensil Shop	Chinora, Dahegaon, Majra Rai	15 women	15	9000
5	Saree Kits / Tailoring work	Nimsada, Naidev, Dahegaon, Dongargaon	11women	11	18000
6	Washing powder making	Chinora, Charur Khati	6 women	6	8400
7	Organic Insecticide	Nimsada, Charur Khati	2 farmers	2	70000
8	Poultry Farming	Marda, Naidev, Nimsada, Dahegaon, Majra Rai and Dongargaon	98 women	98	2187
9	Floriculture & Dal Mill	Charur Khati	2 farmers	2	20000
10	GCS Bank	Dahegaon, Dongargaon, Charur Khati, Nimsada	250farmers	250	14000
11	Vegetable Cultivation	Marda, Dongargaon, Dahegaon, Charur Khati, Nimsada, Naidev, Majra Rai, Majra Khurd	233women	85	15600
12	System of Wheat Intensification (SWI)	Chinora, Dongargaon, Dahegaon, Charur Khati, Nimsada, Naidev, Majra Rai, Chikeni, Kosarsar	350farmers	350	16891
13	Collective Marketing	Charur Khati	33 women	33	30890
14	Vermicomposting	Majra Khurd	60 women	0	
15	Eucalyptus Plants	All villages	254 Farmers	0	
Total Beneficiaries			1337	875	20496.8

Note: 875 women/ farmers are earning additional income of Rs. 7000/- annually from IGA.



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TEST REPORT



Report No.:	ME-0252231005	Date: 14.10.2023
ULR No.:	TC748723000015918F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	05.10.2023	Date of Receipt of Sample	05.10.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.10.2023	Date of Completion of Analysis	13.10.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.6	5.5-9.0	APHA 24 th Ed. 2023, 4500-H ⁻ B
2.	Total Dissolved Solids	mg/L	648	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	8.0	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	28	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:2)	10 Max.	IS 3025 (Part 39): 2021

END OF REPORT

- Note:**
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TEST REPORT



Report No.:	ME-0253231005	Date:	14.10.2023
ULR No.:	TC748723000015919F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	05.10.2023	Date of Receipt of Sample	05.10.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed, 2023, 1060-B		
Date of Start of Analysis	05.10.2023	Date of Completion of Analysis	13.10.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl-G
2.	Phosphate Total (as P)	mg/L	0.600	5.0 Max.	APHA 24 th Ed. 2023, 4500-P, E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.047	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0254231005	Date:	14.10.2023
ULR No.:	TC748723000015920F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	05.10.2023	Date of Receipt of Sample	05.10.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.10.2023	Date of Completion of Analysis	13.10.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>				
1.	Temperature	°C	29.0	Not to exceed 5°C higher than the intake water	APHA 24th Ed. 2023, 2550-B
2.	pH	-	7.8	6.5 to 8.5	APHA 24th Ed. 2023, 4500-H-1-B
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24th Ed. 2023, 4500-Cl-G

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TEST REPORT



Report No.:	ME-0255231005	Date:	14.10.2023
ULR No.:	TC748723000015921F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blowdown	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	05.10.2023	Date of Receipt of Sample	05.10.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.10.2023	Date of Completion of Analysis	13.10.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	BQL(LOQ:5)	100 Max.	APHA 24th Ed. 2023; 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	0.103	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0258231005	Date:	14.10.2023
ULR No.:	TC748723000015922F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	05.10.2023	Date of Receipt of Sample	05.10.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.10.2023	Date of Completion of Analysis	13.10.2023


Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>			
1.	pH	-	7.4	APHA 24th Ed. 2023, 4500-H-8
2.	Total Suspended Solids	mg/L	52	APHA 24th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ:2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0201231103	Date:	11.11.2023
ULR No.:	TC748723000017667F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	02.11.2023	Date of Receipt of Sample	03.11.2023
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	03.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>				
1.	pH	-	8.0	5.5-9.0	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Dissolved Solids	mg/L	557	2100 Max.	IS 3025 (Part 18): 2023
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	8.2	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	28	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:2)	10 Max.	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0202231103	Date:	11.11.2023
ULR No.:	TC748723000017668F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	02.11.2023	Date of Receipt of Sample	03.11.2023
Sampling Procedure	IS:3025(Part 1); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	03.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl- G
2.	Phosphate Total (as P)	mg/L	0.549	5.0 Max.	APHA 24 th Ed. 2023, 4500-P, E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	BQL (LOQ:0.02)	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.: ME-0203231103	Date: 11.11.2023
ULR No.: TC748723000017669F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	02.11.2023	Date of Receipt of Sample	03.11.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	03.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>				
1.	Temperature	°C	29	Not to exceed 5°C higher than the intake water	APHA 24 th Ed. 2023, 2550-B
2.	pH	-	7.7	6.5 to 8.5	APHA 24 th Ed. 2023, 4500-H ⁺ -B
3.	Free Available Chlorine	mg/L	BQL (LOQ 0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl-G

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TEST REPORT



Report No.:	ME-0204231103	Date:	11.11.2023
ULR No.:	TC748723000017670F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blowdown	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	02.11.2023	Date of Receipt of Sample	03.11.2023
Sampling Procedure	IS.3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	03.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	5	100 Max.	APHA 24th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	BQL(LOQ:0.03)	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0205231103	Date:	11.11.2023
ULR No.:	TC748723000017671F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	02.11.2023	Date of Receipt of Sample	03.11.2023
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	03.11.2023	Date of Completion of Analysis	11.11.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution &</u> <u>Environment (Waste Water)</u>			
1.	pH	-	7.7	APHA 24 th Ed. 2023, 4500-H-8
2.	Total Suspended Solids	mg/L	66	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ:2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0342231206	Date:	14.12.2023
ULR No.:	TC748723000019738F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	05.12.2023	Date of Receipt of Sample	06.12.2023
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	13.12.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	8.0	5.5-9.0	APHA 24 th Ed. 2023, 4500-H ⁻ B
2.	Total Dissolved Solids	mg/L	790	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	BQL (LOQ 5)	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	8.2	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	28	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ 2)	10 Max.	IS 3025 (Part 39): 2021

END OF REPORT

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Issue No 03
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Reviewed and authorised by

Harish Mendhi
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Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0343231206	Date:	14.12.2023
ULR No.:	TC748723000019739F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	05.12.2023	Date of Receipt of Sample	06.12.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	13.12.2023


Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing: Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl-G
2.	Phosphate Total (as P)	mg/L	0.560	5.0 Max.	APHA 24 th Ed. 2023, 4500-P, E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.024	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0344231206	Date:	14.12.2023
ULR No.:	TC748723000019740F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	05.12.2023	Date of Receipt of Sample	06.12.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	13.12.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Temperature	°C	26.0	Not to exceed 5°C higher than the intake water	APHA 24th Ed. 2023, 2550-B
2.	pH	-	7.5	6.5 to 8.5	APHA 24th Ed. 2023, 4500-H-B
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max	APHA 24th Ed. 2023, 4500-Cl G

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0345231206	Date:	14.12.2023
ULR No.:	TC748723000019741F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	05.12.2023	Date of Receipt of Sample	06.12.2023
Sampling Procedure	IS.3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	13.12.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	5	100 Max.	APHA 24th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	0.041	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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Phone: **0712-2612162/2612212** email: **nagpur@mahabal.com**

TEST REPORT



Report No.:	ME-0346231206	Date:	14.12.2023
ULR No.:	TC748723000019742F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	05.12.2023	Date of Receipt of Sample	06.12.2023
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	06.12.2023	Date of Completion of Analysis	13.12.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	7.4	APHA 24 th Ed. 2023, 4500-H ⁺ -B
2.	Total Suspended Solids	mg/L	58	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ-2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0291240105	Date:	13.01.2024
ULR No.:	TC748724000000263F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	05.01.2024	Date of Receipt of Sample	05.01.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.5	5.5-9.0	APHA 24 th Ed. 2023, 4500-H ⁺ -B
2.	Total Dissolved Solids	mg/L	835	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	5.9	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	20	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:2)	10 Max.	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0292240105	Date:	13.01.2024
ULR No.:	TC748724000000264F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	05.01.2024	Date of Receipt of Sample	05.01.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl- G
2.	Phosphate Total (as P)	mg/L	0.328	5.0 Max.	APHA 24 th Ed. 2023, 4500-P, E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.066	1.0 Max.	IS 3025 (Part 2) 2019

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0293240105	Date:	13.01.2024
ULR No.:	TC748724000000265F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	05.01.2024	Date of Receipt of Sample	05.1.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed: 2023, 1060-B		
Date of Start of Analysis	05.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Temperature	°C	27	Not to exceed 5°C higher than the intake water	APHA 24th Ed. 2023, 2550-B
2.	pH	-	7.5	6.5 to 8.5	APHA 24th Ed. 2023, 4500-H-8
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24th Ed. 2023, 4500-Cl G

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0294240105	Date:	13.01.2024
ULR No.:	TC748724000000266F		

Name and Address of Customer:	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type:	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location:	Boiler Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling:	05.01.2024	Date of Receipt of Sample:	05.01.2024
Sampling Procedure:	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis:	05.01.2024	Date of Completion of Analysis:	12.01.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	BQL(LOQ:5)	100 Max.	APHA 24th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	0.011	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	0.198	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0295240105	Date:	13.01.2024
ULR No.:	TC748724000000267F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	05.01.2024	Date of Receipt of Sample	05.01.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	05.01.2024	Date of Completion of Analysis	12.01.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	7.6	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Suspended Solids	mg/L	71	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ:2)	IS 3025 (Part 39): 2021

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0448240207	Date:	13.02.2024
ULR No.:	TC748724000002257F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.9	5.5-9.0	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Dissolved Solids	mg/L	705	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	6	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	6.0	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	24	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ-2)	10 Max.	IS 3025 (Part 39): 2021

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0449240207	Date:	13.02.2024
ULR No.:	TC748724000002258F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part 1); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024


Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl- G
2.	Phosphate Total (as P)	mg/L	0.785	5.0 Max.	APHA 24 th Ed. 2023, 4500-P. E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.074	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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Reviewed and
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Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0450240207	Date:	13.02.2024
ULR No.:	TC748724000002259F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Temperature	°C	29	Not to exceed 5°C higher than the intake water	APHA 24th Ed. 2023, 2550-B
2.	pH	-	7.6	6.5 to 8.5	APHA 24th Ed. 2023, 4500-H-B
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24th Ed. 2023, 4500-Cl G

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TEST REPORT



Report No :	ME-0451240207	Date: 13.02.2024
ULR No :	TC748724000002260F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	5	100 Max.	APHA 24 th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	BQL(LOQ:0.03)	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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TEST REPORT



Report No.:	ME-0452240207	Date:	13.02.2024
ULR No.:	TC748724000002261F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>			
1.	pH	-	7.3	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Suspended Solids	mg/L	189	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ:2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0591240309	Date:	16.03.2024
ULR No.:	TC748724000004251F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	08.03.2024	Date of Receipt of Sample	09.03.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	09.03.2024	Date of Completion of Analysis	15.03.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	8.0	5.5-9.0	APHA 24 th Ed. 2023, 4500-H-8
2.	Total Dissolved Solids	mg/L	628	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	5	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	8.8	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	28	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:2)	10 Max.	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0592240309	Date:	16.03.2024
ULR No.:	TC748724000004252F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	08.03.2024	Date of Receipt of Sample	09.03.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	09.03.2024	Date of Completion of Analysis	15.03.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl- G
2.	Phosphate Total (as P)	mg/L	1.02	5.0 Max.	APHA 24 th Ed. 2023, 4500-P, E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ:0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.024	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0593240309	Date:	16.03.2024
ULR No.:	TC748724000004253F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	08.03.2024	Date of Receipt of Sample	09.03.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	09.03.2024	Date of Completion of Analysis	15.03.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Temperature	°C	30.0	Not to exceed 5°C higher than the intake water	APHA 24 th Ed. 2023, 2550-B
2.	pH	-	8.3	6.5 to 8.5	APHA 24 th Ed. 2023, 4500-H ⁺ -B
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl G

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TEST REPORT



Report No.:	ME-0594240309	Date:	16.03.2024
ULR No.:	TC748724000004254F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	08.03.2024	Date of Receipt of Sample	09.03.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	09.03.2024	Date of Completion of Analysis	15.03.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	6	100 Max.	APHA 24 th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	0.144	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0595240309	Date:	16.03.2024
ULR No.:	TC748724000004255F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	08.03.2024	Date of Receipt of Sample	09.03.2024
Sampling Procedure	IS.3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	09.03.2024	Date of Completion of Analysis	15.03.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	8.0	APHA 24 th Ed. 2023, 4500-H ⁺ -B
2.	Total Suspended Solids	mg/L	33	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ-2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.:	ME-0608231010	Date:	16.10.2023
ULR No.:	TC748723000016249F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.: 4800169725 SO Date: 10.04.2023
Sample Description/Type	Ambient Noise	
Date of Sampling	09.10.2023	
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015	

Sr. No.	Location	Time in h (day)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response	Time in h (Night)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response
	<u>Discipline:</u> <u>Chemical Testing:</u> <u>Product Group:</u> <u>Atmospheric Pollution</u> <u>(Ambient Noise)</u>						
1.	Near CHP	10:05	66.4	-	22:10	64.2	-
2.	Near Switch Yard	10:35	63.3	-	22:40	61.5	-
3.	Near Reservoir	11:05	60.1	-	22:55	58.3	-

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))			
Area Code	Area Type	Limits in dB (A) weighted scale	
		Day Time (6:00 a.m. to 10:00 p.m.)	Night Time (10:00 p.m. to 6:00 a.m.)
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

END OF REPORT

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TEST REPORT



Report No.:	ME-1147231114	Date:	18.11.2023
ULR No.:	TC748723000018516F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.:	4800169725
		SO Date:	10.04.2023
Sample Description/Type	Ambient Noise		
Date of Sampling	13.11.2023		
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015.		

Sr. No.	Location	Time in h (day)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response	Time in h (Night)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response
	<u>Discipline:</u> <u>Chemical Testing;</u> <u>Product Group:</u> <u>Atmospheric Pollution</u> <u>(Ambient Noise)</u>						
1.	Near CHP	10:25	68.3	-	23:25	62.1	-
2.	Near Switch Yard	10:45	65.5	-	23:45	61.4	-
3.	Near Reservoir	10:50	62.2	-	23:50	58.5	-

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))

Area Code	Area Type	Limits in dB (A) weighted scale	
		Day Time (6:00 a.m. to 10:00 p.m.)	Night Time (10:00 p.m. to 6:00 a.m.)
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

END OF REPORT

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TEST REPORT



Report No.:	ME-1267231219	Date: 25.12.2023
ULR No.:	TC748723000020576F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.: 4800169725 SO Date: 10.04.2023
Sample Description/Type	Ambient Noise	
Date of Sampling	18.12.2023	
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015	

Sr. No.	Location	Time in h (day)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response	Time in h (Night)	Sound Level L_{eq} dB (A) Fast Response	Sound Level L_{eq} dB (A) Slow Response
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)						
1.	Near CHP	10:30	67.5	-	23:30	61.2	-
2.	Near Switch Yard	10:40	66.3	-	23:40	60.1	-
3.	Near Reservoir	10:55	65.2	-	23:55	59.4	-

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))

Area Code	Area Type	Limits in dB (A) weighted scale	
		Day Time (6:00 a.m. to 10:00 p.m.)	Night Time (10:00 p.m. to 6:00 a.m.)
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Zone	50	40

END OF REPORT

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18.07.2023

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Technical Manager
Chemical Testing





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TEST REPORT



Report No.:	ME-1031240116	Date:	20.01.2024
ULR No.:	TC748724000000942F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.:	4800169725	SO Date:	10.04.2023
Sample Description / Type	Ambient Noise				
Date of Sampling	15.01.2024 to 16.01.2024				
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015				

Sr. No.	Location	Time in h (day)	Sound Level L_{eq} dB (A)	Time in h (Night)	Sound Level L_{eq} dB (A)
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)				
1.	Near CHP	10:30	67.5	23:10	61.2
2.	Near Switch Yard	10:40	66.3	23:20	60.1
3.	Near Reservoir	10:50	65.2	23:30	59.4

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))					
Area Code	Area Type	Limits in dB (A) weighted scale			
		Day Time (6:00 a.m. to 10:00 p.m.)		Night Time (10:00 p.m. to 6:00 a.m.)	
A	Industrial Area	75		70	
B	Commercial Area	65		55	
C	Residential Area	55		45	
D	Silence Zone	50		40	

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0928240213	Date:	17.02.2024
ULR No.:	TC748724000002695F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Anandwan Warora	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	12.02.2024 to 13.02.2024	Date of Receipt of Sample	13.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.02.2024	Date of Completion of Analysis	16.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	8.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	14.6	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	50	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	25	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.96	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

END OF REPORT

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TEST REPORT



Report No.:	ME-0928240213	Date: 17.02.2024
ULR No.:	TC748724000002695F	

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h. TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0929240213	Date:	17.02.2024
ULR No.:	TC748724000002696F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Air	Sampling Done by	Laboratory
Sampling Location	Temporary Township	Sample Quantity / Packing	PM ₁₀ : Pb: Filter Paper 1 X 3 No. PM _{2.5} : Filter Paper 1 X 1 No. SO ₂ : 30 mL X 6 No. PVC Bottle NO ₂ : 30 mL X 6 No. PVC Bottle CO: 2L X 3No. Gas Bladder
Date of Sampling	12.02.2024 to 13.02.2024	Date of Receipt of Sample	13.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	13.02.2024	Date of Completion of Analysis	16.02.2024

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	Discipline: Chemical Testing: Product Group: Atmospheric Pollution (Ambient Air)				
1	Sulphur Dioxide (SO ₂)	µg/m ³	9.8	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6
2	Nitrogen Dioxide (NO ₂)	µg/m ³	13.9	80	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10
3	Particulate Matter (size less than 10µm) or PM ₁₀	µg/m ³	74	100	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14
4	Particulate Matter (size less than 2.5µm) or PM _{2.5}	µg/m ³	31	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
5	Carbon Monoxide (CO)	mg/m ³	0.77	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method)
6	Lead (as Pb)	µg/m ³	BQL (LOQ:0.02)	01	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55

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TEST REPORT



Report No.:	ME-0929240213	Date:	17.02.2024
ULR No.:	TC748724000002696F		

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. Duration of Sampling: 24h
 4. TWA: Time Weighted Average
 5. NAAQS: National Ambient Air Quality Standard
 6. #- NAAQS specified as: 24 h, TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}, Lead and Ammonia; 1 h, TWA in case of Carbon Monoxide, Ozone; Annual TWA in case of Benzene, Benzo (a) Pyrene, Arsenic and Nickel.
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TEST REPORT



Report No.:	ME-0927240213	Date:	17.02.2024
ULR No.:	TC748724000002694F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.:	4800169725
		SO Date:	10.04.2023
Sample Description / Type	Ambient Noise		
Date of Sampling	12.02.2024		
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015		

Sr. No.	Location	Time in h (day)	Sound Level L _{eq} dB (A)	Time in h (Night)	Sound Level L _{eq} dB (A)
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)				
1.	Near CHP	10:45	65.2	23:25	59.4
2.	Near Switch Yard	10:55	68.1	23:35	62.3
3.	Near Reservoir	11:05	66.5	23:45	63.2

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))					
Area Code	Area Type	Limits in dB (A) weighted scale			
		Day Time (6:00a.m. to 10:00 p.m.)		Night Time (10:00 p.m. to 6:00 a.m.)	
A	Industrial Area	75		70	
B	Commercial Area	65		55	
C	Residential Area	55		45	
D	Silence Zone	50		40	

END OF REPORT

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TEST REPORT



Report No.:	ME-0666240209	Date:	13.02.2024
ULR No.:	TC748724000002457F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Fugitive Emission	Sampling Done by	Laboratory
Sampling Location	Near Crusher House	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 1 No. Cyclone Cup: 1 X 1 No.
Date of Sampling	08.02.2024	Date of Receipt of Sample	09.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Fugitive Emission)			
1	Suspended Particulate Matter (SPM)	µg/m ³	888	IS 5182 (Part 4):1999

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit
 2. LOQ: Limit of Quantification
 3. TWA: Time Weighted Average
 4. Duration of Sampling: 8h
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-0667240209	Date:	13.02.2024
ULR No.:	TC748724000002458F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Fugitive Emission	Sampling Done by	Laboratory
Sampling Location	In Between Ash Silo & Ash Pond Area	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 1 No. Cyclone Cup: 1 X 1 No.
Date of Sampling	08.02.2024	Date of Receipt of Sample	09.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.02.2024	Date of Completion of Analysis	10.02.2024


Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Fugitive Emission)			
1	Suspended Particulate Matter (SPM)	µg/m ³	1772	IS 5182 (Part 4):1999

END OF REPORT

- Note:**
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TEST REPORT



Report No.:	ME-0668240209	Date: 13.02.2024
ULR No.:	TC748724000002459F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Fugitive Emission	Sampling Done by	Laboratory
Sampling Location	Near Wagon Tippler	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 1 No. Cyclone Cup: 1 X 1 No.
Date of Sampling	08.02.2024	Date of Receipt of Sample	09.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Fugitive Emission)			
1	Suspended Particulate Matter (SPM)	µg/m ³	973	IS 5182 (Part 4):1999

END OF REPORT

- Note:**
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TEST REPORT



Report No.:	ME-0669240209	Date:	13.02.2024
ULR No.:	TC748724000002460F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Fugitive Emission	Sampling Done by	Laboratory
Sampling Location	Ash Pond Near Drive House Area	Sample Quantity / Packing	PM ₁₀ Filter Paper 1 X 1 No. Cyclone Cup: 1 X 1 No.
Date of Sampling	08.02.2024	Date of Receipt of Sample	09.02.2024
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.02.2024	Date of Completion of Analysis	10.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric</u> <u>Pollution (Fugitive Emission)</u>			
1	Suspended Particulate Matter (SPM)	µg/m ³	1196	IS 5182 (Part 4):1999

END OF REPORT

- Note:**
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 4. Duration of Sampling: 8h
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TEST REPORT



Report No.:	ME-1208240216	Date:	21.02.2024
ULR No.:	-		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Workplace Air	Sampling Done by	Laboratory
Sampling Location	CHP Transformer House	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	15.02.2024	Date of Receipt of Sample	16.02.2024
Sampling Procedure	NIOSH 0500		
Date of Start of Analysis	17.02.2024	Date of Completion of Analysis	17.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	3.9	NIOSH 0500

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. TWA: Time Weighted Average
 4. Duration of Sampling: 1 h
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-1209240216	Date:	21.02.2024
ULR No.:	-		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Workplace Air	Sampling Done by	Laboratory
Sampling Location	CHP Penthouse	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	15.02.2024	Date of Receipt of Sample	16.02.2024
Sampling Procedure	NIOSH 0500		
Date of Start of Analysis	17.02.2024	Date of Completion of Analysis	17.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	2.3	NIOSH 0500

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. TWA: Time Weighted Average
 4. Duration of Sampling: 1 h
 5. The result listed refers only to the tested sample(s) and applicable parameter(s).
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TEST REPORT



Report No.:	ME-1210240216	Date:	21.02.2024
ULR No.:	-		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Workplace Air	Sampling Done by	Laboratory
Sampling Location	CHP Crusher House	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	15.02.2024	Date of Receipt of Sample	16.02.2024
Sampling Procedure	NIOSH 0500		
Date of Start of Analysis	17.02.2024	Date of Completion of Analysis	17.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	3.1	NIOSH 0500

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. TWA: Time Weighted Average
 4. Duration of Sampling: 1 h
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Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA

Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1211240216	Date:	21.02.2024
ULR No.:	-		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Workplace Air	Sampling Done by	Laboratory
Sampling Location	CHP Bunker Floor	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	15.02.2024	Date of Receipt of Sample	16.02.2024
Sampling Procedure	NIOSH 0500		
Date of Start of Analysis	17.02.2024	Date of Completion of Analysis	17.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	2.9	NIOSH 0500

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
 2. LOQ: Limit of Quantification.
 3. TWA: Time Weighted Average
 4. Duration of Sampling: 1 h
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18.07.2023

Reviewed and
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Harish Mendhi
Technical Manager
Chemical Testing





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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-1212240216	Date:	21.02.2024
ULR No.:	-		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Workplace Air	Sampling Done by	Laboratory
Sampling Location	AHP/Fly Silo Area	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	15.02.2024	Date of Receipt of Sample	16.02.2024
Sampling Procedure	NIOSH 0500		
Date of Start of Analysis	17.02.2024	Date of Completion of Analysis	17.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	4.1	NIOSH 0500

END OF REPORT

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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT



Report No.:	ME-0446240207	Date:	13.02.2024
ULR No.:	TC748724000002255F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Domestic Effluent	Sampling Done by	Laboratory
Sampling Location	STP Inlet	Sample Quantity / Packing	2 L X 1 No. PVC Can 100 mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed, 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	7.4	APHA 24 th Ed. 2023, 4500-H ⁺ -B
2.	Total Dissolved Solids	mg/L	990	IS 3025 (Part 18)-2023
3.	Total Suspended Solids	mg/L	23	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3days 27°C)	mg/L	12	IS 3025 (Part 44)-2023
5.	Chemical Oxygen Demand	mg/L	36	APHA 24 th Ed. 2023, 5220-B
6.	Oil and Grease	mg/L	BQL (LOQ:2)	APHA 24 th Ed. 2023, 2320-B

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TEST REPORT



Report No.:	ME-0447240207	Date:	13.02.2024
ULR No.:	TC748724000002256F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Domestic Effluent	Sampling Done by	Laboratory
Sampling Location	STP Outlet	Sample Quantity / Packing	2 L X 1 No. PVC Can 100 mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	# Limit	Method Reference
	Discipline: Chemical Testing: Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.5	-	APHA 24 th Ed. 2023, 4500-H ⁻ -B
2.	Total Dissolved Solids	mg/L	782	-	IS 3025 (Part 16) 2023
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	50 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3days 27°C)	mg/L	7.0	30 Max.	IS 3025 (Part 44) 2023
5.	Chemical Oxygen Demand	mg/L	24	100 Max.	APHA 24 th Ed. 2023, 5220-B
6.	Oil and Grease	mg/L	BQL (LOQ:2)	-	APHA 24 th Ed. 2023, 2320-B
7.	Calcium (as Ca)	mg/L	86.6	-	APHA 24 th Ed. 2023, 3500-Ca-B
8.	Magnesium (as Mg)	mg/L	42.8	-	APHA 24 th Ed. 2023, 3500-Mg-B
9.	Sodium (as Na)	mg/L	129	-	APHA 24 th Ed. 2023, 3500-Na-B

END OF REPORT

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TEST REPORT



Report No.:	ME-0448240207	Date:	13.02.2024
ULR No.:	TC748724000002257F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	D.M. Plant Effluent	Sample Quantity / Packing	2 L X 1 No. PVC Can 100mL X 1 No. PVC Can 1L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I), APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.9	5.5-9.0	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Dissolved Solids	mg/L	705	2100 Max.	IS 3025 (Part 16): 2023
3.	Total Suspended Solids	mg/L	6	100 Max.	APHA 24 th Ed. 2023, 2540-D
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	6.0	30 Max.	IS 3025 (Part 44): 2023
5.	Chemical Oxygen Demand	mg/L	24	250 Max.	APHA 24 th Ed. 2023, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ-2)	10 Max.	IS 3025 (Part 39): 2021

END OF REPORT

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TEST REPORT



Report No.:	ME-0449240207	Date:	13.02.2024
ULR No.:	TC748724000002258F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED, Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Cooling Tower Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part 1); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024


Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Free Available Chlorine	mg/L	BQL (LOQ 0.05)	0.5 Max.	APHA 24 th Ed. 2023, 4500-Cl- G
2.	Phosphate Total (as P)	mg/L	0.785	5.0 Max.	APHA 24 th Ed. 2023, 4500-P. E
3.	Total Chromium (as Cr)	mg/L	BQL (LOQ 0.01)	0.2 Max.	IS 3025 (Part 2) 2019
4.	Zinc (as Zn)	mg/L	0.074	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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TEST REPORT



Report No.:	ME-0450240207	Date:	13.02.2024
ULR No.:	TC748724000002259F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Temperature	°C	29	Not to exceed 5°C higher than the intake water	APHA 24th Ed. 2023, 2550-B
2.	pH	-	7.6	6.5 to 8.5	APHA 24th Ed. 2023, 4500-H-B
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 24th Ed. 2023, 4500-Cl G

END OF REPORT

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TEST REPORT



Report No :	ME-0451240207	Date: 13.02.2024
ULR No :	TC748724000002260F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Boiler Blow Down	Sample Quantity / Packing	1 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	Total Suspended Solids	mg/L	5	100 Max.	APHA 24 th Ed. 2023, 2540-D
2.	Oil and Grease	mg/L	BQL(LOQ:2)	10 Max.	IS 3025 (Part 39): 2021
3.	Copper (as Cu)	mg/L	BQL(LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	BQL(LOQ:0.03)	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT



Report No.:	ME-0452240207	Date:	13.02.2024
ULR No.:	TC748724000002261F		

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)		SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Industrial Effluent	Sampling Done by	Laboratory
Sampling Location	Ash Pond Effluent	Sample Quantity / Packing	1 L X 1 No. PVC Can 1 L X 1 No. Glass Bottle
Date of Sampling	06.02.2024	Date of Receipt of Sample	07.02.2024
Sampling Procedure	IS:3025(Part I); APHA 24 th Ed. 2023, 1060-B		
Date of Start of Analysis	07.02.2024	Date of Completion of Analysis	12.02.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Pollution & Environment (Waste Water)</u>			
1.	pH	-	7.3	APHA 24 th Ed. 2023, 4500-H-B
2.	Total Suspended Solids	mg/L	189	APHA 24 th Ed. 2023, 2540-D
3.	Oil and Grease	mg/L	BQL(LOQ:2)	IS 3025 (Part 39): 2021

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TEST REPORT



Report No.: ME-0808240312	Date: 16.03.2024
ULR No: TC748724000004421F	

Name and Address of Customer	GMR WARORA ENERGY LIMITED. Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.)	SO No.: 4800169725 SO Date: 10.04.2023
Sample Description / Type	Ambient Noise	
Date of Sampling	11.03.2024	
Sampling Procedure	CPCB Protocol for Ambient level Noise Monitoring 2015	

Sr. No.	Location	Time in h (day)	Sound Level Leq dB (A)	Time in h (Night)	Sound Level Leq dB (A)
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)				
1.	Near CHP	10:55	66.3	23:35	61.1
2.	Near Switch Yard	11:05	67.2	23:45	60.4
3.	Near Reservoir	11:15	65.5	23:55	62.3

As per The Noise Pollution (Regulation & Control) Rules, 2000 (Rules 3(1) and 4(1))					
Area Code	Area Type	Limits in dB (A) weighted scale			
		Day Time (6:00a.m. to 10:00 p.m.)		Night Time (10:00 p.m. to 6:00 a.m.)	
A	Industrial Area	75		70	
B	Commercial Area	65		55	
C	Residential Area	55		45	
D	Silence Zone	50		40	

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11.01.2024

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GMR Group



www.gmrgroup.in

**Project Name:
Vermicomposting of Horticulture Waste**

Bird view of gwel green belt



Green (horticulture) waste generation through maintenance of green belt



Vermicomposting process flow



Process flow – vermicompost unit



1
Green (Horticulture) Shredder through Organic Shredder



2
Erection of Vermi Bed



3
Layer wise distribution of Green & food Waste & FYM



4
Maintained Moisture before application of Vermi



5
Collection of Vermi – Wash (Organic Pesticide)



6
Insert Vermi on Vermi Bed



7
Vermi Bed ready for Composting Process

Site photographs (after implementation)



Erection of Vermicomposting Bed



Nomenclature to Each Vermi - Bed



Fencing Entire Vermicomposting Area



Site View of Vermicomposting Unit

Life cycle of Green Waste (circular economy approach)



Thank you



SIX MONTHLY EC COMPLIANCE REPORT SUBMISSION FOR THE PERIOD OCTOBER 2023 – MARCH 2024



परिवेश

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय
Ministry of Environment, Forest and Climate Change



Dashboard |

Environment Clearance ▾

Forest Clearance ▾

Wildlife Clearance ▾

CRZ Clearance ▾

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Welcome Pramod Khandelwal, Project Proponent

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

Proposal No	EEL/BJA/MOEF/230
Compliance ID	32539650
Compliance Number(For Tracking)	EC/M/COMPLIANCE/32539650/2024
Reporting Year	2024
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	21-05-2024
IRO Name	V Geroge Jenner
IRO Email	tr025@ifs.nic.in
State	MAHARASHTRA
IRO Office Address	Integrated Regional Offices, Nagpur

Note:- SMS and E-Mail has been sent to V Geroge Jenner, MAHARASHTRA with Notification to Project Proponent.