

Ref: GMR/GWEL/EC/COM/22-23/02
27th Apr. 2023

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 2022 to March 2023**.

Kindly acknowledge the receipt of the same.

Thanking you.

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



Dhananjay Deshpande
COO-Thermal

Encl.: As Above

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

Registered Office:
Plot No. 301, G Block, 7th floor, Naman Centre
Bandra Kurla Complex (Opp. Dena Bank)
Bandra (East), Mumbai - 400 051

Corporate Office:
Building No. 302, New Shakti Bhawan
New Udaan Bhawan Complex
Opp. Terminal-3, IGI Airport, New Delhi - 110 037

COMPLIANCE REPORT



As per conditions stipulated in

ENVIRONMENT CLEARANCE

Phase—I: 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

Phase—II: ISSUED BY MOEF VIDE LETTER No J-13012/75/2008-IA.II (T) DATED 25th MAY, 2010

Of

**MINISTRY OF ENVIRONMENT & FOREST & CLIMATE
CHANGE, NEW DELHI**

Compliance Period: OCTOBER 2022 TO MARCH 2023

For

2 x 300 MW COAL BASED THERMAL POWER PLANT

Of

GMR Warora Energy Limited,

Plot No B-1 | MIDC Growth Centre | PO – Warora |

Dist – Chandrapur | Maharashtra-442 907

**SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE CONDITIONS FOR UNIT-I:
ISSUED BY MOEF VIDE LETTER NO J-13011/2/2008-IA.II (T) DATED 19TH MAY, 2008**

Sl. No	Terms and Conditions	Compliance Status
1	The total land requirement for the project shall be restricted to 114 ha	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	Sulphur content in coal is 0.35% and ash content is 34% & are well under the prescribed standard.
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	ESPs has been installed with 99.98% efficiency to ensure that emission of particulate matter are always maintained below 50 mg/Nm ³ . (Annexure-I)
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	We have constructed 3 Nos. Fly ash silo with capacity of 1500 MT each for collection of Fly ash in dry form which are then sent to cement industries for ensuring 100% utilization. Bottom ash is disposed in ash pond in slurry form. (Annexure-II)
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 dust extraction system like bag filters and water spray system are duly provided in dusty areas such as coal handling and ash handling points, transfer areas and other vulnerable dusty areas which are continuously operated to take care of fugitive emission.
8	Water requirement shall not exceed 830 m ³ /hr	Water requirement is well within prescribed limit of 830 m ³ /hr.
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. (Annexure-III)

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	The treated effluents conforming to the prescribed standards are completely recirculated and reused within the plant. Arrangement are made to ensure that no discharge will take place outside the plant boundary except during monsoon season.
11	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 and is in operation to take care of domestic effluents. Treated water from STP is used in green Belt development activities/plantation. (Annexure-IV)
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.
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. Regular monitoring of ground water level is done through piezometers. Water Level Data is also submitted Six Monthly to CGWA. (Annexure-V)
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. (Annexure-VI)
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	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 & NAL approved Lab in the impact zone and records are also maintained. Results of the same are well within the prescribed limits. Monitoring reports are also submitted to the state board on monthly basis.
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 has been set up with qualified and competent staff for proper implementation of Environment control measures and compliance to condition of EC/CTE and CTO.
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 29 th Oct. 2022.

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	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.

**SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE CONDITIONS FOR 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 the third party in the impact zone and records are also maintained. Results of the same are well within the prescribed limits. Monitoring reports are also submitted to the state board on monthly basis.
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>Six monthly EC Compliance report including results of monitoring data are being submitted to the respective regional office of MoEF & CC and the regional office of SPCB. Last compliance report was submitted on 29th Oct. 2022.</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 REPORT OF ENVIRONMENT CLEARANCE CONDITIONS FOR UNIT-II:
ISSUED BY MOEF VIDE LETTER No 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	<p>It shall be ensured that the natural drainage in the region is not disturbed due to activities associated with operation of the plant.</p>	<p>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	<p>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/Nm³. 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>	<p>Provision for installation of FGD have been duly provided.</p> <p>State of art ESPs has been installed with more than 99.98% efficiency to maintain the emission of particulate matter well below 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	<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 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} & PM₁₀), SO₂, 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>	<p>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 13 th Mar. 2023.
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 for ground water recharge as per the guidelines of the CGWB.
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 leveling 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 4th 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.	We have constructed 3 Nos. of Fly ash silo with the capacity of 1500 MT each for storage of fly ash in dry form which are then sent to cement industries for complete utilization. Unutilized ash is sent to captive ash pond in slurry form. Regular monitoring of heavy metals in ash pond water is carried out and reports are also submitted to board on monthly basis.
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.	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.
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 in FY 21-22 carried out by the plant is attached as Annexure- VII.

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.	Activities being taken up for the upliftment of SC/ST's and marginalized farmers and poor section of the society. CSR activities is vigorously carried out by the project proponent through its wing Varalakshmi Foundation. Details of the CSR activities being carried out in last FY is attached for reference. (Annexure-VII)
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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-VIII
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	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.

	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.	
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-IX)
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 the third party in the impact zone and records are also maintained. Results of the same are well within the prescribed limits. Monitoring reports are also submitted to the state board on monthly basis. (Annexure-X)
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	Plant is located in notified industrial area (MIDC), Environment Clearance letter is uploaded on the website of the company.

	on the website of the Company by the project proponent	
12	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	Environmental Management cell with competent & qualified persons, has been established for implementation of the stipulated environmental measures & subsequent Environmental management in the plant.
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 30 th Sep. 2022. 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 29 th Oct. 2022.
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.
5	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.
6	The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant.	Noted.
7	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.
8	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.
9	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.
10	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.

ANNEXURE-I
ELECTROSTATIC PRECIPITATOR



ANNEXURE-II
FLY ASH AND BOTTOM ASH SILOS



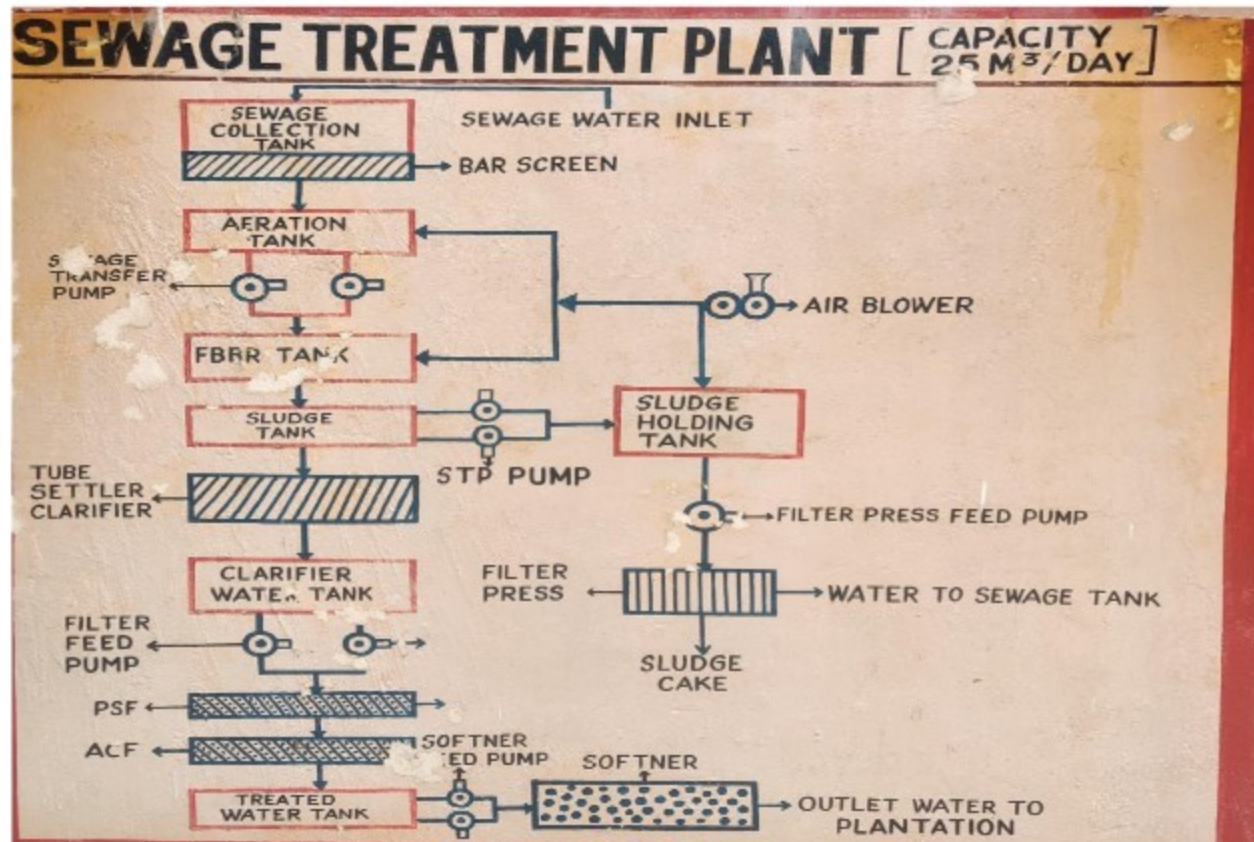
ANNEXURE-III

EFFLUENT TREATMENT PLANT



ANNEXURE-IV

SEWAGE TREATMENT PLANT



ANNEXURE-V

RAIN WATER HARVESTING



ANNEXURE-V



ANNEXURE-VI
GREEN BELT



ANNEXURE-VI



ANNEXURE-VI



Annual Report

April 2022 to March 2023



Corporate Social Responsibility
GMR Varalakshmi Foundation
and
GMR Warora Energy Ltd., Warora

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HIGHLIGHTS OF GWEL-CSR ACTIVITIES (APRIL 2022- MARCH 2023)

Education

- ❑ Classes of E-Modules of NEXT Education in 4 ZP Schools benefitted 487 students.
- ❑ Conducted online classes of After School Learning Centers (ASLCs), E-Centers, Kid Smart Center and Navodaya covering more than 964 students.
- ❑ Learning Navigator Tool (GOORU) implemented with 299.
- ❑ Capacitated volunteers & ZP school teachers benefitted 30 volunteers and teachers.
- ❑ School Bus services benefitted 112 students of Class VIII – X.
- ❑ Pratibha Library benefitted 160 youth. Ten students selected in Govt. Jobs this year.

Health, Hygiene and Sanitation

- ❑ Health Clinic in 10 villages provided free treatment and medicines to over 24,000 people.
- ❑ Mobile Medicare Unit (MMU) provided free treatment to over 24,000 old aged people.
- ❑ Nutrition center benefitted 65 pregnant and lactating mothers from 6 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.
- ❑ 219 health awareness programs organized in villages that benefitted over 5,000 people.

Empowerment & Livelihoods

- ❑ Total 160 students successfully completed the vocational training in self-employment courses.
- ❑ 856 people supported for livelihood activities out of this 707 people are earning additional average Rs. 7,000/- annually.
- ❑ 150 farmers initiated wheat cultivation using innovative approach of System of Wheat Intensification(SWI)
- ❑ 121 women grown vegetable and earned more than Rs. 34 lakhs just in 5-months.
- ❑ 212 people donated blood during the year from three blood donation camp at GWEL.
- ❑ 700 employees participated in 104 community development programs and contributed 1254 voluntary hours.

Flood Response:

- ❑ Distributed 1000 food packets to flood affected people at villages in Warora block.

Other:

- ❑ GWEL receive Maharashtra CSR Award 2022 on sustainable development approach.
- ❑ GWEL receive ISO 26000;2010 certification for Corporate Social Responsibility.



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 5 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 14,000. 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 21,000 people through Mobile Medicare Units (MMU).



DETAILED OF PROGRAM ACTIVITIES

EDUCATION

GWEL-CSR believes that quality education is the most important prerequisite of development. Therefore, providing quality education is one of the important activity. Efforts have focused on reaching out to maximum number of students through multiple need-specific interventions.

After the outbreak of coronavirus (COVID-19) and subsequent guidelines of new normal in Maharashtra adopted for conducting all the educational activities. The focus of GWEL educational activities were mainly on digital education. All education activities re-planned considering the loss and gaps emerged due to COVID 19 pandemic so that students can pick up the subject and recover from the education losses quickly. The outcomes of major educational interventions are highlighted below:



A. Support to Govt. Schools

A.1 Govt. School Support: To promote quality education, various educational materials provided to Zilla Parishad (ZP) Schools such as digital TLM, computers, infrastructure development and furniture etc. The E-Module of NEXT Education is installed in 4 ZP schools. NEXT Education is a E-Learning Service Provider specialized in designing e- modules on various topics of school curriculum prescribed by state board. This will enable to conduct computer based classes at ZP schools. GWEL also provided Android TV at four ZP schools to promote computer based education. Total 1110 students covered from these initiatives.



A.2 Capacity Building of ZP School Teachers on Computer based Education: Four trainings organized for 18 Teachers of 4 ZP schools, 12 Volunteers & GMRVF staff with the support from NEXT Education. Subjects like data accessing, downloading and uploading of educational material etc. covered in training. All trainees learned teaching methods and organizing class using E-Modules of Next Education.

B. Pre School Education

B.1 Classes in Anganwadi Centers: GMRVF is working with 18 Govt. Anganwadies to promote quality education and prepare 441 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.

C. Direct support to the children

C.1 After School Learning Centers (ASLC): GMRVF has initiated 6 ASLCs in 6 villages to enhance education quality in slow learner students of Std I to VII. This year, GMRVF has targeted all students of 6 villages and identified 299 slow learner students for this year's ASLC activities. This year average 286 students have attended the offline activities regularly. The fortnightly test conducted in each ASLC to gage the learning level of students. Total 16 tests conducted during the year. The result of baseline and all fortnightly test evaluated in terms of grades. 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 4% students in Grade A, 10% students in Grade B and 86% students in Grade C&D.
- The last fortnightly test shows that 81% students scored A Grade; 17% students received B Grade and 2% students achieved C&D Grade results.

C.2 E- Education and Learning Center (EELC): GMRVF is running 8 EELC in eight villages with the objective to provide basic computer education to the school children of the villages. The highlight of results of EELC is shown below:

- Total 578 students enrolled for E-Learning centers and learned basic computer skills.



- The fortnightly test results of EELC shows that out of 578 students 80% students scored A Grade; 13% students received B Grade and 7 % students achieved C&D Grade results.
- The very first test at the time of start of session shows 6 % students in Grad A, 9% students in Grade B and 85% Students in Grade C&D.

C.3 Navodaya Coaching Center: GMRVF is running Navodaya coaching classes in 3 villages. This year 27 students enrolled for coaching for Navodaya Vidyalaya entrance test. Navodaya coaching started from 1st July this year and conducted mostly offline classes. Special coaching arranged by GWEL employee under their SVP project for the preparation of entrance test. Each students track for their progress through fortnightly and weekly test. The last test results shows:

- Out of 27 students 55% students achieved A Grade and rest 45% students achieved B Grade marks. No students in Navodaya scored C&D marks

C.4 Capacity Building of Vidya Volunteers: 24 fortnightly trainings with the education volunteers including ASLCs, E-Center and Navodaya was organised regularly during the year. Volunteers were oriented on conducting fortnightly assessments as per the content. Total 16 Vidya volunteers attended the fortnightly trainings regularly and conducted online & offline classes as per plans.

C.5 Kid Smart Center (KSC): The IBM Kid Smart Early Learning Centers established in ZP schools, Dongargaon and Chinora. There are three educational corners in the Kid Smart classroom, where children are taught not only technology but also craft and reading. Themes are selected every month and based on that lessons are prepared and delivered.

- This year, 54 children from Class I to III benefitted through this program.
- Students were also given awareness on various environmental issues, such as cleanliness & sanitation, no use of plastics & plantation.



C.6 Pratibha Center: The Pratibha library was 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 650 youths are registered in the library.



- This year more than 70 youths attended online and offline classes.
- 10 aspirants successful this year in competitive exam of CRPF, CISF and Mumbai Police.
- 50 students completed online courses under various online platforms.
- 29 students from Pratibha were felicitated by COO Thermal, GWEL.

C.7 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 112 students availed the facility and attended schools regularly.

D. Awareness programs for children

D.1 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 225 students participated and learned the energy conservation tips.

D.2 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 130 students participated in the program and learned the causes and effects of safety.



D.3 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 110 students participated in the program and benefitted.

E. Location specific initiatives

E.1 Learning Navigator Program: GMRVF and Gooru India Foundation (GIF) have implemented Learning Navigator program using GOORU App this year with 299 students of Std IV – VII from seven villages. This program is designed to track learning levels of each student at every stages of learning. This helps facilitator and volunteers to plan and provide all necessary input to gain faster learning outputs of individual student. The formal implementation in Warora started from Oct 2022 this year and series of capacity building sessions for volunteers conducted so as to implement the program effectively. Classrooms were created for 299 enrolled students in Gooru App for seven villages and each class and studies started using Gooru App. At the end of this year, 2787 competencies have been gained and are in progress among students. More than 90% students in Warora achieved 80-100% marks in each competency.



E.2 Special Motivation Classes for 10th Students and Carrier Guidance for RAXA Security Staff: Special motivational class conducted for 55 students of class 10th and a session was also conducted on carrier guidance for 24 RAXA Security staffs. 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.



E.3 Summer Camp: This year summer camps organized in 7 villages for students of Std I-VIII. 225 students 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 were organized for 207 students of Std VI to X.

E.4 Celebration of Independence Day - Azadi Ka Amrit Mahotsav: This year Independence Day celebrated as "Azadi Ka Amrit Mahotsav" at ZP schools, at GWEL and at Vocational Training Center Nearly 1474 school students from 10 schools including Anganwadis, all GWEL employees and 55 VTC students celebrated the event. Various competitions organized during the occasion and all winner students were given prizes.

E.5 Day Celebration: 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 1700 children & villagers benefitted from the programs.

HEALTH, HYGIENE AND SANITATION

Major interventions in the area of health during the reporting period are as follows:

A. Protective Health Care

A.1 Health Clinics: GMRVF is running ten Primary Health Clinics in 10 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 provide free treated.



- This year, over 24,375 people received treatment and free medicines from the clinics.
- More than 400 patients suffering from critical ailment from villages have been referred to AVBRH.

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 555 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.



- More than 24,065 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 68 enrolled Pregnant and Lactating Mothers (PLM) and providing services such as health check-ups, weight measurements, building awareness on health related issues etc.

- Total 55 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 Khati, 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 & GMRVF has supported construction of 764 ISL in 14 villages.
- 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: 12 special health camp organized during the year in 10 villages with the support from Acharya Vinoba Bhave Rural Hospital, Wardha. Specialist doctors of Orthopaedic, Ophthalmic, Dermatology, Gynaecology and Medicine branches attended the camps. The camps were planned to provide proper diagnosis and advise to all critical patients for their bone, eyes and other surgery related ailments. Total 1891 people visited the camp from villages and received free medicines and advise for further treatments. Total 387 patients referred to higher hospital for their skin, bone and liver related problems.

B.5 Cancer Screening Camp: GMRVF, GWEL with the support from TATA trust and ROLE organization, Chandrapur has organized "Cancer Screening Camp" at 4 villages and GWEL plant during the year for villagers and employees. The purpose of the camp to create awareness among the people regarding health and remove the fear from the people regarding cancer disease. The team has also examined



BP, Sugar, Hepatitis B and C, HIV test, Mouth Cancer, Breast cancer and Cervical cancer etc. Total 388 patient visited the camp and received referral for critical cases for further treatment at higher hospital.

C. Health Awareness Session

C.1 General Awareness: 112 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, 2,572 villagers benefitted.

C.2 Nutrition Center Awareness Program: 107 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 2,458 women benefitted from these awareness sessions.



EMPOWERMENT AND LIVELIHOODS

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). CEL-W initiated offline batches this year following all COVID 19 guidelines. Total 160 students successfully completed the course and 94 students have been settled in self-employment work or joined small shops this year. The training details are given below.



Table: Vocational Training details of VTC Warora.

Name of the course	No. of batches in 22-23	No. Trained in 22-23		No. Settled in 22-23	
		M	F	M	F
Smart Phone & Hardware Repairing Technicians	4	56	0	33	0
Assistant Beauty Therapist	4	0	104	0	61

VTC Warora celebrated important days during the year such as world youth skill day, Ambedkar Jayanti, Independence and Republic Day, Teachers days, HIV AID Day etc. Apart from this, free service camp, exposure trip to industries, Heartfulness Education Learning Program (HELP) were 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 and GMRVF has sponsored 9 youths from Warora for job oriented vocational courses at GMRVF CEL Delhi.

B. In village skill training programs

B.1 Online training to farmers on System of Wheat Intensification (SWI):

To promote new agricultural technologies in villages GWEL CSR and GMRVF has organized 5 days training in two batches on System of Wheat Intensification (SWI) for 4 village farmers. The training conducted on online mode for 73 farmers and on completion of the training, certificate of participation was given to each farmer.



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 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 these pandemic.

Celebration of International Women Day: This year women day was celebrated in 4 villages and VTC under the theme of accelareting equality aiming to close the gender gaps and promote women and girls empowerment. More than 300 girls and women from the 5 events organized at village and VTC benefitted.



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 856 women and farmers. The details of Income Generation Activities (IGA) undertaken this year are attached as Annexure 1.

- There are total 856 people actively engaged in IGA activities.
- 707 out of 856 people are earning an additional income of Rs 7000/- per year.



E. Agriculture Development

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 13.70 Lakhs to purchase 343 bags of Soybean seeds and 63 pockets of cotton seeds. In addition to this Dahegaon GCS bank has leveraged 50 bags of soybean seed worth Rs. 1.75 lakhs from Agriculture Department. GCS bank has reached to 301 farmers under soybeans seeds and 21 farmers under cotton seeds using its own recourses whereas another 50 farmers of Dahegaon



have received additional seeds from agriculture department. Thus, this year total 351 farmers have received seeds of both crop and covered 456 acres of land under improved agriculture.

E.3 Floriculture and Vegetable Cultivation: To promote livelihoods through farm based activity, we have planned Vegetable Cultivation with SHG women in six villages. GWEL CSR and GMRVF has distributed seeds in the month of June to nearly 130 SHG women considering the fast recovery of livelihood after COVID 19 but due to damage of entire crops because of heavy rains and flooding, it is decided to provide second round of vegetable seeds to 121 selected women of 38 SHGs so as to tap winter season and restore livelihoods. All women have grown vegetable successfully and earned nearly 34.40 lakhs from the sale of vegetables.

E.4 Collective Marketing: 22 women from Charur Khati village formed producer group to start selling cultivated vegetables collectively. All rules and regulation prepared and oriented to SHG. All beneficiaries of this group has done collective marketing and earned more than Rs. 3.2 lakhs just in three months.



E.5 System of Wheat Intensification (SWI): GWEL 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 150 small and marginal farmers from 6 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 26,000/- additional income from the crop cultivation under this project.



COMMUNITY DEVELOPMENT:

A Community Libraries: GMRVF runs daily 8 libraries in 8 villages, which operates from 0900 to 1100 in the morning and 1600 to 1800 in the evening. The libraries have variety of books from children to elders. Daily newspapers, weekly employment news & monthly magazines are also available for reading. This year after COVID 19 pandemic 5 libraries functioned in 5 villages where more than 11,400 people visited and took benefit of the facilities.

B Blood Donation Camp: This year, GWEL organizes two blood donation program in plant where all employee participates to donate the blood. Apart from this, GMRVF organizes blood donation camp in one village. This year total 3 camps organized at Warora and total 212 units of blood donated.

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:

1. Construction of Cement Concrete Drain – 50 meters at Nimsada village.

2. Repairing of Pipe Drain at Charur Khati – 20 meters.
3. Repairing of 11 Individual Sanitary Lavatory (ISLs) in Majra Rai village.
4. Repairing of Community Toilet at Dongargaon.
5. Drain Cleaning Work at Dongargaon and Nimsada.
6. Repairing of Water ATM in various villages.

D Celebration of Environment Day: GWEL and its team organized environment day at Pratibha Library this year and conducted essay competition and group discussion on the day. Total 75 students participated in the program.

E Flood Response: GWEL and GMRVF has distributed 1000 food packets to 1000 flood affected households during July 2022 flood. MLA Warora- Wani area visited the villages and distributed dry ration in flood affected villages under the flood relief program of GWEL.



F Maharashtra CSR Awards of India CSR: GWEL CSR has received MAHARASHTRA CSR AWARD – 2022 of India CSR under the award category of "Water & Sanitation (WASH)". The award is a testimony of GWEL's CSR approach, planning, implementation and impact on society as well as contribution towards Sustainable Development Goals (SDGs).



G BVIC Audit for ISO 26000:2010: Auditors from Bureau Veritas India (Pvt.) Ltd. conducted Surveillance Audit-1 of all CSR activities in 3 villages this year to continuing ISO 26000;2010 certification to GWEL. The Audit was performed to assess the CSR practices of GWEL in line with Corporate Social Responsibilities.

EMPLOYEE INVOLVEMENT:

GWEL have developed village guardian model and each employees including their families and senior management participate in community development programs. This year 700 employees participated in 104 community development programs and contributed 1254 voluntary hours which benefitted more than 17,383 people.

Celebration of Daan Utsav: This year Daan Utsav was celebrated from 2-8 Oct in villages. Total 7 events conducted, in which 41 employees and their family members participated and celebrated the spirit of Daan Utsav with community. 23 GWEL employees and 18 SLC members participated in different activities.

Social Voluntary Project (SVP): This year, 5 Social Voluntary Projects were implemented by 35 GWEL employees. These employees contributed more than 500 hours of their time to implement projects.

CHALLENGES

Following are the challenges faced during the reporting period:

- Panchayat bodies creating pressure for hardware activities.
- Adopting new concept and idea by farmers and villager was challenging.
- Bringing women in one platform for collective marketing was challenging due to lack of trust among SHG members.
- Market size is one of the challenge observed in vegetable cultivation as Warora market has limited capacity to accommodate local produce.

- 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.

LEARNINGS

- Collective marketing is successfully undertaken by women this year shows a scope of selling it collectively at larger scale in bigger market.
- The use of GOORU App in enhancing quality education observed a very powerful tool.
- SWI is an innovative approach for wheat production enhancement and it is demonstrated successfully in farmer's field.
- Implementation of 5S in office and village centers has helped in improving the accessibility of records and also helped in enhancing efficiency in execution of CSR activities.
- The tremendous results in ASLC and EELC and in various other education activities recorded due to adoption of digital learning board in daily education.
- Online reporting using Google Forms helped in saving lots of time and made entire job of reporting simpler in terms of data entry and analyzing data.
- 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.
- GWEL has received ISO 26000;2010 standard on Corporate Social Responsibility, this has helped to learn various aspects of community program and involvement of company in the same.
- Partnership with NABARD has established in the location which is helping in enhancing visibility in Govt System.

WAY FORWARD

- Focusing more on digital education in the village so as to gain better results in coming year.
- Increasing more NABARD projects in order to bring more impact in agriculture and allied activities.
- Scaling up both on-farm & off-farm livelihood activities with more farmers and promoting collective marketing using online tools.
- Initiate more education activities as per new education policy.
- Start new activities as per strategy document of GMRVF.
- Maintaining ISO 26000 standard will be in focus throughout the year as ISO authorities will conduct assessment next year.
- Conducting external evaluation of CSR activities of GWEL CSR.
- Engaging more employees through Social Volunteering Projects.



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. 51,26,531.00
2	Details of CSR amount spent against ongoing projects and other than ongoing projects for the financial year.	Rs 195,58,463.54
3	Details of CSR amount spent against ongoing projects during the last FY and FYs preceding the same. Amount spent in Ongoing projects 20-21 – Rs. 125,93,861.00 Amount Spent in Ongoing projects 21-22 – Rs. 139,02,105.00 Total in previous two years in Ongoing projects – Rs. 264,95,966.00	Rs. 264,95,966.00
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.	Rs. 8,45,662.60
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) Total Spending from Unspent Account (B)+(C) = Rs. 110,22,636.00 (E) Balance Unspent Account (A)-(D) = Rs.2,65,187.00	Rs. 2,65,187.00
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) Total Amt. available in 23-24 for set off (A)+(B) – Rs. 170,03,931.54	Rs. 170,03,931.54
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	NIL

11	State and district of CSR project	Warora Tahsil of Chandrapur districts of Maharashtra State



Stakeholders Feedback on Vocational Training Center (VTC) Warora

Brief about Targeted Activity: The vocational training center designed to teach vocational skills to drop out youths. GWEL and GMRVF has conducted need assessment in previous years' and recorded youth aspiration and based on the findings of survey, GMRVF has initiated two self-employment courses. These are Smart Phone Hardware Repair Technician (SPHRT) and Assistant Beauty Therapist (ABT). The VTC Warora offer three months courses and provide soft and all necessary technical skills which is required to deliver respective jobs effectively. This year, GMRVF has trained 160 youths in both the disciplines and out of which 94 youths have started their business and earning average Rs. 300/- per day.

Stakeholders: Students, Teacher, Technical Education Department, Government Department, Bank, GMRVF staff, GWEL employees.

Sample Size & Survey Process: Total 30 beneficiary including successful and none successful students, VTC teachers and visiting faculty conducting classes were selected for taking feedback using predesigned feedback form covering questions mainly (1) how was the performance of Vocational Training Center? (2) Have the center addressing the need of students? (3) What can be done better?

Stakeholders' Feedback: Following are the salient feedback

What can be done better: Successful self-employed youth can be brought to the center to address and motivate youth. Successful people from different streams may be invited to address the members about different business skills. Demand to start other job oriented courses emerged in the survey. The centre's library can be upgrade and more books can be kept as a reference material in the center.

Overall Performance of VTC: The VTC center has trained more than 1000 youths since from beginning and roughly 675 youths have started their business from their home. Mobilization of students for new batches is smooth as old students are promoting the courses run by GMRVF. The center is offering soft skills with the support from Heartfulness organization which is helping students doubling the confidence after completion of course. Each trainee is given basic computer education which is an additional skill they are gaining from the center. The trainee reveals during the survey that they are confident enough to start their business as GMRVF is providing them Business start-up kit. However, large number of ex-trainee who has stopped their business informed that they have enrolled for higher education and because of this they stopped their business. The teaching performance of teachers and quality of teaching both theory and practical were reported excellent by all interviewee.

Views of other Stakeholders:

Govt ITI: Felt happy as GMRVF is moving in line with the objective of Govt of India of skilling youths and helping them to start their business or take some jobs locally.

Teacher: Subject matter teachers deliver in-depth knowledge of the subject to the students and test their knowledge. The students' participation is very good but faculty expressed more classes need to conduct in the center to provide more knowledge to students.

Students: All the students are very happy about this center as they are getting ample knowledge about subjects both theory and practical but also soft skills. Which is not common in Govt ITI's or in any other institute at Warora.



Annexure 1: Details of Income Generation Activities in Warora.

#	Activities	Village	No of Beneficiaries	Total earning women/farmer	Av Annual Income
1	Poultry Farming	Nimsada, Marda, Chinora, Majra Rai, Charur Khati and Dongargaon	150 Women	120	2187
2	Petty Businesses	Marda, Dongargaon, Chinora, Charur Khati, Nimsada, Majra Rai	38 Women	38	7200
3	SWI Cultivation	Majra Rai, Majra Khurd, Naidev, Dongargaon, Marda	150 Farmers	150	26000
4	Vegetable Cultivation	Dongargaon, Nimsada, Naidev, Charur Khati, Majra Rai and Marda	121 Women	81	28400
5	GCS bank	Dongargaon, Dahegaon, Naidev, Chinora and Charur Khati	371 Farmers	297	14000
6	Floriculture	Charur Khati, Dongargaon, Nimsada Majra Rai and Naidev	4 farmers	4	19900
7	Collective Marketing	Charur Khati	22 Women	18	17600
Total Beneficiaries			856	707	

Note: 707 women/ farmers are earning additional income of Rs. 7000/- annually from IGA



ANNEXURE- VIII

Effluent Water Analysis (Oct. 2022 to Mar. 2023)

Condensate Cooling Water		
Month	pH	F - Cl
		mg/L
October	7.2	<0.05
November	7.8	<0.05
December	8	<0.05
January	8.3	<0.05
February	7.1	<0.05
March	7.3	<0.05

Cooling Tower Blowdown			
F - Cl	PO ₄	Cr	Zn
mg/L			
<0.05	0.610	<0.01	0.029
<0.05	0.513	<0.01	0.049
<0.05	0.824	<0.01	0.035
<0.05	0.973	<0.01	0.039
<0.05	0.283	<0.01	0.044
<0.05	0.695	<0.01	0.023

Boiler Blowdown			
TSS	OG	Cu	Fe
mg/L			
<5	<1	<0.01	0.118
<5	<1	<0.01	0.053
<5	<1	<0.01	N.D.
<5	<1	<0.01	0.117
<5	<1	<0.01	0.232
<5	<1	<0.01	0.14

DM Plant Effluent						
Month	pH	TDS	TSS	BOD	COD	O & G
		mg/L				
October	7.3	782	28	15	44	<1
November	7.8	1123	6	7.3	24	<1
December	7.9	1388	10	18	64	<1
January	7.7	775	5	4.7	16	<1
February	7.0	830	7	8.5	28	<1
March	7.6	1308	<5	26.0	84	<1

STP- Inlet						
Month	pH	TDS	TSS	BOD	COD	O & G
		mg/L				
October	7.5	825	17	8.6	24	<1
November	7.9	902	8	5.5	20	<1
December	7.5	908	14	18	60	<1
January	7.6	935	8	6	20	<1
February	7	820	20	7.3	24	<1
March	7.7	1945	21	10	32	<1

STP- Outlet						
Month	pH	TDS	TSS	BOD	COD	O & G
		mg/L				
October	7.7	498	<5	3.5	12	<1
November	7.8	826	<5	3.7	14	<1
December	7.7	530	5	6.8	24	<1
January	7.6	869	6	4.6	16	<1
February	7.1	908	<5	3.5	12	<1
March	7.6	436	<5	3.4	12	<1

ANNEXURE-IX

Ambient Noise Monitoring (Oct. 2022 to Mar. 2023)

Sl. No.	Month	Near CHP		Near Switch Yard		Near Reservoir	
		Day	Night	Day	Night	Day	Night
		dB(A)					
1	October	64.2	61.5	62.1	58.2	60.5	56.4
2	November	65.4	60.5	63.2	59.2	61.3	58.4
3	December	66.5	61.2	64.2	60.4	62.4	57.2
4	January	66.5	61.4	64.2	60.3	62.4	59.1
5	February	66.4	62.2	64.3	60.1	61.5	58.2
6	March	65.8	60.2	58.7	63.4	57.2	60.1

Work Zone Noise Monitoring (Oct. 2022 to Mar.2023)

Sl. No.	Month	Boiler Floor		Turbine Floor		Compressor House Area		Turbine Generation Unit-I		Turbine Generation Unit-II	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
		dB(A)									
1	October	-	-	-	-	-	-	-	-	-	-
2	November	-	-	-	-	-	-	-	-	-	-
3	December	81.2	86.3	83.1	85.2	76.9	80.6	82.1	84.0	81.2	86.3
4	January	-	-	-	-	-	-	-	-	-	-
5	February	-	-	-	-	-	-	-	-	-	-
6	March	66.7	82.5	83.6	85.3	75.8	80.2	81.7	84.5	66.7	82.5

ANNEXURE-X

Ambient Air Quality Monitoring (Oct. 2022 to Mar. 2023)

October

Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	9.58	10.10	9.68
NO ₂		80	11.28	11.60	11.53
PM ₁₀		100	60.25	55.75	48.25
PM _{2.5}		60	22.50	24.50	21.00

November

Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	10.10	9.40	9.30
NO ₂		80	12.43	10.73	11.40
PM ₁₀		100	62.50	61.00	65.25
PM _{2.5}		60	22.50	25.50	23.75

December

Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	10.75	9.48	9.98
NO ₂		80	13.73	12.20	12.43
PM ₁₀		100	60.25	60.75	62.25
PM _{2.5}		60	25.50	24.00	25.00

January

Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	10.85	8.35	10.83
NO ₂		80	12.85	10.78	13.20
PM ₁₀		100	60.00	59.50	56.50
PM _{2.5}		60	23.00	20.75	21.00

February

ANNEXURE-X

Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	11.33	10.08	10.33
NO ₂		80	14.10	13.10	13.45
PM ₁₀		100	59.00	54.00	58.75
PM _{2.5}		60	22.75	18.75	21.25

March					
Parameters	Unit	Standard	Near Switch Yard	Near Reservoir	Near CHP
SO ₂	µg/m ³	80	12.05	13.55	13.80
NO ₂		80	14.95	16.28	16.93
PM ₁₀		100	63.00	61.00	60.50
PM _{2.5}		60	23.25	24.00	19.75

Stack Emission Monitoring (Oct. 2022 to Mar. 2023)

Unit -I

Sl. No.	Month	PM	SO ₂	NOx
		mg/Nm ³		
1	October	46.5	1322.0	332.0
2	November	31.5	1170.5	328
3	December	44.5	1178	327.5
4	January	44	1257.5	336
5	February	48.5	1105.5	337.5
6	March	38.5	1302.5	342

Unit -II

Sl. No.	Month	PM	SO ₂	NOx
		mg/Nm ³		
1	October	41.0	1237.5	331.5
2	November	30.5	1193.0	327.5
3	December	38.5	1117.5	333.5
4	January	35.0	1227.5	335.0
5	February	47.0	1084.5	336.5
6	March	40.5	1321.5	340



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-NG04468-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004101F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Stack Emission	Sample Collected 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	13.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	17.03.2023

Stack Details	
Stack Identity	Unit -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 (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	10:30 to 11:00

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; RA 2018
2	Flue gas Velocity	m/s	25	-	IS 11255 (Part 3):2008; RA 2018
3	Total gas quantity	Nm ³ /h	1236428	-	IS 11255 (Part 3):2008; RA 2018
4	Particulate Matter (PM)	mg/Nm ³	43	50	IS 11255 (Part 1):1985 RA 2019
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1356	600	IS 11255 (Part 2):1985; RA 2019
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	354	450	IS 11255 (Part 7): 2005; RA 2017





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TEST REPORT

Report No.:	ME-NG04468-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004101F	

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0022	0.03 max.	CPCB Guidelines on Methodologies for Source Emission Monitoring, Chapter 5&6; Pg.No.54-84
8	Oxygen (O ₂)	%	8.2	-	IS 13270:1992, Reaffirmed 2019

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.
 7. Any complaint pertaining to the report can be addressed to mahabalreports@gmail.com


Harish Mendhi
Technical Manager
Chemical Testing





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TEST REPORT



Report No.:	ME-NG04469-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004102F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Stack Emission	Sample Collected 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	13.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	17.03.2023

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 (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	131	-	IS 11255 (Part 3):2008; RA 2018
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008; RA 2018
3	Total gas quantity	Nm ³ /h	1238554	-	IS 11255 (Part 3):2008; RA 2018
4	Particulate Matter (PM)	mg/Nm ³	42	50	IS 11255 (Part 1):1985 RA 2019
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1312	600	IS 11255 (Part 2):1985; RA 2019
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	336	450	IS 11255 (Part 7): 2005; RA 2017

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QF/SALE/04
Issue No 03
Date 05.12.2019.
Amd 01 Date
24.12.2022


Harish Mendhi
Technical Manager
Chemical Testing





Mahabal Enviro Engineers Pvt. Ltd.

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TEST REPORT

Report No.:	ME-NG04469-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004102F	

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
7	Mercury	mg/Nm ³	0.0027	0.03 max.	CPCB Guidelines on Methodologies for Source Emission Monitoring, Chapter 5&6; Pg.No.54-84
8	Oxygen (O ₂)	%	7.8	-	IS 13270:1992, Reaffirmed 2019

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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Harish Mendhi
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TEST REPORT

Report No.:	ME-NG05141-230328-SA-GMR-WARORA	Date: 28.03.2023
ULR No.:	TC748723000004688F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Stack Emission	Sample Collected 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
Date of Sampling	21.03.2023	Date of Receipt of Sample	22.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	23.03.2023	Date of Completion of Analysis	25.03.2023

Stack Details	
Stack Identity	Unit -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 (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	12:15 to 12:45

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; RA 2018
2	Flue gas Velocity	m/s	25.1	-	IS 11255 (Part 3):2008; RA 2018
3	Total gas quantity	Nm ³ /h	1237516	-	IS 11255 (Part 3):2008; RA 2018
4	Particulate Matter (PM)	mg/Nm ³	34	50	IS 11255 (Part 1):1985 RA 2019
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1249	600	IS 11255 (Part 2):1985; RA 2019
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	330	450	IS 11255 (Part 7): 2005; RA 2017
7	Oxygen (O ₂)	%	7.8	-	IS 13270:1992, Reaffirmed 2019

Harish Mendhi
Technical Manager
Chemical Testing





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



TEST REPORT

Report No.:	ME-NG05141-230328-SA-GMR-WARORA	Date: 28.03.2023
ULR No.:	TC748723000004688F	

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-NG05142-230328-SA-GMR-WARORA	Date: 28.03.2023
ULR No.:	TC74872300004689F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Stack Emission	Sample Collected 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
Date of Sampling	21.03.2023	Date of Receipt of Sample	22.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	23.03.2023	Date of Completion of Analysis	25.03.2023

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 (L/h)	-
Load at the time of monitoring (MW)	-
Time of Monitoring (h)	12:55 to 13:35

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	131	-	IS 11255 (Part 3):2008; RA 2018
2	Flue gas Velocity	m/s	25.0	-	IS 11255 (Part 3):2008; RA 2018
3	Total gas quantity	Nm ³ /h	1233367	-	IS 11255 (Part 3):2008; RA 2018
4	Particulate Matter (PM)	mg/Nm ³	39	50	IS 11255 (Part 1):1985 RA 2019
5	Sulphur Dioxide (SO ₂)	mg/Nm ³	1331	600	IS 11255 (Part 2):1985; RA 2019
6	Oxides of Nitrogen (NO _x)	mg/Nm ³	344	450	IS 11255 (Part 7): 2005; RA 2017
7	Oxygen (O ₂)	%	8.2	-	IS 13270:1992, Reaffirmed 2019





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TEST REPORT

Report No.:	ME-NG05142-230328-SA-GMR-WARORA	Date: 28.03.2023
ULR No.:	TC748723000004689F	

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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Harish Mendhi
Technical Manager
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TEST REPORT



Report No.:	ME-NG04201-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000003886F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	08.03.2023 to 09.03.2023	Date of Receipt of Sample	09.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.03.2023	Date of Completion of Analysis	16.03.2023

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	14.8	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	18.1	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	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	16	60	CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.15-30
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
7	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)

END OF REPORT

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Harish Mendhi
Technical Manager
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TC-7487



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TEST REPORT



REPORT-202301

Report No.:	ME-NG04201-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000003886F	

- 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-NG04202-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000003887F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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 3 No. Gas Bladder
Date of Sampling	08.03.2023 to 09.03.2023	Date of Receipt of Sample	09.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.03.2023	Date of Completion of Analysis	16.03.2023

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	16.1	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	66	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
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
7	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, (NDIR method)

END OF REPORT

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TEST REPORT

Report No.:	ME-NG04202-230316-SA-GMR-WARORA	Date: 16.03.2023
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- 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-NG04203-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000003888F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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 3 No. Gas Bladder
Date of Sampling	08.03.2023 to 09.03.2023	Date of Receipt of Sample	09.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	10.03.2023	Date of Completion of Analysis	16.03.2023

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	10.8	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	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	69	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	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	0.80	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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TEST REPORT

Report No.:	ME-NG04203-230316-SA-GMR-WARORA	Date: 16.03.2023
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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-NG04463-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004096F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	13.03.2023 to 14.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	16.03.2023

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	14.8	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	18.1	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	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	16	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)

END OF REPORT





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TEST REPORT

Report No.:	ME-NG04463-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004096F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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TEST REPORT

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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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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 3 No. Gas Bladder
Date of Sampling	13.03.2023 to 14.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	16.03.2023

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	15.8	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	18.1	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	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	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	04	CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDR method)

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TC-7487



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TEST REPORT

Report No.:	ME-NG04464-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004097F	

- Note:**
1. BQL: Below Quantification Limit.
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 3. Duration of Sampling: 24h
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 6. #- NAAQS specified as: 24 h. TWA in case of Sulphur Dioxide, Nitrogen Dioxide, PM₁₀, PM_{2.5}; 1 h. TWA in case of Carbon Monoxide.
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TEST REPORT

Report No.:	ME-NG04465-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004098F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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 3 No. Gas Bladder
Date of Sampling	13.03.2023 to 14.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	16.03.2023

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	14.8	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	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	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	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	1.08	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
Harish Mendhi
Technical Manager
Chemical Testing



TC-7487



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-NG04465-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004098F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
 7. The result listed refers only to the tested sample(s) and applicable parameter(s).
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24.12.2022


Harish Mendhi
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TEST REPORT

Report No.:	ME-NG05089-230330-SA-GMR-WARORA	Date:	30.03.2023
ULR No.:	TC748723000004643F		

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	20.03.2023 to 21.03.2023	Date of Receipt of Sample	21.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	22.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing; 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	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	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	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	0.83	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-NG05089-230330-SA-GMR-WARORA	Date: 30.03.2023
ULR No.:	TC748723000004643F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Phone: 0712-2612162/2612212 email: nagpur@mahabal.com



TEST REPORT

Report No.:	ME-NG05090-230330-SA-GMR-WARORA	Date:	30.03.2023
ULR No.:	TC748723000004644F		

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	20.03.2023 to 21.03.2023	Date of Receipt of Sample	21.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	22.03.2023	Date of Completion of Analysis	27.03.2023

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	16.1	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	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)

END OF REPORT





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



TEST REPORT

Report No.:	ME-NG05090-230330-SA-GMR-WARORA	Date: 30.03.2023
ULR No.:	TC748723000004644F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Harish Mendhi
Technical Manager
Chemical Testing





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TEST REPORT

Report No.:	ME-NG05091-230330-SA-GMR-WARORA	Date:	30.03.2023
ULR No.:	TC748723000004645F		

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	20.03.2023 to 21.03.2023	Date of Receipt of Sample	21.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	22.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	#NAAQS	Method Reference
	<u>Discipline: Chemical Testing; 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	14.1	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	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	0.93	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-NG05091-230330-SA-GMR-WARORA	Date: 30.03.2023
ULR No.:	TC748723000004645F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Harish Mendhi
Technical Manager
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TEST REPORT

Report No.:	ME-NG05615-230401-SA-GMR-WARORA	Date: 01.04.2023
ULR No.:	TC748723000005104F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	27.03.2023 to 28.03.2023	Date of Receipt of Sample	28.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.03.2023	Date of Completion of Analysis	01.04.2023

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	16.1	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	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	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	0.99	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-NG05615-230401-SA-GMR-WARORA	Date: 01.04.2023
ULR No.:	TC748723000005104F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Harish Mendhi
Technical Manager
Chemical Testing





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TEST REPORT

Report No.:	ME-NG05616-230401-SA-GMR-WARORA	Date: 01.04.2023
ULR No.:	TC748723000005105F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	27.03.2023 to 28.03.2023	Date of Receipt of Sample	28.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.03.2023	Date of Completion of Analysis	01.04.2023

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	11.8	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	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	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	1.06	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-NG05616-230401-SA-GMR-WARORA	Date: 01.04.2023
ULR No.:	TC748723000005105F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Harish Mendhi
Technical Manager
Chemical Testing





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TEST REPORT

Report No.:	ME-NG05617-230401-SA-GMR-WARORA	Date:	01.04.2023
ULR No.:	TC748723000005106F		

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected 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	27.03.2023 to 28.03.2023	Date of Receipt of Sample	28.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	29.03.2023	Date of Completion of Analysis	01.04.2023

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	9.8	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	13.4	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	66	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)

END OF REPORT

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Harish Mendhi
Technical Manager
Chemical Testing



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TEST REPORT

Report No.:	ME-NG05617-230401-SA-GMR-WARORA	Date: 01.04.2023
ULR No.:	TC748723000005106F	

- 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}; 1 h. TWA in case of Carbon Monoxide.
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Chemical Testing





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TEST REPORT

Report No.:	ME-NG04466-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004099F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected by	Laboratory
Sampling Location	Temporary Township	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	13.03.2023 to 14.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	16.03.2023

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	16.1	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	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	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	0.91	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-NG04466-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004099F	

- 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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24.12.2022


Harish Mendhi
Technical Manager
Chemical Testing





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TEST REPORT



Report No.:	ME-NG04467-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004100F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Ambient Air	Sample Collected by	Laboratory
Sampling Location	Anandwan Warora	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	13.03.2023 to 14.03.2023	Date of Receipt of Sample	14.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	15.03.2023	Date of Completion of Analysis	16.03.2023

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	11.8	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	15.4	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	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	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	0.93	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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Date 05.12.2019.
Amd 02 Date
24.12.2022


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Technical Manager
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TC-7487



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



TEST REPORT

Report No.:	ME-NG04467-230318-SA-GMR-WARORA	Date: 18.03.2023
ULR No.:	TC748723000004100F	

- 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-NG04204-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000003889F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description/Type	Ambient Noise	
Date of Sampling	08.03.2023	Sampling Procedure IS 9876:1981

Sr. No.	Location	Time in h	Sound Level L_{eq} dB (A)
Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)			
1	Near CHP	10:10 23:00	65.8 60.2
2	Near Switch Yard	10:30 23:20	63.4 58.7
3	Near Reservoir	10:50 23:40	60.1 57.2

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 (6:00 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-NG04470-230316-SA-GMR-WARORA	Date: 16.03.2023
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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Workplace Noise	
Date of Sampling	13.03.2023	Sampling Procedure IS 9876:1981

Sr. No.	Location	Time in h	Sound Level L_{eq} dB (A)
1.	Compressor House Area	10:05	80.2
		23:10	75.8
2.	Boiler Floor	10:15	66.7
		23:20	82.5
3.	Turbine Floor	10:20	85.3
		23:25	83.6
4.	Turbine Generation Unit-I	10:25	84.5
		23:30	81.7
5.	Turbine Generation Unit-I	10:30	85.3
		23:35	81.2

Limit as per The Factories Act, 1948, The Maharashtra Factory Rules, 1963, Schedule XXIV Total time of exposure per day, in hours.	Max. Sound pressure level in dB (A)
8	
6	90
4	92
3	95
2	97
1 ½	100
1	102
¾	105
½	107
¼	110
	115

END OF REPORT

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TEST REPORT

Report No.:	ME-NG04471-230316-SA-GMR-WARORA	Date: 16.03.2023
ULR No.:	TC748723000004104F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description/Type	Source Noise	
Date of Sampling	13.03.2023	Sampling Procedure IS 9876:1981

Sr. No.	Location	Time in h	Sound Level L_{eq} dB (A)
	Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Source Noise Excluding Vibrations)		
1	DG Set Unit -I 1250kVA	10:35	72.4
		23:40	69.3
2	DG Set Unit -II 1250kVA	10:40	73.2
		23:45	69.1

END OF REPORT

- Note:**
1. Measurement taken at 1 meter distance from the source.
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TEST REPORT

Report No.:	ME-NG04746-230321-SA- GMR-WARORA	Date: 21.03.2023
ULR No.:	TC748723000004362F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Fugitive Emission	Sample Collected 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	16.03.2023	Date of Receipt of Sample	17.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.03.2023	Date of Completion of Analysis	20.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing:</u> <u>Product Group: Atmospheric Pollution (Fugitive Emission)</u>			
1	Suspended Particulate Matter (SPM)	µg/m ³	1087	IS 5182 (Part 4):1999, RA 2019

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-NG04747-230321-SA- GMR-WARORA	Date: 21.03.2023
ULR No.:	TC748723000004363F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Fugitive Emission	Sample Collected 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	16.03.2023	Date of Receipt of Sample	17.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.03.2023	Date of Completion of Analysis	20.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing:</u> <u>Product Group: Atmospheric Pollution (Fugitive Emission)</u>			
1	Suspended Particulate Matter (SPM)	µg/m ³	1088	IS 5182 (Part 4):1999, RA 2019

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
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TEST REPORT

Report No.:	ME-NG04748-230321-SA- GMR-WARORA	Date: 21.03.2023
ULR No.:	TC748723000004363F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Fugitive Emission	Sample Collected by	Laboratory
Sampling Location	Near Wagon Tipler Area	Sample Quantity / Packing	PM ₁₀ : Filter Paper 1 X 1 No. Cyclone Cup: 1 X 1 No.
Date of Sampling	16.03.2023	Date of Receipt of Sample	17.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.03.2023	Date of Completion of Analysis	20.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Fugitive Emission)</u>			
1	Suspended Particulate Matter (SPM)	µg/m ³	998	IS 5182 (Part 4):1999, RA 2019

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
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 3. TWA: Time Weighted Average.
 4. Duration of Sampling: 8h
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TEST REPORT

Report No.:	ME-NG04749-230321-SA- GMR-WARORA	Date: 21.03.2023
ULR No.:	TC748723000004365F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Fugitive Emission	Sample Collected 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	16.03.2023	Date of Receipt of Sample	17.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	18.03.2023	Date of Completion of Analysis	20.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	<u>Discipline: Chemical Testing;</u> <u>Product Group: Atmospheric Pollution (Fugitive Emission)</u>			
1	Suspended Particulate Matter (SPM)	µg/m ³	498	IS 5182 (Part 4):1999, RA 2019

END OF REPORT

- Note:**
1. BQL: Below Quantification Limit.
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 4. Duration of Sampling: 8h
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TEST REPORT

Report No.:	ME- NG05271-230328-SA-GMR-WARORA	Date: 28.03.2023
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.: 4800164654 SO Date: 19.04.2022
Sample Description / Type	Workplace Air	Sample Collected by	Laboratory
Sampling Location	CHP transformer House	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	23.03.2023	Date of Receipt of Sample	24.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	25.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	2.5	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- NG05272-230328-SA-GMR-WARORA	Date: 28.03.2023
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.: 4800164654 SO Date: 19.04.2022
Sample Description / Type	Workplace Air	Sample Collected by	Laboratory
Sampling Location	CHP Penthouse	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	23.03.2023	Date of Receipt of Sample	24.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	25.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	4.8	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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TEST REPORT

Report No.:	ME- NG05273-230328-SA-GMR-WARORA	Date: 28.03.2023
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.: 4800164654 SO Date: 19.04.2022
Sample Description / Type	Workplace Air	Sample Collected by	Laboratory
Sampling Location	CHP Crusher House	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	23.03.2023	Date of Receipt of Sample	24.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	25.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	4.2	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- NG05274-230328-SA-GMR-WARORA	Date: 28.03.2023
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.: 4800164654 SO Date: 19.04.2022
Sample Description / Type	Workplace Air	Sample Collected by	Laboratory
Sampling Location	CHP Bunker Floor	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	23.03.2023	Date of Receipt of Sample	24.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	25.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	2.5	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- NG05275-230328-SA-GMR-WARORA	Date:	28.03.2023
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.: 4800164654 SO Date: 19.04.2022
Sample Description / Type	Workplace Air	Sample Collected by	Laboratory
Sampling Location	AHP Fly Slio Area	Sample Quantity / Packing	Filter Paper 1 X 1 No.
Date of Sampling	23.03.2023	Date of Receipt of Sample	24.03.2023
Sampling Procedure	As per method reference		
Date of Start of Analysis	25.03.2023	Date of Completion of Analysis	27.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
1	Total Dust	mg/m ³	3.8	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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TEST REPORT



Report No.:	ME-NG03818-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003528F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Domestic Effluent	Sample Collected by	Laboratory
Sampling Location	STP Inlet	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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	7.7	APHA 23 rd Ed. 2017, 4500-H+B, 4-95
2.	Total Dissolved Solids	mg/L	1945	IS 3025 (Part 16):1984 RA 2017, Ed 2.1(1999-12)
3.	Total Suspended Solids	mg/L	21	APHA 23 rd Ed. 2017, 2540-D, 2-70
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	10	IS 3025 (Part 44): 1993, RA 2019
5.	Chemical Oxygen Demand	mg/L	32	APHA 23 rd Ed. 2017, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:1)	IS 3025 (Part 39): 1991, Reaffirmed 2009, Amds.1

END OF REPORT

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TEST REPORT

Report No.:	ME-NG03819-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003529F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Domestic Effluent	Sample Collected by	Laboratory
Sampling Location	STP Outlet	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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

Sr. No.	Parameter	Unit	Result	#Limit	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)				
1.	pH	-	7.6	-	APHA 23 rd Ed. 2017, 4500-H ⁺ -B, 4-95
2.	Total Dissolved Solids	mg/L	436	-	IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12)
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	50 Max.	APHA 23 rd Ed. 2017, 2540-D, 2-70
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	3.4	30 Max.	IS 3025 (Part 44): 1993, RA 2019
5.	Chemical Oxygen Demand	mg/L	12	100 Max.	APHA 23 rd Ed. 2017, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:1)	-	IS 3025 (Part 39): 1991, Reaffirmed 2009, Amds. 1
7.	Calcium (as Ca)	mg/L	68.9	-	APHA 23 rd Ed. 2017, 3500-Ca-B, 3-69
8.	Magnesium (as Mg)	mg/L	21.4	-	APHA 23 rd Ed. 2017, 3500-Mg- B, 3-86
9.	Sodium (as Na)	mg/L	37.4	-	APHA 23 rd Ed. 2017, 3500-Na-B, 3-99

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TEST REPORT

Report No.:	ME-NG03819-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003529F	

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TEST REPORT

Report No.:	ME-NG03820-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003530F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Industrial Effluent	Sample Collected by	Laboratory
Sampling Location	DM Plant	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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

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 23 rd Ed. 2017, 4500-H ⁺ -B, 4-95
2.	Total Dissolved Solids	mg/L	1308	2100 Max.	IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12)
3.	Total Suspended Solids	mg/L	BQL (LOQ:5)	100 Max.	APHA 23 rd Ed. 2017, 2540-D, 2-70
4.	Biochemical Oxygen Demand (3 days 27°C)	mg/L	26	30 Max.	IS 3025 (Part 44): 1993, RA 2019
5.	Chemical Oxygen Demand	mg/L	84	250 Max.	APHA 23 rd Ed. 2017, 5220-B, 5-18
6.	Oil and Grease	mg/L	BQL (LOQ:1)	10 Max.	IS 3025 (Part 39): 1991, Reaffirmed 2009, Amds.1

END OF REPORT

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TEST REPORT

Report No.:	ME-NG03821-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003531F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Industrial Effluent	Sample Collected 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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

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 23 rd Ed. 2017, 4500-CI G, 4-72
2.	Phosphate Total (as P)	mg/L	0.695	5.0 Max.	APHA 23 rd Ed. 2017, 4500-P B, 4-160, E, 4-164
	Residues in water (Trace metal Element)				
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	0.023	1.0 Max.	IS 3025 (Part 2) 2019

END OF REPORT

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TEST REPORT

Report No.:	ME-NG03822-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003532F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Industrial Effluent	Sample Collected by	Laboratory
Sampling Location	Condenser Cooling Water	Sample Quantity / Packing	1 L X 1 No. PVC Can
Date of Sampling	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

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 23 rd Ed. 2017, 2550-B, 2-74
2.	pH	-	7.3	6.5 to 8.5	APHA 23 rd Ed. 2017, 4500-H ⁺ -B, 4-95
3.	Free Available Chlorine	mg/L	BQL (LOQ:0.05)	0.5 Max.	APHA 23 rd Ed. 2017, 4500-Cl G, 4-72

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TEST REPORT

Report No.:	ME-NG03823-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003533F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Industrial Effluent	Sample Collected 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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

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 23 rd Ed. 2017, 2540-D, 2-70
2.	Oil and Grease	mg/L	BQL (LOQ:1)	10 Max.	IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1
	Residues in water (Trace metal Element)				
3.	Copper (as Cu)	mg/L	BQL (LOQ:0.01)	1.0 Max.	IS 3025 (Part 2) 2019
4.	Iron (as Fe)	mg/L	0.140	1.0 Max.	IS 3025 (Part 2) 2019

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TEST REPORT

Report No.:	ME-NG03824-230315- SA-GMR-WARORA	Date: 15.03.2023
ULR No.:	TC748723000003534F	

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.: 4800164654 SO Date: 21.03.2022
Sample Description / Type	Industrial Effluent	Sample Collected 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	03.03.2023	Date of Receipt of Sample	04.03.2023
Sampling Procedure	IS:3025(Part I):1987, RA 2019; APHA 23 rd Ed. 2017, 1060-B, 1-40		
Date of Start of Analysis	04.03.2023	Date of Completion of Analysis	14.03.2023

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)			
1.	pH	-	7.4	APHA 23 rd Ed. 2017, 4500-H ⁻ B, 4-95
2.	Total Suspended Solids	mg/L	49	APHA 23 rd Ed. 2017, 2540-D, 2-70
3.	Oil and Grease	mg/L	BQL (LOQ:1)	IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1

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