# GMR Warora Energy Limited

Site Office:
Plot No. B1 & B7
Mohabala MIDC Growth Centre
Post and Tehsil Warora, Dist. Chandrapur
Maharashtra - 442 907
CIN U40100MH2005PLC155140
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**Ref: GMR/GWEL/EC/COM/21-22/02**
18th Apr. 2022

**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 to March 2022.**

Kindly acknowledge the receipt of the same.

Thanking you.

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

**Dhananjay Deshpande**
**COO**

**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 2021 TO MARCH 2022

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 SOx, NOx 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/Nm3. **(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 m3/hr. |
| 9 | Closed cycle cooling system with cooling towers shall be provided. The effluent shall be treated to conform to the prescribed norms | Complied.<br><br>Induced draft cooling tower (IDCT) is being constructed. Amendment to shift from Natural draft cooling tower (NDCT) to IDCT, MOEF (GoI). Vide letter no. J-13012/75/ 2008-1A.II (T), dated 30th November, 2010.<br><br>State of art ETP is in operation in which Effluent are treated to meet the prescribed norms.<br>(**Annexure-III)** |

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| 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.<br>Treated water from STP is used in green Belt development activities/ plantation.<br>**(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 | More than 40% 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. |

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| 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 vie 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 $SO_2$, NOx, 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 $SO_2$, NOx, 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.<br><br>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 installed around coal stack yard to safeguard against fire incident. The system is always in pressurized condition through Fire water pump house for ready 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 30$^{th}$ Oct. 2021. |

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| 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.<br>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 | | |
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| **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 vie 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. Well devised schedule is developed for carrying out the sanitization of the plant areas. |
| 4 | Regular monitoring of ground level concentration of SOx, NOx, 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 $SO_2$, NOx, 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.<br><br>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 |

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| 6 | 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, NOx (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. | Six monthly EC compliance report are regularly submitted to MoEF & CC regional office as well as to regional offices of MPCB<br><br>The pollutant levels, namely SPM, RSPM, SO2, NOx (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. |
| 7 | 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. | 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.<br>Last compliance report was submitted on 30th Oct. 2021. |
| 8 | 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 NOx) will be displayed at the main gate of the power plant. | Six monthly EC compliance report are uploaded in the company website and updated time to time. The criteria pollutant levels, namely SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) are being monitored and displayed at the main gate of the company continuously. |

| 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 | | |
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| **Sr. No** | **Terms and Conditions** | **Compliance Status** |
| **A. Specific Conditions.** | | |
| 1 | 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.<br><br>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. | 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. |
| 2 | It shall be ensured that the natural drainage in the region is not disturbed due to activities associated with operation of the plant. | 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. |
| 3 | Provision for installation of FGD shall be provided. High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/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. | Provision for installation of FGD have been duly provided.<br>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.<br><br>Adequate dust extraction system installed in coal bunker and dry fog type dust suppression system provided at wagon tipplers, coal stock piles, crusher house, and transfer houses to take care of fugitive emissions. |
| 4 | The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM (PM2.5 & PM10), S02, NOx (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. | Six monthly EC compliance report are uploaded in the company website and updated time to time. The criteria pollutant levels, namely SPM, RSPM (PM2.5 & PM10), S02, NOx (ambient levels as well as stack emissions) are being monitored and displayed at the main gate of the company continuously. |

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| 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. ln 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.<br>Hydrogeological study report was submitted on 24th Mar. 2022 |
| 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 plants for cement manufacturing & 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.<br>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. |

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| 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.<br><br>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.** |

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| 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.<br><br>CSR activities is vigorously carried out by the project proponent through its wing Var Laxmi Foundation. Details of the CSR activities being carried out in last FY is attached for reference.<br>(**Annexure-VII)** |
| **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.<br>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.<br>Heavy metals are being analyzed in the ash pond water and report shared with concerned authorities. |

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| | 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 SOx. NOx, 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 $SO_2$, NOx, 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.<br><br>Monitoring reports are also submitted to the state board on monthly basis.<br>**(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 30th Sep. 2021.<br>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 30th Oct. 2021. |
| 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.<br><br>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.<br>Final approval by the Concerned authorities:<br>1) Letter of support from Govt. of Maharashtra dated 1st May 2007 is already submitted with First Compliance report.<br>2) Environment clearance letter MoEF submitted.<br>3) Date of start of land development work: June 2010.<br>4) Unit-I COD- March 2013.<br>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**

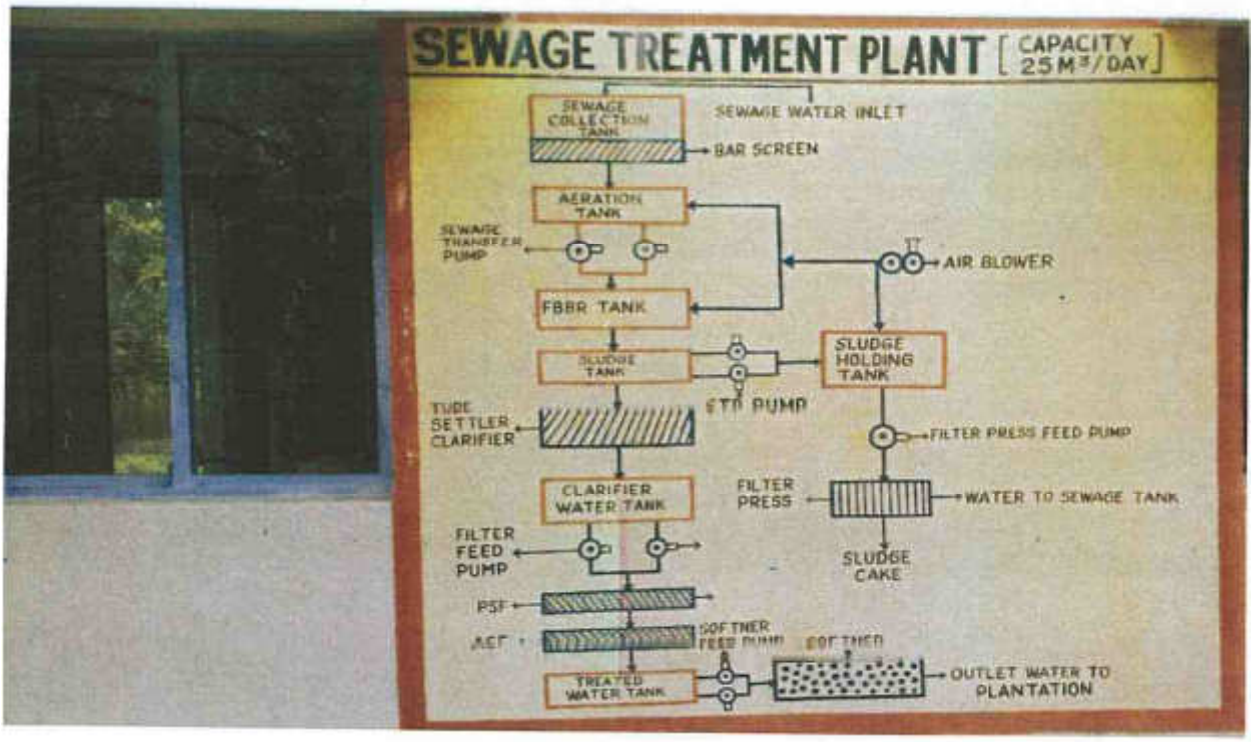
**FLY ASH AND BOTTOM ASH SILOS**

**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 2021 to March 2022

## Corporate Social Responsibility

## GMR Varalakshmi Foundation

## and

## GMR Warora Energy Ltd., Warora

## CONTENT

# HIGHLIGHTS OF GWEL-CSR ACTIVITIES (APRIL 2021- MARCH 2022)

## Education

- Classes of E-Modules of NEXT Education in 4 ZP Schools started that benefitted 400 students.
- Conducted online classes of After School Learning Centers (ASLCs), E-Centers and Navodaya covering more than 1019 students.
- Learning Navigator Tool (GOORU) implemented with 131.
- Capacitated volunteers & ZP school teachers benefited 30 volunteers and teachers.
- School Bus services benefitted 110 students of Class VIII – X.
- Pratibha Library benefitted 150 youth. Seven students selected in Govt. Jobs this year.
- Offline educational activities were kept suspended in the villages for few months due to pandemic.

## 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 23,000 old aged people.
- Nutrition center benefitted 63 pregnant and lactating mothers from 5 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.
- 147 Post Lockdown awareness programs organized in villages that benefitted over 6,000 people.

**COVID RESPONSE:**

- Cotton Mask distributed to more than 12,000 health worker, villagers and Govt Officials etc.
- Donated 10 Oxygen Concentrator & 8 Desktop at Govt Hospital & Vaccination Centers.
- Supported Salary of 6 Computer Operators.
- Donated 6 Jumbo Oxygen Cylinder at Govt Hospital, Warora.
- Helped Vidarbha Medical Association during lockdown.
- Supported Village Level Isolation Center in 4 villages.

## Empowerment & Livelihoods

- Total 170 students successfully completed the vocational training in self-employment courses.
- 810 people supported for livelihood activities out of this nearly 545 people are earning average Rs. 7,000/- annually.
- 61 Swadaan programs organized by 69 GMRVF beneficiaries that benefitted 580 people.
- 511 employees participated in different community development programs and contributed 633 voluntary hours.

# 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 7 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 21,000. 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 24,000 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.

The outbreak of coronavirus (COVID-19) and subsequent guidelines from Govt on lockdown and new normal specially in Maharashtra has caused many of our field activities to suspend for few months in the beginning of this year. All educational activities were allowed to operate from August 2021 onwards but with restrictions. Therefore, virtual mode of delivering education activities have been planned in the beginning of the year and later as per permission from educational activities were conducted in the villages. 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 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. The classes started resume in school from Oct-Nov in different schools due to pandemic.

**A.2 Capacity Building of ZP School Teachers on Computer based Education:** Eight 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. Direct support to the children

**B.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 reached to 508 students this year and out of this, average 445 students have attended the online and offline activities regularly. During, the peak period of COVID 19 the teaching activities conducted strictly on online mode. The fortnightly test conducted in each ASLC to gage the learning level of students. Total 14 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 13% students in Grade A, 15% students in Grade B and 72% students in Grade C&D.
- The last fortnightly test shows that 62% students scored A Grade; 22% students received B Grade and 17% students achieved C&D Grade results.

**B.2 E- Education and Learning Center (EELC):** GMRVF is running 6 EELC in six villages with the objective to provide basic computer education to the school children of the villages. This year online and office classes conducted in all centers due to pandemic. The online learning material for E-Center is circulated to children through parent's WhatApp groups. The highlight of EELC is as shown below:

- Total 515 students enrolled for E-Learning centers and learned basic computer skills.
- The student's progress measured through fortnightly test conducted in the center before start of the classes and during the year. The E-Center results shows that out of 515 students 72%

students scored A Grade; 19% students received B Grade and 8 % students achieved C&D Grade results.

- The very first test at the time of start of session shows 7 % students in Grad A, 19% students in Grade B and 74% Students in Grade C&D.

**B.3 Navodaya Coaching Center:** GMRVF is running Navodaya coaching classes in 3 villages. This year 33 students selected for special coaching for Jawahar Navodaya Vidyalaya entrance test. Navodaya coaching started from 1st August this year. Considering the COVID 19 pandemic situation volunteers conducted online classes through WhatsApp groups. Each students track for their progress through fortnightly and weekly test. The last test results shows:

- One student selected in entrance test during this academic year and took admission at Jawahar Navodaya Vidyalaya, Nagpur
- Out of 33 students 51% students achieved A Grade and rest 48% students achieved B Grade marks. No students in Navodaya scored C&D marks

**B.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 13 Vidya volunteers attended the fortnightly trainings regularly and conducted online & offline classes as per plans.

**B.5 TLM distribution to students:** Course workbooks and notebooks were distribution to help students learning, in 8 ZP schools covering all students of class 1 to 7. Volunteers and teachers of school facilitated the distribution following necessary precautions for COVID-19. This act has helped and benefitted more than 550 students of the schools, E-Center, ASLC.

**B.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 550 are registered in the library.

- This year more than 125 youths attended online and offline classes.
- 7 aspirants were successful this year in competitive exam of CRPF, CISF and Mumbai Police.
- 50 students completed online courses under various online platforms and all have completed the course successfully at Pratibha Center.

**B.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 started this year again as the local schools reopened with due permissions from the district collector and followed all necessary protocols for COVID 2019.

- This year, total 110 students availed the facility and attended schools regularly.

## C. Awareness programs for children

**C.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 180 students participated and learned the subjects during the sessions.

**C.2 Celebration of National Safety Week:** 51st National Safety awareness program conducted at Pratibha Library and at high school covering road and various other safety related topics. Total 120 students participated in the program and learned the causes and effects of safety.

**C.3 Safety Awareness Program:** Two road safety awareness program conducted by EHS department of GWEL at Pratibha Center and High School. The topics such as safety while using electrical appliances, fire safety and road safety issues were discussed during the occasion. Total 78 students participated in the program and benefitted.

## D. Location specific initiatives

**D.1 Learning Navigator Program:** GMRVF and Gooru India Foundation (GIF) have implemented Learning Navigator program using GOORU App this year with 131 students of Std IV - VII. 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 2021 and series of capacity building sessions conducted to take off program in 6 villages. Total 131 students enrolled in the program were created classrooms in Gooru App for each village and each class and studies started conducting using Gooru App. At end of this FY, 5923 competencies have been gained and are in progress among Std IV to Std VII students. More than 90% students in Warora achieved 70-100% marks in each competency.

**D.2 Special Motivation Classes for 10th Students:** Special motivational online class conducted for 33 students of class 10th of Chetna high school and Karmveer High school. This 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 write exams and how to attempt question papers so as to achieve maximum score in board exam.

**D.3 Summer Camp:** The summer classes conducted from April 2021 to June 2022 in 7 villages. GMRVF has assessed the actual course covered in last academic year and planned to organize summer classes with the objective to boost learning level which students failed to achieve during last academic session due to pandemic. 14 volunteers of ASLC, E-center and Navodaya attended online session and prepared session plan and pedagogy for the decided course content and shared with all volunteers to take it forward at student's end. Volunteers have shared the decided course material at village level respective WhatsApp groups of students and also provided offline material, workbooks and xerox of

competencies who are not able to attend classes due to unavailability of smart phone. Total 578 enrolled students attended the summer classes both online and offline and benefitted.

## 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 eight Primary Health Clinics in 8 project affected villages and providing basic health check-up and free medicines. Regular disinfection, Hand wash, Hand sanitizer, PPE Kits, face masks and social distancing were strictly followed during conduct of the clinics. Qualified doctors visited the clinics twice in a week and treated patient.

- This year, over 24,837 people received treatment and free medicines from the clinics.

**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 the same has been inaugurated on 1 Feb 2022. The center will cover health clinic operation twice in a week in 10 villages and 24X7 medical services at GMRVF Day Care Health Center.

- Total 142 patients suffering from critical ailment from villages have been referred to AVBRH.
- Total 95 OPD conducted in past two months at the Day Care Health Center.

**A.2 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. MMU has also aware to villagers to combat COVID-2019 through pamphlets and displaying of posters.

- More than 23,133 Regular, Chronic and Seasonal old aged patients aged 50 and above received treatment and free medicine during this year.

**A.3 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 63 enrolled Pregnant and Lactating Mothers (PLM) and providing services such as health check-ups, weight measurements, building awareness on health related issues etc.

- This year total 37 delivery taken place in 6 villages.
- 100% delivery reported institutional delivery.
- Average baby weight at the time of birth reported to 2.8 kg with 86% 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 18,000 people (nearly 4500 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 opened this year after COVID 19 unlock. The community toilet has provided benefit to 55 HHs.
- These efforts have helped to convert 8 villages as open defecation free (ODF).

**B.4 Hand Wash and Sanitization at Health clinics and Water ATMs:** Hand washing is very essential act in COVID situation to fight with virus. Considering this hand washing arrangement is provided and refilled in WATER ATM in 17 villages on weekly basis to maintain cleanliness and hygiene. Apart from this, Spraying of Sodium Hypo Chloride (HYPO) chemical at Water ATM in villages with the support from village Panchayats was also carried out to disinfect the same to combat COVID-2019. More than 17,000 people used the facility.

## C. Health Awareness Session

**C.1 Post Lockdown Awareness:** 147 Post Lockdown Awareness sessions conducted in 10 villages during this year to create community awareness on COVID 2019 precautionary measures at clinic center and other places in villages with the help of volunteers. Around, 6,292 villagers benefitted.

**C.2 Nutrition Center Awareness Program:** Volunteers oriented the pregnant women on GUDIYA model that talks about taking step by step proper nutrition and care for pregnant women at nutrition centers. Apart from this PLM were aware on different nutritional. Total 315 women benefitted in 24 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 online SPHRT batches this year due to COVID 19 pandemic. Total 170 students successfully completed the course and 95 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 20-21 | No. Trained in 20-21 | | No. Settled in 20-21 | |
|---|---|---|---|---|---|
| | | M | F | M | F |
| Smart Phone & Hardware Repairing Technicians | 4 | 73 | 0 | 39 | 0 |
| Assistant Beauty Therapist | 4 | 0 | 97 | 0 | 56 |

**Virtual Celebration of World Youth Skill Day:** VTC Warora marked 15th July as world youth skill day. Total 44 students including faculty celebrated the day. Mr. Saurabh Kawale, Entrepreneur, Frost and Feather Café, Nagpur, motivated students on "Why Skilling is Important". GMRVF organized short video competition on French Chotis or Juda making and Best way to convince a customer for repairing. GMRVF also felicitated 14 students who have successfully started and continuing the business after completing course from VTC Warora.

### B. In village skill training programs

**B.1 Tailoring Hub:** To promote skills in women, GMRVF has provided basic tailoring skills to more than 600 women in Warora in past 7 years. Out of these trained women more than 350 women are engaged in stitching work from their home. To engage these skilled women GMRVF has initiated tailoring hub in two villages. This year due to pandemic 55 women took it as an opportunity and started cotton mask stitching using tailoring hub facility. They have stitched more than 12,000 mask and earned more than 60,000/- from this work.

### 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. 1.25 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 pendamic.

This year International women day celebrated using online mode and conducted special session with the support from Swyam Shakti organization and GMR Smrudhi Ladies Cub, Warora. The experts have explained group business and power of collective business. More than 250 women from the 4 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 conducted a special survey to understand the impact of pandemic on livelihood. The survey findings used to plan livelihood interventions so as to restore it at an earliest. The details of Income Generation Activities (IGA) undertaken this year are attached as Annexure 1.

- There are total 810 people actively engaged in IGA activities.
- 545 out of 810 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 3 online and offline trainings on vegetable cultivation and floriculture cultivation practices to farmers of 2 villages. Over 25 farmers attended the trainings and adopted improved agricultural practices.

**E.2 Grain-Cash-Seed Bank:** GCS bank of Dongargaon, Dahegaon, and Charur Khati has conducted meetings to plan seed distribution for coming Kharif crop. They have collected Rs 10.65 Lakhs for the purchase of seeds for upcoming Kharif Cropping and planned to distribute Cotton and Soybean seeds. All GCS banks have planned to purchase 1050 bags of cotton seeds and nearly 130 bags of soybean seeds. This year GCS bank could reach up to 329 farmers (Dongargaon – 49 farmers, Dahegaon – 200 farmers and Charur Khati – 80 farmers) and distributed 1180 bags of cotton and soybean seeds. Farmers will adopt improve agriculture practices and cover nearly 1180 Acre land in 3 villages.

The GCS Bank is a group of farmers, formed to take care of seed supply system. This concept invites to integrate marketing with seed supply system. The seed is given to bank/group as one time support and then expects to see continuity of seed purchase and distribution business year after year. Every time bank /group worked out a ratio of seed vs. grain to be returned in lieu of seed. The estimate indicates that if the given Soybean seed is returned at a ratio of 1:4 then for next season's crop, bank can purchase the seed without external support. The estimate also indicates that if the grains of second season crop are returned at a ratio of 1:2 (seed: grain) then bank is in a position to buy more seeds than the first season of year one.

**E.3 Floriculture and Vegetable Cultivation:** GMRVF aims to improve farmer's economic condition and considering this floriculture and vegetable crop cultivation introduced in 6 villages.

In line to this, 15 farmers were trained on Floriculture and started cultivation of flowers this year. 7 farmers who have started cultivation of marigold and gaillardia flowers are earning daily Rs. 300 – 400/- from the selling of flowers. Apart from this total 173 women from 6 villages started vegetable cultivation and earned average Rs. 10,000 per month from the selling of vegetables.

## 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 due to COVID 19 pandemic all libraries were closed throughout the year.

**B Blood Donation Camp:** Every year, GWEL organize two blood donation program in plant where all employee participates and donate the blood. Apart from this GMRVF organize blood donation camp in two villages. This year total 3 camps organized at Warora and total 113 units of blood donated.

**C Drain Cleaning:** The drain cleaning work performed at Nimsada villages twice during the year to clear the stagnated spoiled water from drain which was causing growth of mosquitos. The cleaning of drain has reduced the bad odour as well as reduced the mosquito's growth in the village. This was proposed as protective measure so as to avoid dengue attack again in the village.

**D Community Toilet Repairing:** GMRVF and GWEL has constructed a community toilet at Dongargaon. The repairing work undertaken in the community toilet and replace damaged WC sheet and installed PVC pipe to conceal open swage channel and repair the interior articles of toilet. This has enabled safe disposal of slurry from septic tank to Nala so as to maintain hygiene and provide quality services to community.

**E. Supporting Govt. Hospital for Polio Vaccination:** GMRVF and GWEL has supported Taluka Health Office by providing 150 snacks packets for health workers. District health mission has planned Polio drive in the Chandrapur district so as to eradicate polio from the district and therefore to support this cause GWEL and GMRVF has provided snacks packets to health department.

**F BVIC Audit for ISO 26000:** Auditors from Bureau Veritas India (Pvt.) Ltd. conducted audit of all CSR activities in 3 villages using online mode. They interacted more than 70 beneficiaries of all activities and apprises the program. The Audit was performed to assess the CSR practices of GWEL in line with Corporate Social Responsibilities.

**G Celebration of International Yoga Day:** International Yoga day celebrated in 8 villages this year using virtual mode. The students of ASLC, E-Center, Navodaya, Pratibha Center and Vocational Training center attended the program. Nearly 200 students attended the program and benefitted.

**H. Swadaan:** 61 Swadaan programs organized to create a feeling of giving amongst beneficiaries of GMRVF programs and to seek their contribution for various community activities. A total 69 GMRVF beneficiaries have participated in Swadaan activities and helped other beneficiaries in villages by conducting tailoring work, electrical repairing work, organizing tuition classes and benefitted more than 580 people including children.

### I. COVID 2019 Response

In response to COVID 2019 pandemic, GWEL & GMRVF has accomplished following activities:

- Donated 10 Oxygen Concentrator at Govt Hospital; 8 Desktop at Vaccination Centers; Salary of 6 Computer Operators; Donated 6 Jumbo Oxygen Cylinder at Govt Hospital Warora; Helped Vidarbha Medical Association during lockdown and also Supported Village Level Isolation Center in 4 villages.

- GWEL CSR distributed more than 12,000 cotton mask to Govt official, Panchayat workers, GPs, Plant labour, Health workers, patients visiting hospitals and all those who are critical and required mask.
- Conducted Fogging Operation in 10 villages and Warora town to slowdown the growth of mosquitoes & thereby vector borne diseases.
- GWLE CSR distributed 586 bottles (500 ml) sanitizer, 10 numbers of Surgical Masks & N95 Mask, 220 Litres of hand wash, 12 face shield at Govt. Hospital, Warora Covid Center, Police Station, Villages, Village clinics and Bus stand so as to equip and support health workers/people to fight with COVID.
- Primary health clinics in villages provided health services to 10 villages and monitor early detection of COVID. It benefitted more than 24,000 people.
- The Mobile Medicare Unit (MMU) provided health services to Old Aged and treated in 22 villages during the COVID crisis and served more than 23,000 old aged.
- More than 181 litres of Sodium Hypo Chloride provided at WATER ATMs of 16 villages.

## EMPLOYEE INVOLVEMENT:

GWEL have developed village guardian model and each employees including their families and senior management participated in community development programs. This year 511 employees participated in 68 community development programs and contributed 633 voluntary hours which benefitted more than 7,639 people.

**Celebration of Daan Utsav:** This year Daan Utsav was celebrated as Digital Daan Utsav from 2-8 Oct in villages. Total 7 events conducted, in which 160 employees and their family members participated and celebrated the spirit of Daan Utsav with community. 117 GWEL employees and 43 SLC members conducted or participated in different sessions and contributed Rs 19,250.

**Social Voluntary Project (SVP):** This year, 6 Social Voluntary Projects were implemented by 39 GWEL employees. These employees contributed total of 67 hours of their time to implement projects.

## CHALLENGES

Following are the challenges faced during the reporting period:

- Internet connectivity in villages were challenging in conducting online events.
- Panchayat bodies creating pressure for hardware activities.
- Unavailability of smart phone with parents hampered education programs.
- Receiving community contribution and motivating them for IGA is challenging.
- Prolonged COVID 19 in Maharashtra created unfavorable situation to conduct offline activities.

## LEARNINGS

- Vegetable Cultivation, Poultry, and Floriculture is highly successfully in order to restored livelihood and helped poor community to faster recovery from the losses due to pandemic.
- The use of GOORU App in enhancing quality education observed a very powerful tool.
- Special summer classes were found very useful to fill the GAPS of education of students as district education authority identified the significant difference in education standard of project villages verses non project villages.
- Online mode of delivering services is one of the way but need full preparedness at the time of planning so as to gain maximum output from it.
- GWEL has received ISO 26000 standard on Corporate Social Responsibility, this has helped to learn various aspects of community program and involvement of company in the same.

## WAY FORWARD

- Digital education is the speciality of Warora location and hence more efforts shall be made so as to achieve better results in coming year.
- Scaling up both on-farm & off-farm livelihood activities with more farmers and promoting collective marketing using online tools.
- Documentation of outcomes of all activities and regular update the same in dashboards.
- Maintaining ISO 26000 standard shall be in focus throughout the year as ISO authorities will conduct assessment next year.
- Engaging more employees through Social Volunteering Projects.

## Stakeholders Feedback on Pratibha Library

**Brief about Target Stakeholders:** A typical Pratibha centre would provide inputs on various types of educational and employment opportunities; counselling; adequate number of books on various competitive examinations (which one has to take to admission or enter into an institute of higher learning or job), access to resource persons, and an atmosphere where they can read, learn and share. Coaching sessions are conducted for interested candidates to prepare them for an entrance examination, especially related to a job. Other means of preparing them for jobs—e.g., conducting mock interviews, practice tests, etc., are also undertaken.

**Stakeholders:** Students, Teacher, Government Department, Management of Lokshikshan Sanstha, GMRVF staff, GWEL employees.

**Sample Size & Survey Process:** Total 20 beneficiary including successful and none successful students, teachers from Lokshikshan society and visiting faculty conducting classes were selected for taking feedback on (1) how was the performance of Pratibha 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 ex-members can be brought to the centre and may address other members to motivate them. Successful people from different streams may be brought in the center who can address the members about different occupations—e.g., army, IPS, Forest Service, banking staff etc.

**Behavioural Change:** Initially the students did not know about competitive exam. Very few students were qualifying from Warora town. After four years of efforts, students joining center are coming with full motivation and giving their best possible efforts as a result of this 30 students selected in different Govt jobs just is past 4 years. The atmosphere in the center is very conducive for study, this can be seen in center.

**Views of other Stakeholders:**

**Lokshikshan Management:** They guided all the students of their college about the competitive exams and provided space for free study to the students**.** The management is very happy because 30 students selected just in 4 years' time from the center. This is enhancing value of Lokshikshan Society.

**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 competitive examination canter and they got free competitive examination canter in their vicinity.

**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, Dahegaon, Majra Rai, Charur Khati and Dongargaon | 271 Women | 163 | 5386 |
| 2 | Petty Businesses | Marda, Dongargaon, Chinora, Charur Khati, Nimsada, Majra Rai | 12 Women | 12 | 8000 |
| 3 | Tailoring work | Majra Rai, Majra Khurd, Naidev, Dongargaon, Marda | 17 Women | 17 | 3529 |
| 4 | Veg. Cultivation | Dongargaon, Nimsada, Naidev, Charur Khati, Majra Rai and Marda | 173 Women | 135 | 10000 |
| 5 | GCS bank | Dongargaon, Dahegaon, Naidev, Chinora and Charur Khati | 329 Farmers | 212 | 16000 |
| 6 | Floriculture | Charur Khati, Dongargaon, Nimsada Majra Rai and Naidev | 8 Farmers | 6 | 35000 |
| | | **Total Beneficiaries** | **810** | **545** | |

**Note: 545 women/ farmers are earning additional income of Rs. 7000/- annually from IGA**

**ANNEXURE- VIII**

## *Effluent Water Analysis (Oct.2021 to Mar.2022)*

| Condensate Cooling Water | | |
|---|---|---|
| | | F - Cl |
| Month | pH | mg/L |
| October | 8.0 | <0.05 |
| November | 8.2 | <0.05 |
| December | 7.2 | <0.05 |
| January | 7.1 | <0.05 |
| February | 8.1 | <0.05 |
| March | 8.2 | <0.05 |

| Cooling Tower Blowdown | | | |
|---|---|---|---|
| F - Cl | $PO_4$ | Cr | Zn |
| mg/L | | | |
| <0.05 | 1.19 | N.D. | 0.058 |
| <0.05 | 1.17 | <0.01 | 0.013 |
| <0.05 | 0.482 | N.D. | 0.059 |
| <0.05 | 0.738 | <0.01 | 0.048 |
| <0.05 | 0.719 | <0.01 | 0.310 |
| <0.05 | 0.953 | <0.01 | 0.070 |

| Boiler Blowdown | | | |
|---|---|---|---|
| TSS | OG | Cu | Fe |
| mg/L | | | |
| <5 | N.D. | N.D. | 0.198 |
| <5 | N.D. | <0.01 | 0.318 |
| <5 | N.D. | 0.011 | 0.249 |
| <5 | N.D. | N.D. | 0.183 |
| <5 | N.D. | <0.01 | 0.071 |
| <5 | N.D. | N.D. | 0.189 |

| *DM Plant Effluent* | | | | | | |
|---|---|---|---|---|---|---|
| | | TDS | TSS | BOD | COD | O & G |
| Month | pH | mg/L | | | | |
| October | 8.1 | 578 | 9 | 8.9 | 28 | N.D. |
| November | 7.7 | 619 | 9 | 8.4 | 28 | N.D. |
| December | 7.5 | 640 | 23 | 5.7 | 20 | N.D. |
| January | 7.8 | 190 | 7 | 11 | 28 | N.D. |
| February | 7.9 | 1229 | 13 | 11.0 | 36 | N.D. |
| March | 7.6 | 590 | 21 | 10.0 | 32 | N.D. |

| *STP- Inlet* | | | | | | |
|---|---|---|---|---|---|---|
| | | TDS | TSS | BOD | COD | O & G |
| Month | pH | mg/L | | | | |
| October | 7.7 | 984 | 7 | 6.2 | 20 | N.D. |
| November | 7.5 | 579 | 13 | 7.3 | 24 | N.D. |
| December | 7.2 | 539 | 23 | 8.2 | 28 | N.D. |
| January | 7.2 | 289 | 8 | 9.4 | 32 | N.D. |
| February | 8.1 | 680 | 12 | 10 | 32 | N.D. |
| March | 7.6 | 455 | 11 | 12 | 36 | N.D. |

| *STP- Outlet* | | | | | | |
|---|---|---|---|---|---|---|
| | | TDS | TSS | BOD | COD | O & G |
| Month | pH | mg/L | | | | |
| October | 7.8 | 981 | 8 | 6.6 | 20 | N.D. |
| November | 7.5 | 581 | 9 | 7.5 | 24 | N.D. |
| December | 7.1 | 559 | 21 | 5 | 16 | N.D. |
| January | 8.1 | 275 | 12 | 9.8 | 28 | N.D. |
| February | 7.8 | 642 | 7 | 5.7 | 20 | N.D. |
| March | 7.6 | 502 | 7 | 6.0 | 20 | N.D. |

**ANNEXURE-IX**

## *Ambient Noise Monitoring (Oct. 2021 to Mar.2022)*

| Sl. No. | Month | Near CHP | | Near Switch Yard | | Near Reservoir | |
|---|---|---|---|---|---|---|---|
| | | Day | Night | Day | Night | Day | Night |
| | | dB(A) | | | | | |
| 1 | October | 65.2 | 61.7 | 62.1 | 60.2 | 60.7 | 59.7 |
| 2 | November | 58.2 | 54.7 | 54.1 | 52.0 | 53.9 | 50.1 |
| 3 | December | 54.5 | 52.8 | 56.3 | 54.0 | 52.1 | 55.0 |
| 4 | January | 50.8 | 48.6 | 54.3 | 52.5 | 53.6 | 52.4 |
| 5 | February | 66.2 | 60.5 | 57.5 | 52.1 | 54.7 | 52.3 |
| 6 | March | 64.2 | 61.5 | 62.8 | 60.7 | 61.5 | 60.2 |

## *Work Zone Noise Monitoring (Oct. 2021 to Mar.2022)*

| 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 | 81.4 | 85.1 | 82.3 | 86.6 | 77.7 | 80.5 | 82.9 | 86.4 | 81.2 | 85.8 |
| 4 | January | - | - | - | - | - | - | - | - | - | - |
| 5 | February | - | - | - | - | - | - | - | - | - | - |
| 6 | March | 80.1 | 84.9 | 82.3 | 85.3 | 77.9 | 81.2 | 83.0 | 81.2 | 82.8 | 85.5 |

**ANNEXURE-X**

## *Ambient Air Quality Monitoring (Oct.2021 to Mar.2022)*

**October**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | $\mu g/m^3$ | 80 | 10.34 | 11.47 | 9.47 |
| $NO_2$ | | 80 | 14.55 | 14.95 | 15.28 |
| $PM_{10}$ | | 100 | 53.00 | 56.25 | 53.50 |
| $PM_{2.5}$ | | 60 | 23.25 | 21.25 | 21.75 |

**November**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | $\mu g/m^3$ | 80 | 11.27 | 13.35 | 10.34 |
| $NO_2$ | | 80 | 13.30 | 15.35 | 13.50 |
| $PM_{10}$ | | 100 | 54.75 | 57.00 | 61.50 |
| $PM_{2.5}$ | | 60 | 22.00 | 21.25 | 23.25 |

**December**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | $\mu g/m^3$ | 80 | 11.04 | 12.18 | 11.01 |
| $NO_2$ | | 80 | 15.18 | 15.00 | 15.33 |
| $PM_{10}$ | | 100 | 59.00 | 59.50 | 59.00 |
| $PM_{2.5}$ | | 60 | 18.75 | 24.75 | 22.50 |

**January**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | $\mu g/m^3$ | 80 | 9.13 | 9.22 | 11.13 |
| $NO_2$ | | 80 | 13.28 | 14.38 | 13.80 |
| $PM_{10}$ | | 100 | 71.00 | 64.25 | 56.50 |
| $PM_{2.5}$ | | 60 | 26.00 | 27.00 | 25.25 |

**ANNEXURE-X**

**February**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | µg/m³ | 80 | 9.27 | 12.35 | 11.43 |
| $NO_2$ | | 80 | 15.10 | 16.40 | 17.33 |
| $PM_{10}$ | | 100 | 67.00 | 61.75 | 64.00 |
| $PM_{2.5}$ | | 60 | 27.00 | 21.25 | 28.50 |

**March**

| Parameters | Unit | Standard | Near Switch Yard | Near Reservoir | Near CHP |
|---|---|---|---|---|---|
| $SO_2$ | µg/m³ | 80 | 11.45 | 9.50 | 10.78 |
| $NO_2$ | | 80 | 15.10 | 13.98 | 14.50 |
| $PM_{10}$ | | 100 | 62.75 | 61.75 | 55.25 |
| $PM_{2.5}$ | | 60 | 25.25 | 22.75 | 21.00 |

***Stack Emission Monitoring (Oct.2021 to Mar.2022)***

***Unit -I***

| Sl. No. | Month | PM | $SO_2$ | NOx |
|---|---|---|---|---|
| | | mg/Nm³ | | |
| 1 | October | 40.0 | 1110.5 | 278.0 |
| 2 | November | 32 | 1055.0 | 283 |
| 3 | December | 30.5 | 1077.5 | 284.5 |
| 4 | January | 39 | 1172.0 | 297.5 |
| 5 | February | 30.5 | 1154.0 | 288.0 |
| 6 | March | 39.5 | 1026.5 | 285 |

***Unit -II***

| Sl. No. | Month | PM | $SO_2$ | NOx |
|---|---|---|---|---|
| | | mg/Nm³ | | |
| 1 | October | 39.0 | 1179.0 | 286.5 |
| 2 | November | 40.0 | 1034.5 | 275.0 |
| 3 | December | 33.0 | 1141.5 | 283.0 |
| 4 | January | 42.0 | 1061.0 | 298.0 |
| 5 | February | 40.0 | 1154.0 | 290 |
| 6 | March | 39.0 | 1277.0 | 256.5 |

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03738-220319-SA-GMR-WARORA | | | **Date**: 19.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Stack Emission Monitoring | **Sample Collected by** | Laboratory |
| **Sampling Location** | Unit No. 1 | **Sample Quantity/Packing** | Thimble PM: 1 X 1 No.<br>$SO_2$: 30mL X 1 No. PVC Bottle<br>$NO_X$:25mL X 1 No. PVC Bottle<br>Hg:200mL X 2 No. PVC Bottle<br>2L X 1 No. Gas Bladder |
| **Date of Sampling** | 12.03.2022 | **Date of Receipt of Sample** | 13.03.2022 |
| **Sampling Procedure** | As per Method Reference | | |
| **Date of Start of Analysis** | 14.03.2022 | **Date of Completion of Analysis** | 17.03.2022 |

**Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)**

| | |
|---|---|
| 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) | - |
| Duration of sampling (h) | 11:35 to 12:07 |

| Parameter | Unit | Result | #Limit | Method Reference |
|---|---|---|---|---|
| Flue gas Temperature | $^0C$ | 127 | - | IS 11255 (Part 3):2008; RA 2018 |
| Flue gas Velocity | m/s | 24.6 | - | IS 11255 (Part 3):2008; RA 2018 |
| Total gas quantity | $Nm^3/h$ | 1232412 | - | IS 11255 (Part 3):2008; RA 2018 |
| Particulate Matter (PM) | $mg/Nm^3$ | 38 | 50 | IS 11255 (Part 1):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | $mg/Nm^3$ | 1052 | - | IS 11255 (Part 2):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | kg/day | 31116 | - | IS 11255 (Part 2):1985 RA 2019 |
| Oxides of Nitrogen (NOx) | $mg/Nm^3$ | 294 | 300 | IS 11255 (Part 7): 2005; RA 2017 |

ULR- TC748722000003506F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

*Report No.03738 Cont..*

| Parameter | Unit | Result | #Limit | Method Reference |
|---|---|---|---|---|
| Carbon Monoxide | $mg/Nm^3$ | 4.65 | - | IS 5182 (Part 10): 1999 RA 2019 (NDIR method) |
| Carbon Dioxide ($CO_2$) | % | 12.8 | - | IS 13270:1992, Reaffirmed 2019 |
| Mercury | $mg/Nm^3$ | 0.0013 | - | CPCB Guidelines on Methodologies for Source Emission Monitoring, Chapter 5&6; Pg.No.54-84 |
| **Remark**: #: Limit as per Notification on Dt.:07.12.2015 | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi

**TECHNICAL MANAGER**

Note:
1. The result listed refers only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.

ULR- TC748722000003506F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03739-220319-SA-GMR-WARORA | | | **Date**: 19.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Stack Emission Monitoring | **Sample Collected by** | Laboratory |
| **Sampling Location** | Unit No. 2 | **Sample Quantity/Packing** | Thimble PM: 1 X 1 No.<br>$SO_2$: 30mL X 1 No. PVC Bottle<br>$NO_X$:25mL X 1 No. PVC Bottle<br>Hg:200mL X 2 No. PVC Bottle |
| **Date of Sampling** | 12.03.2022 | **Date of Receipt of Sample** | 13.03.2022 |
| **Sampling Procedure** | As per Method Reference | | |
| **Date of Start of Analysis** | 14.03.2022 | **Date of Completion of Analysis** | 17.03.2022 |

| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)** | | | | |
|---|---|---|---|---|
| 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) | | | - | |
| Duration of sampling (h) | | | 12:30 to 13:02 | |
| **Parameter** | **Unit** | **Result** | **#Limit** | **Method Reference** |
| Flue gas Temperature | $^0C$ | 132 | - | IS 11255 (Part 3):2008; RA 2018 |
| Flue gas Velocity | m/s | 24.9 | - | IS 11255 (Part 3):2008; RA 2018 |
| Total gas quantity | $Nm^3/h$ | 1235313 | - | IS 11255 (Part 3):2008; RA 2018 |
| Particulate Matter (PM) | $mg/Nm^3$ | 33 | 50 | IS 11255 (Part 1):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | $mg/Nm^3$ | 1193 | - | IS 11255 (Part 2):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | kg/day | 35370 | - | IS 11255 (Part 2):1985 RA 2019 |
| Oxides of Nitrogen (NOx) | $mg/Nm^3$ | 288 | 300 | IS 11255 (Part 7): 2005; RA 2017 |

ULR- TC748722000003507F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

*Report No.03739 Cont..*

| Parameter | Unit | Result | #Limit | Method Reference |
|---|---|---|---|---|
| Carbon Monoxide | $mg/Nm^3$ | 3.72 | - | IS 5182 (Part 10): 1999 RA 2019 (NDIR method) |
| Carbon Dioxide ($CO_2$) | % | 12.4 | - | IS 13270:1992, Reaffirmed 2019 |
| Mercury | $mg/Nm^3$ | 0.0014 | - | CPCB Guidelines on Methodologies for Source Emission Monitoring, Chapter 5&6; Pg.No.54-84 |
| **Remark**: #: Limit as per Notification on Dt.:07.12.2015 | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi

**TECHNICAL MANAGER**

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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04536-220402-SA-GMR-WARORA | | | **Date**: 02.04.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Stack Emission Monitoring | **Sample Collected by** | Laboratory |
| **Sampling Location** | Unit No. 1 | **Sample Quantity/Packing** | Thimble PM: 1 X 1 No.<br>$SO_2$: 30mL X 1 No. PVC Bottle<br>$NO_x$:25mL X 1 No. PVC Bottle<br>2L X 1 No. Gas Bladder |
| **Date of Sampling** | 26.03.2022 | **Date of Receipt of Sample** | 28.03.2022 |
| **Sampling Procedure** | As per Method Reference | | |
| **Date of Start of Analysis** | 29.03.2022 | **Date of Completion of Analysis** | 01.04.2022 |

ULR- TC748722000004268F

| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)** | | | | |
|---|---|---|---|---|
| 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) | | | - | |
| Duration of sampling (h) | | | 11:30 to 12:00 | |
| **Parameter** | **Unit** | **Result** | **#Limit** | **Method Reference** |
| Flue gas Temperature | $^0C$ | 129 | - | IS 11255 (Part 3):2008; RA 2018 |
| Flue gas Velocity | m/s | 25.0 | - | IS 11255 (Part 3):2008; RA 2018 |
| Total gas quantity | $Nm^3/h$ | 1254711 | - | IS 11255 (Part 3):2008; RA 2018 |
| Particulate Matter (PM) | $mg/Nm^3$ | 41 | 50 | IS 11255 (Part 1):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | $mg/Nm^3$ | 1001 | - | IS 11255 (Part 2):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | kg/day | 30143 | - | IS 11255 (Part 2):1985 RA 2019 |
| Oxides of Nitrogen (NOx) | $mg/Nm^3$ | 276 | 300 | IS 11255 (Part 7): 2005; RA 2017 |




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

*Report No.04536 Cont..*

| Parameter | Unit | Result | #Limit | Method Reference |
|---|---|---|---|---|
| Carbon Monoxide | $mg/Nm^3$ | 3.62 | - | IS 5182 (Part 10): 1999 RA 2019 (NDIR method) |
| Carbon Dioxide ($CO_2$) | % | 12.4 | - | IS 13270:1992, Reaffirmed 2019 |

**Remark**: #: Limit as per Notification on Dt.:07.12.2015

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi

**TECHNICAL MANAGER**

Note:

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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04537-220402-SA-GMR-WARORA | | | **Date:** 02.04.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Stack Emission Monitoring | **Sample Collected by** | Laboratory |
| **Sampling Location** | Unit No. 2 | **Sample Quantity/Packing** | Thimble PM: 1 X 1 No.<br>$SO_2$: 30mL X 1 No. PVC Bottle<br>$NO_x$:25mL X 1 No. PVC Bottle<br>2L X 1 No. Gas Bladder |
| **Date of Sampling** | 26.03.2022 | **Date of Receipt of Sample** | 28.03.2022 |
| **Sampling Procedure** | As per Method Reference | | |
| **Date of Start of Analysis** | 29.03.2022 | **Date of Completion of Analysis** | 01.04.2022 |

ULR- TC748722000004269F

| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Stack Emission)** | | | | |
|---|---|---|---|---|
| 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) | | | - | |
| Duration of sampling (h) | | | 12:30 to 13:00 | |
| **Parameter** | **Unit** | **Result** | **#Limit** | **Method Reference** |
| Flue gas Temperature | $^0C$ | 130 | - | IS 11255 (Part 3):2008; RA 2018 |
| Flue gas Velocity | m/s | 25.1 | - | IS 11255 (Part 3):2008; RA 2018 |
| Total gas quantity | $Nm^3/h$ | 1254573 | - | IS 11255 (Part 3):2008; RA 2018 |
| Particulate Matter (PM) | $mg/Nm^3$ | 45 | 50 | IS 11255 (Part 1):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | $mg/Nm^3$ | 987 | - | IS 11255 (Part 2):1985 RA 2019 |
| Sulphur Dioxide ($SO_2$) | kg/day | 29718 | - | IS 11255 (Part 2):1985 RA 2019 |
| Oxides of Nitrogen (NOx) | $mg/Nm^3$ | 274 | 300 | IS 11255 (Part 7): 2005; RA 2017 |




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*Report No.04537 Cont..*

| Parameter | Unit | Result | #Limit | Method Reference |
|---|---|---|---|---|
| Carbon Monoxide | $mg/Nm^3$ | 4.98 | - | IS 5182 (Part 10): 1999 RA 2019 (NDIR method) |
| Carbon Dioxide ($CO_2$) | % | 12.2 | - | IS 13270:1992, Reaffirmed 2019 |

**Remark**: #: Limit as per Notification on Dt.:07.12.2015

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi

**TECHNICAL MANAGER**

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Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03150-220309-SA-GMR-WARORA | | | **Date:** 09.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Ambient Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Near CHP<br>2. Near Reservoir<br>3. Near Switch Yard | **Sample Quantity/ Packing** | $PM_{10}$:Filter Paper 3 X 3 No.<br>$PM_{2.5}$ :Filter Paper 1 X 3 No.<br>$SO_2$ :30 mL X 18 No. PVC Bottle<br>$NO_2$ :30 mL X 18 No. PVC Bottle<br>CO: Bladder 2L X 9 No. |
| **Date of Sampling** | 01.03.2022 to 02.03.2022 | **Date of Receipt of Sample** | 02.03.2022 |
| **Sampling Procedure** | As per method reference | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 05.03.2022 |

| **Parameter** | **Unit** | **Result** | **#NAAQM Standard** | **Method Reference** |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)** | | | | |
| **Location** 1. Near CHP | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 8.6 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 12.8 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 55 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 27 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 1.08 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| Lead (Pb) | µg/m³ | <0.02 | 1.0 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55 |

ULR- TC748722000002976F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

**Continuation Sheet**

*Report No.03150 Cont...*

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Location** 2. Near Reservoir | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 9.5 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 13.6 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 56 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 20 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 0.93 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| Lead (Pb) | µg/m³ | <0.02 | 1.0 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55 |
| **Location** 3. Near Switch Yard | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 6.9 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 11.3 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 76 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 37 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 1.15 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| Lead (Pb) | µg/m³ | <0.02 | 1.0 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55 |

**Remarks: #** - Standard for 24 h. monitoring. 1 h. Standard in case of Carbon Monoxide

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

Note:
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Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

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Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03374-220314-SA-GMR-WARORA | | | **Date:** 14.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Ambient Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Near CHP<br>2. Near Reservoir<br>3. Near Switch Yard | **Sample Quantity/ Packing** | $PM_{10}$:Filter Paper 3 X 3 No.<br>$PM_{2.5}$ :Filter Paper 1 X 3 No.<br>$SO_2$ :30 mL X 18 No. PVC Bottle<br>$NO_2$ :30 mL X 18 No. PVC Bottle<br>CO: Bladder 2L X 9 No. |
| **Date of Sampling** | 07.03.2022 to 08.03.2022 | **Date of Receipt of Sample** | 08.03.2022 |
| **Sampling Procedure** | As per method reference | | |
| **Date of Start of Analysis** | 09.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)** | | | | |
| **Location** 1. Near CHP | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | $\mu g/m^3$ | 11.2 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | $\mu g/m^3$ | 15.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | $\mu g/m^3$ | 48 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | $\mu g/m^3$ | 16 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| 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) |

ULR- TC748722000003177F




**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

**Continuation Sheet**

*Report No.03374 Cont...*

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Location** 2. Near Reservoir | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 9.5 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 13.6 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 70 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 27 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 0.86 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Location** 3.Near Switch Yard | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 12.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 16.6 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 81 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 25 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 1.07 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |

**Remarks: #** - Standard for 24 h. monitoring. 1 h. Standard in case of Carbon Monoxide

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

Note:
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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

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Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03801-220324-SA-GMR-WARORA | | | **Date:** 24.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Ambient Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Near CHP<br>2. Near Reservoir<br>3. Near Switch Yard | **Sample Quantity/ Packing** | $PM_{10}$:Filter Paper 3 X 3 No.<br>$PM_{2.5}$ :Filter Paper 1 X 3 No.<br>$SO_2$ :30 mL X 18 No. PVC Bottle<br>$NO_2$ :30 mL X 18 No. PVC Bottle<br>CO: Bladder 2L X 9 No. |
| **Date of Sampling** | 14.03.2022 to 15.03.2022 | **Date of Receipt of Sample** | 15.03.2022 |
| **Sampling Procedure** | As per method reference | | |
| **Date of Start of Analysis** | 16.03.2022 | **Date of Completion of Analysis** | 21.03.2022 |

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)** | | | | |
| **Location** 1. Near CHP | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | $\mu g/m^3$ | 12.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | $\mu g/m^3$ | 14.3 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | $\mu g/m^3$ | 47 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | $\mu g/m^3$ | 18 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | $mg/m^3$ | 1.07 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |

ULR- TC748722000003565F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

**Continuation Sheet**

*Report No.03801 Cont...*

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Location** 2. Near Reservoir | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 11.2 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 15.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 63 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 25 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 1.09 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Location** 3.Near Switch Yard | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 14.7 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 17.4 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 51 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 23 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 0.95 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Remarks: #** - Standard for 24 h. monitoring. 1 h. Standard in case of Carbon Monoxide | | | | |

ULR- TC748722000003565F

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

Note:
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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04266-220329-SA-GMR-WARORA | | | **Date:** 29.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Ambient Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Near CHP<br>2. Near Reservoir<br>3. Near Switch Yard | **Sample Quantity/ Packing** | $PM_{10}$:Filter Paper 3 X 3 No.<br>$PM_{2.5}$ :Filter Paper 1 X 3 No.<br>$SO_2$ :30 mL X 18 No. PVC Bottle<br>$NO_2$ :30 mL X 18 No. PVC Bottle<br>CO: Bladder 2L X 9 No. |
| **Date of Sampling** | 21.03.2022 to 22.03.2022 | **Date of Receipt of Sample** | 22.03.2022 |
| **Sampling Procedure** | As per method reference | | |
| **Date of Start of Analysis** | 23.03.2022 | **Date of Completion of Analysis** | 26.03.2022 |

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)** | | | | |
| **Location** 1. Near CHP | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | $\mu g/m^3$ | 11.2 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | $\mu g/m^3$ | 15.8 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | $\mu g/m^3$ | 71 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | $\mu g/m^3$ | 23 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | $mg/m^3$ | 0.94 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |

ULR- TC748722000004013F




**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

**Continuation Sheet**

*Report No.04266 Cont...*

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Location** 2. Near Reservoir | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 7.8 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 13.6 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 58 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 19 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 1.04 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Location** 3.Near Switch Yard | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 12.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 15.1 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 43 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 16 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Carbon Monoxide (CO) | mg/m³ | 0.88 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Remarks: #** - Standard for 24 h. monitoring. 1 h. Standard in case of Carbon Monoxide | | | | |

ULR- TC748722000004013F

---END---

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04538-220330-SA-GMR-WARORA | | | **Date:** 30.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Ambient Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Temporary Township<br>2. Anandwan Warora | **Sample Quantity/ Packing** | $PM_{10}$, Pb:Filter Paper 3 X 2 No.<br>$PM_{2.5}$ :Filter Paper 1 X 2 No.<br>$SO_2$ :30mL X 12 No. PVC Bottle<br>$NO_2$ :30mL X 12 No. PVC Bottle<br>CO: Bladder 2L X 6 No. |
| **Date of Sampling** | 26.03.2022 to 27.03.2022 | **Date of Receipt of Sample** | 28.03.2022 |
| **Sampling Procedure** | As per Method reference | | |
| **Date of Start of Analysis** | 28.03.2022 | **Date of Completion of Analysis** | 30.03.2022 |

| **Parameter** | **Unit** | **Result** | **#NAAQM Standard** | **Method Reference** |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Air)** | | | | |
| **Location** 1. Temporary Township | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | $\mu g/m^3$ | 7.8 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | $\mu g/m^3$ | 12.8 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | $\mu g/m^3$ | 68 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | $\mu g/m^3$ | 29 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Lead (Pb) | $\mu g/m^3$ | <0.02 | 01 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55 |
| Carbon Monoxide (CO) | $mg/m^3$ | 1.05 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |

ULR- TC748722000004270F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

**Continuation Sheet**

*Report No.04538 cont...*

| Parameter | Unit | Result | #NAAQM Standard | Method Reference |
|---|---|---|---|---|
| **Location** 2. Anandwan Warora | | **Duration of Survey** | | 24 hours |
| Sulphur Dioxide ($SO_2$) | µg/m³ | 12.9 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.1-6 |
| Nitrogen Dioxide ($NO_2$) | µg/m³ | 17.4 | 80 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.7-10 |
| Particulate Matter (size less than 10 µm) or $PM_{10}$ | µg/m³ | 69 | 100 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.11-14 |
| Particulate Matter (size less than 2.5 µm) or $PM_{2.5}$ | µg/m³ | 26 | 60 | CPCB Guidelines for measurement of Air pollutants Volume 1, Page 15 - 30 |
| Lead (Pb) | µg/m³ | <0.02 | 01 | CPCB Guidelines for the Measurement of Ambient Air Pollutants, Volume I, 2012-13, Page No.48-55 |
| Carbon Monoxide (CO) | mg/m³ | 0.96 | 04 | CPCB Guidelines for the Measurement of Ambient Air Pollutants Volume-II, 2012-13, Page No. 16-22, (NDIR method) |
| **Remarks:** #- Standard for 24 h. monitoring. 1 h. Standard in case of Carbon Monoxide | | | | |

----------END----------

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole

**BRANCH MANAGER**

MAHABAL ENVIRO ENGINEERS PVT. LTD.

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TC-7447




**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | |
|---|---|---|
| **Report No.:** ME-NG04267-220328-SA-GMR-WARORA | | **Date:** 28.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.**<br>Plot No. B-1, Mohabala MIDC Growth Center,<br>Post & Tehsil: Warora ,<br>Dist: Chandrapur (M.S.) | **Order Reference:**<br>4800159131<br>Dt.:03.02.2021 |
| **Sample Description/Type** | Noise Level Monitoring | |
| **Date of Sampling** | 21.03.2022 | |
| **Sampling Procedure** | IS 9876:1981 | |

**Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Ambient Noise)**

| Location | Unit | Result | |
|---|---|---|---|
| | | Day Time | Night Time |
| Near CHP | dB(A) | 64.2 | 61.5 |
| Near Switch Yard | dB(A) | 62.8 | 60.7 |
| Near Reservoir | dB(A) | 61.5 | 60.2 |

**THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000**

| Area Code | Category of Area /Zone | Limit in dB(A) weighted scale | |
|---|---|---|---|
| | | Day Time (6.00a.m. to 10.00 p.m.) | Night Time (10.00 p.m. to 6.00 a.m.) |
| A | Industrial Area | 75 | 70 |
| B | Commercial Area | 65 | 55 |
| C | Residential Area | 55 | 45 |
| D | Silence Zone | 50 | 40 |

**Remarks:**

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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TC-7487

ULR- TC748722000004015F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | |
|---|---|---|
| **Report No.:** ME-NG04539-220402-SA-GMR-WARORA | | **Date:** 02.04.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.**<br>Plot No. B-1, Mohabala MIDC Growth Center,<br>Post & Tehsil: Warora,<br>Dist: Chandrapur (M.S.) | **Order Reference**<br>4800159131<br>Dt.:03.02.2021 |
| **Sample Description/Type** | Workplace Noise Level Monitoring | |
| **Date of Sampling** | 26.03.2022 | |
| **Sampling Procedure** | IS 9876:1981 | |

| **Location** | **Sound Level dB (A)** | |
|---|---|---|
| | **$L_{min}$** | **$L_{max}$** |
| Compressor House Area | 77.9 | 81.2 |
| Boiler Floor | 80.1 | 84.9 |
| Turbine Floor | 82.3 | 85.3 |
| Turbine Generation Unit-1 | 83.0 | 86.2 |
| Turbine Generation Unit-2 | 82.8 | 85.5 |

**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 | 90 |
| 6 | 92 |
| 4 | 95 |
| 3 | 97 |
| 2 | 100 |
| 1 ½ | 102 |
| 1 | 105 |
| 3/4 | 107 |
| 1/2 | 110 |
| 1/4 | 115 |

**Remarks:**

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi
**TECHNICAL MANAGER**

END

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Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04267-220326-SA-GMR-WARORA | | | **Date**: 26.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.**<br>Plot No. B-1, Mohabala MIDC Growth Center,<br>Post & Tehsil: Warora ,<br>Dist: Chandrapur (M.S.) | | **Order Reference**<br>4800159131<br>Dt.:03.02.2021 |
| **Sample Description/Type** | Fugitive Emission | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. Crusher House<br>2. Drive House<br>3. Wagon Tippler<br>4. Ash Silo Area | **Sample Quantity/Packing** | Filter paper 1 X 4 No.<br>Cyclone Cup: 1 X 4 No. |
| **Date of Sampling** | 21.03.2022 | **Date of Receipt of Sample** | 22.03.2022 |
| **Sampling Procedure** | As per Method Reference | **Duration of Survey** | 8 hours |
| **Date of Start of Analysis** | 22.03.2022 | **Date of Completion of Analysis** | 24.03.2022 |

| Parameter | Unit | Result | | | | #Limit | Method Reference |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | | |
| **Discipline: Chemical Testing; Product Group: Atmospheric Pollution (Fugitive Emission)** | | | | | | | |
| Suspended Particular Matter | $\mu g/m^3$ | 1175 | 906 | 910 | 1801 | 2000 | IS 5182 (Part 4): 1999 RA 2019 |
| **Remarks**: **#:** Limit as per MPCB consent | | | | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi
**TECHNICAL MANAGER**

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TC-7487

ULR- TC748722000004014F




**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

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## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG04428-220330-SA-GMR-WARORA | | | **Date**: 30.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.**<br>Plot No. B-1, Mohabala, MIDC Growth Center,<br>Post & Tehsil: Warora,<br>Dist: Chandrapur (M.S.) | | **Order Reference**<br>4800159131<br>Dt.:03.02.2021 |
| **Sample Description/Type** | Workplace Air | **Sample Collected by** | Laboratory |
| **Sampling Location** | 1. CHP transformer House<br>2. AHP /Fly Silo Area<br>3. CHP Pent-House<br>4. CHP/Crusher House<br>5. CHP/Bunker Floor | **Sample Quantity/Packing** | Filter paper 1 X 5 No. |
| **Date of Sampling** | 24.03.2022 | **Date of Receipt of Sample** | 25.03.2022 |
| **Sampling Procedure** | As per Method Reference | **Duration of Survey** | 1 hours |
| **Date of Start of Analysis** | 26.03.2022 | **Date of Completion of Analysis** | 28.03.2022 |

| Parameter | Unit | Result | | | | | #Limit | Method Reference |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | | |
| Total Dust | $mg/m^3$ | 3.5 | 4.7 | 2.3 | 2.3 | 3.3 | 10 | NIOSH 0500 |

**Remarks**: #: Limit from The Factories Act, 1948, The Maharashtra Factory Rules, 1963 for 8 hours TWA (Time Weighted Average)

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03211-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Industrial Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | D.M. Plant Effluent | **Sample Quantity/Packing** | 2 L X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle<br>100mL X 1 No. PVC Can |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Limit as Per Consent | Method Reference |
|---|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | | |
| 1. | pH | - | 7.6 | 5.5-9.0 | APHA 23rd Ed. 2017, 4500-$H^+$ - B, 4-95 |
| 2. | Total Dissolved Solids | mg/L | 590 | 2100 Max. | IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12) |
| 3. | Total Suspended Solids | mg/L | 21 | 100 Max. | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 4. | Biochemical Oxygen Demand (3 days 27°C) | mg/L | 10 | 30 Max. | IS 3025 (Part 44): 1993, Reaffirmed 2009 |
| 5. | Chemical Oxygen Demand | mg/L | 32 | 250 Max. | APHA 23rd Ed. 2017, 5220-B, 5-18 |
| 6. | Oil and Grease | mg/L | N.D. | 10 Max. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| **Remarks**: N.D. – Not Detected | | | | | |

ULR- TC748722000003034F

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
BRANCH MANAGER

MAHABAL ENVIRO ENGINEERS PVT. LTD.

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Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03212-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Domestic Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | STP Inlet | **Sample Quantity/Packing** | 2 L X 1 No. PVC Can<br>100mL X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Method Reference |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | |
| 1. | pH | - | 7.6 | APHA 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 2. | Total Dissolved Solids | mg/L | 455 | IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12) |
| 3. | Total Suspended Solids | mg/L | 11 | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 4. | Biochemical Oxygen Demand (3 days 27°C) | mg/L | 12 | IS 3025 (Part 44): 1993, Reaffirmed 2019 |
| 5. | Chemical Oxygen Demand | mg/L | 36 | APHA 23rd Ed. 2017, 5220-B, 5-18 |
| 6. | Oil and Grease | mg/L | N.D. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| **Remarks:** N.D. – Not Detected | | | | |

ULR- TC748722000003035F

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
BRANCH MANAGER

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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03213-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Domestic Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | STP Outlet | **Sample Quantity/Packing** | 2 L X 1 No. PVC Can<br>100mL X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| 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 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 2. | Total Dissolved Solids | mg/L | 502 | 2100 Max. | IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12) |
| 3. | Total Suspended Solids | mg/L | 7 | 50 Max. | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 4. | Biochemical Oxygen Demand (3 days 27°C) | mg/L | 6.0 | 30 Max. | IS 3025 (Part 44): 1993, Reaffirmed 2019 |
| 5. | Chemical Oxygen Demand | mg/L | 20 | 100 Max. | APHA 23rd Ed. 2017, 5220-B, 5-18 |
| 6. | Oil and Grease | mg/L | N.D. | 10 Max. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| 7. | Calcium (as Ca) | mg/L | 68.1 | - | APHA 23rd Ed. 2017, 3500-Ca-B, 3-69 |
| 8. | Magnesium (as Mg) | mg/L | 37.4 | - | APHA 23rd Ed. 2017, 3500-Mg- B, 3-86 |
| 9. | Sodium (as Na) | mg/L | 26.0 | - | APHA 23rd Ed. 2017, 3500-Na-B, 3-99 |

**Remarks:** #: Limit as per consent. N.D. – Not Detected

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**

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## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03212-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Domestic Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | STP Inlet | **Sample Quantity/Packing** | 2 L X 1 No. PVC Can<br>100mL X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Method Reference |
|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | |
| 1. | pH | - | 7.6 | APHA 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 2. | Total Dissolved Solids | mg/L | 455 | IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12) |
| 3. | Total Suspended Solids | mg/L | 11 | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 4. | Biochemical Oxygen Demand (3 days 27°C) | mg/L | 12 | IS 3025 (Part 44): 1993, Reaffirmed 2019 |
| 5. | Chemical Oxygen Demand | mg/L | 36 | APHA 23rd Ed. 2017, 5220-B, 5-18 |
| 6. | Oil and Grease | mg/L | N.D. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |

**Remarks**: N.D. – Not Detected

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

MAHABAL ENVIRO ENGINEERS P. LTD.

Note:
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ULR- TC748722000003035F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111

**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03213-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Domestic Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | STP Outlet | **Sample Quantity/Packing** | 2 L X 1 No. PVC Can<br>100mL X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| 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 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 2. | Total Dissolved Solids | mg/L | 502 | 2100 Max. | IS 3025 (Part 16):1984 RA 2017, Ed.2.1(1999-12) |
| 3. | Total Suspended Solids | mg/L | 7 | 50 Max. | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 4. | Biochemical Oxygen Demand (3 days 27°C) | mg/L | 6.0 | 30 Max. | IS 3025 (Part 44): 1993, Reaffirmed 2019 |
| 5. | Chemical Oxygen Demand | mg/L | 20 | 100 Max. | APHA 23rd Ed. 2017, 5220-B, 5-18 |
| 6. | Oil and Grease | mg/L | N.D. | 10 Max. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| 7. | Calcium (as Ca) | mg/L | 68.1 | - | APHA 23rd Ed. 2017, 3500-Ca-B, 3-69 |
| 8. | Magnesium (as Mg) | mg/L | 37.4 | - | APHA 23rd Ed. 2017, 3500-Mg- B, 3-86 |
| 9. | Sodium (as Na) | mg/L | 26.0 | - | APHA 23rd Ed. 2017, 3500-Na-B, 3-99 |

**Remarks**: #: Limit as per consent. N.D. – Not Detected

---END---

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

MEEPL

MAHABAL ENVIRO ENGINEERS PVT. LTD.

Note:
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**Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra**


ULR- TC748722000003036F

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111

**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03214-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.**<br>Plot No. B-1, Mohabala MIDC Growth Center,<br>Post & Tehsil: Warora ,<br>Dist: Chandrapur (M.S.) | | **Order Reference:**<br>4800159131<br>Dt.:03.02.2021 |
| **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** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No | Parameter | Unit | Result | Limit as per Consent | Method Reference |
|---|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | | |
| 1 | Temperature | °C | 30 | Not to exceed 5°C higher than the intake water | APHA 23rd Ed. 2017, 2550-B, 2-74 |
| 2 | pH | - | 8.2 | 6.5 to 8.5 | APHA 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 3 | Total Free Chlorine (Residual) | mg/L | <0.05 | 0.5 Max. | APHA 23rd Ed. 2017, 4500-Cl-G, 4-72 |
| **Remark:** | | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

MAHABAL ENVIRO ENGINEERS PVT. LTD.

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ULR- TC748722000003037F

TC-7487




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111

**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03215-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **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** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Limit as Per Consent | Method Reference |
|---|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment(Waste Water)** | | | | | |
| 1 | Free Chlorine (Residual) | mg/L | <0.05 | 0.5 Max. | APHA 23rd Ed. 2017, 4500-Cl-G, 4-72 |
| 2 | Phosphate Total (as P) | mg/L | 0.953 | 5.0 Max. | APHA 23rd Ed. 2017, 4500-P E, 4-164 |
| **Residues in water (Trace metal Element)** | | | | | |
| 3 | Chromium Total (as Cr) | mg/L | <0.01 | 0.2 Max. | IS 3025 (Part 2) 2019 |
| 4 | Zinc (as Zn) | mg/L | 0.070 | 1.0 Max. | IS 3025 (Part 2) 2019 |
| **Remark:** | | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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ULR- TC748722000003038F

TC-7487




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03216-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Industrial Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | Boiler Blow Down | **Sample Quantity/Packing** | 1 L X 1 No. PVC Can<br>500mL X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Limit as Per Consent | Method Reference |
|---|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | | |
| 1 | Total Suspended Solids | mg/L | <5 | 100 Max. | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 2 | Oil and Grease | mg/L | N.D. | 20 Max. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| **Residues in water (Trace metal Element)** | | | | | |
| 3 | Copper (as Cu) | mg/L | N.D. | 1.0 Max. | IS 3025 (Part 2) 2019 |
| 4 | Iron (as Fe) | mg/L | 0.189 | 1.0 Max. | IS 3025 (Part 2) 2019 |
| **Remark:** N.D. Not Detected | | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

MAHABAL ENVIRO ENGINEERS PVT. LTD.

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ULR- TC748722000003039F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra

# Mahabal Enviro Engineers Pvt. Ltd.

Engineer, Consultant, Environmental Monitoring Laboratory & Contractor

Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
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**Phone :** 91-712-2612162, 2612212, WP:9326279040 **Email:** mahabal.nagpur@gmail.com


## Test Report

| | | | |
|---|---|---|---|
| **Report No.:** ME-NG03217-220312-SA-GMR-WARORA | | | **Date:** 12.03.2022 |
| **Name and Address of Customer** | **GMR WARORA ENERGY LIMITED.** Plot No. B-1, Mohabala, MIDC Growth Center, Post & Tehsil: Warora, Dist: Chandrapur (M.S.) | | **Order Reference** 4800159131 Dt.:03.02.2021 |
| **Sample Description/Type** | Industrial Effluent | **Sample Collected by** | Laboratory |
| **Sampling Location** | Ash Pond Effluent | **Sample Quantity/Packing** | 1 L X 1 No. PVC Can<br>1 L X 1 No. Glass Bottle |
| **Date of Sampling** | 02.03.2022 | **Date of Receipt of Sample** | 03.03.2022 |
| **Sampling Procedure** | IS:3025(Part I): 1987 RA2019, APHA 23rd Ed. 2017, 1060-B, 1-40 | | |
| **Date of Start of Analysis** | 03.03.2022 | **Date of Completion of Analysis** | 11.03.2022 |

| Sr. No. | Parameter | Unit | Result | Limit as Per Consent | Method Reference |
|---|---|---|---|---|---|
| **Discipline: Chemical Testing; Product Group: Pollution & Environment (Waste Water)** | | | | | |
| 1. | pH | - | 8.0 | 5.5-9.0 | APHA 23rd Ed. 2017, 4500-$H^+$- B, 4-95 |
| 2. | Total Suspended Solids | mg/L | 14 | 100 Max. | APHA 23rd Ed. 2017, 2540-D, 2-70 |
| 3. | Oil and Grease | mg/L | N.D. | 10 Max. | IS 3025 (Part 39): 1991, Reaffirmed 2021, Amds.1 |
| **Remarks**: N.D. – Not Detected | | | | | |

END

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Kishor Yeole
**BRANCH MANAGER**

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ULR- TC748722000003040F




Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra