BK BIRLA GROUP OF COMPANIES

MANGALAM CEMENT LTD.

MANGALAM CEMENT LTD.

Regd. A/D

MCL/Env.- 6(VII)/2024-2025/ 912 14.11.2024

Director (Industry)
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan
Jor Bagh Road, Aliganj
New Delhi 110003

Sub.:-"Six monthly compliance report for the period from April 2024 to Sept. 2024 of conditions of environmental clearance issued to M/s Mangalam Cement Ltd. for the expansion of Cement Plant (Clinker 4.06 MTPA to 5.30 MTPA, Cement – 6.10 MTPA to 9.0 MTPA, Power 35 to 52.5 MW) situated at Village: Morak, Dist: Kota (Rajasthan).

Ref.: Environment Clearance Letter No. - F NO. J - 11011 /30 /2007 - IA II (I) (Pt.), dtd 20.12.2016.

Dear Sir,

We are submitting herewith six-monthly compliance report for the period from April 2024 to Sept. 2024 of conditions of environmental clearance issued to M/s Mangalam Cement Ltd. for the expansion of Cement Plant (Clinker 4.06 MTPA to 5.30 MTPA, Cement – 6.10 MTPA to 9.0 MTPA, Power 35 to 52.5 MW) situated at Village: Morak, Distt: Kota (Rajasthan). Submitted for your kind information & records please.

Thanking you,
Yours faithfully,
For Mangalam Cement Ltd.

P. R. Chaudhary
Sr. Joint President (Operation) & FM

Cc to: **Regional Director,**
Integrated Regional Office,
Ministry of Env., Forest and Climate Change,
Integrated Regional Office, Jaipur , A-209 & 218,
Aranya Bhawan, Mahatma Gandhi Road, Jhalana Institutional Area,
Jaipur – 304002, Rajasthan
Member Secretary,
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri, Jaipur (Raj.)
Regional Director,
Central Pollution Central Board,
Zonal Office (Central),
3rd Floor, Sahakar Bhawan,
North T. T. Nagar, Bhopal-462003

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Website : www.mangalamcement.com, E-mail : email@mangalamcement.com
Kota Office : Shop No. 20, 80 Feet Road, Opp. Sukhdham Colony, (Near SBI Bank) Kota - 324001(Rajasthan)
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E-mail : delhi.purchase@mangalamcement.com, delhi.marketing@mangalamcement.com
Jaipur Office : 2nd Floor, Geejgarh Tower, Hawa-Sarak, Jaipur - 302 006 (Rajasthan)
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Mangalam Cement Ltd.

Name of the Project :- Expansion of Cement Plant Clinker 4.06 MTPA to 5.30 MTPA, Cement – 6.10 MTPA to 9.0 MTPA, Power 35 to 52.5 MW by Mangalam Cement Limited	**Project Code :-**
Clearance Letter No. : - F NO. J - 11011 /30 /2007 - IA II (I) (Pt.), dtd 20.12.2016	
Month of Compliance Report :- April 2024 to Sept. 2024	

<table>
<tr><th>S. No</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td>A.</td><td><u>SPECIFIC CONDITIONS:</u></td><td></td></tr>
<tr><td>i.</td><td>The Project proponent shall install 24x7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to ministry and its regional office.</td><td>Company has installed Continuous Emission Monitoring system at all the major stacks for real time (24 X 7) emission monitoring, as per CPCB guidelines and data are being transmitted to CPCB & RSPCB server continuously. Day average of real time Continuous Emission Monitoring Reports are enclosed in Annexure-I.</td></tr>
<tr><td>ii</td><td>The Standards issued by the ministry vide G.S.R. No. 612(E) dated 25th August, 2014 and subsequent amendment date 9th May, 2016 and 10th May 2016 regarding cement plants with respect to particulate matter, SO2 and NOx shall be followed.</td><td>We are complying the standards issued by the ministry vide G.S.R. No. 612(E) dated 25th August, 2014 and subsequent amendment date 9th May, 2016 and 10th May 2016 regarding cement plants with respect to particulate matter, SO2 and NOx. Monitoring results of Cement Plants are given as below and details are attached in Annexure- I (A).
<table>
<tr><td colspan="4">Unit-I</td></tr>
<tr><td rowspan="2">Stack No.</td><td rowspan="2">Details of Stack</td><td colspan="2">Emission (mg/Nm^3)</td></tr>
<tr><td>Norms</td><td>Avg. Emission</td></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Kiln Main Stack</td><td>30</td><td>21.62</td></tr>
<tr><td>100</td><td>15.77</td></tr>
<tr><td>800</td><td>644.28</td></tr>
<tr><td>2</td><td>Clinker Cooler Stack</td><td>30</td><td>15.93</td></tr>
<tr><td>3</td><td>Cement Mill Stack</td><td>30</td><td>14.70</td></tr>
<tr><td>4</td><td>Vertical Coal Mill Stack</td><td>30</td><td>13.68</td></tr>
<tr><td colspan="4">Unit-II</td></tr>
<tr><td rowspan="2">Stack No.</td><td rowspan="2">Details of Stack</td><td colspan="2">Emission (mg/Nm^3)</td></tr>
<tr><td>Norms</td><td>Avg. Emission</td></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Kiln Main Stack</td><td>30</td><td>19.39</td></tr>
<tr><td>100</td><td>11.65</td></tr>
<tr><td>800</td><td>653.70</td></tr>
<tr><td>2</td><td>Clinker Cooler Stack</td><td>30</td><td>18.46</td></tr>
<tr><td>3</td><td>Cement Mill Stack</td><td>30</td><td>13.68</td></tr>
<tr><td>4</td><td>Coal Mill stack</td><td>30</td><td>20.30</td></tr>
<tr><td colspan="4">Unit-III</td></tr>
<tr><td rowspan="2">Stack No.</td><td rowspan="2">Details of Stack</td><td colspan="2">Emission (mg/Nm^3)</td></tr>
<tr><td>Norms</td><td>Avg. Emission</td></tr>
<tr><td>1</td><td>Cement Mill Stack</td><td>30</td><td>18.35</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>iii</td><td>Prior clearance from the Standing Committee of the National Board for Wildlife shall be obtained due to location of the plant in the buffer zone of Darrah Wildlife Sanctuary, before commencing any expansion activity relating to the project at site. All the conditions stipulated by the Standing Committee shall be effectively implemented in the project. It shall be noted that this clearance does not necessarily implies that wildlife clearance shall be granted to the project and that your proposal for wildlife clearance shall be considered by the competent authorities on its merit and decision taken. The investment made in the project, if any based on environmental clearance granted to the project, in anticipation of the clearance from wildlife clearance shall be entirely at the cost and risk of the project proponent and ministry of Environment, Forest and Climate Change shall not be responsible in this regard, in any manner.</td><td>We have received clearance from National Board for Wildlife (NBWL) vide letter no. F()WLC/CWLW/2019/8463 dated 23.10.2020 and complying all the conditions stipulated by Standing Committee. Copy of NBWL Clearance letter has already been submitted to the Ministry vide our letter No. MCL/Env-6(IV)/2021-2022/310 dated 25.05.2021.</td></tr>
<tr><td>iv</td><td>The project proponent shall not draw ground water for the project.</td><td>Point noted and ensures that we are not drawing ground water for the project.</td></tr>
<tr><td>v</td><td>The standards issued by the Ministry vide S.O. 3305 (E) dated 07.12.2015 regarding thermal power plants shall be followed.</td><td>The standards issued by the Ministry vide S.O. 3305 (E) dated 07.12.2015 and its subsequent amendments regarding thermal power plants are being complied.
Monitoring results of Captive Power Plants are given as below and details are attached in Annexure- I (A).
<table>
<tr><th colspan="4">CPP-I</th></tr>
<tr><th rowspan="2">Stack No.</th><th rowspan="2">Details of Stack</th><th colspan="2">Emission (mg/Nm^3)</th></tr>
<tr><th>Norms</th><th>Avg. Emission</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Main Stack Power plant - I</td><td>50</td><td>41.58</td></tr>
<tr><td>600</td><td>377.10</td></tr>
<tr><td>450</td><td>276.35</td></tr>
<tr><th colspan="4">CPP-II</th></tr>
<tr><th rowspan="2">Stack No.</th><th rowspan="2">Details of Stack</th><th colspan="2">Emission (mg/Nm^3)</th></tr>
<tr><th>Norms</th><th>Avg. Emission</th></tr>
<tr><td rowspan="3">1</td><td rowspan="3">Main Stack Power plant - II</td><td>50</td><td>34.25</td></tr>
<tr><td>600</td><td>228.70</td></tr>
<tr><td>450</td><td>339.20</td></tr>
</table></td></tr>
<tr><td>vi</td><td>Two High Volume Samplers should be installed at the boundary of the wild life sanctuary suitably to continuously monitor the parameters and maintain records. These records shall be submitted along with the 6 monthly compliance report to the Ministry’s Regional Office.</td><td>We are continuously monitored parameters on two locations at the boundary of the wildlife sanctuary through High Volume Samplers on quarterly basis and same are being sent to Ministry’s Regional Office with six monthly compliance report. Monitoring Reports are enclosed in Annexure-II.</td></tr>
</table>

<table>
<tr><td>vii</td><td>Continuous stack monitoring facilities for all the stacks shall be provided and sufficient air pollution control devices viz. Electrostatic precipitator (ESP), bag house, bag filters etc. shall be provided to keep the emission levels below 50 mg/Nm3 and installing energy efficient technology.</td><td>We have provided efficient Air Pollution Control Devices at all the stacks to keep the emission under the prescribed norms and to monitor real time emission level we have installed Continuous Emission Monitoring facilities at all the major stacks and real time data from these CEMS analyzers are being transmitted to CPCB & RSPCB server. Status reports of APCM & CEMS Installation along with Measured Emission Values of major stacks are given in Annexure-I (A).</td></tr>
<tr><td>viii</td><td>The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16th November, 2009 shall be followed.</td><td>We are following National Ambient Air Quality Standard issued by Ministry of Environmental and Forest vide GSR 826(E) of 16th November-2009. Copy is enclosed in Annexure – I(B).
<table>
<tr><th colspan="7">Mangalam Cement Ltd.</th></tr>
<tr><th colspan="7">Ambient Air Quality Monitoring Results</th></tr>
<tr><th rowspan="2">SN</th><th rowspan="2">Location → Parameters ↓</th><th rowspan="2">Norms (µg/m3)</th><th>Near Railway Gate</th><th>Near Security Gate</th><th>Near Rack Loading Area</th><th>Near Work Shop</th></tr>
<tr><th colspan="5">Avg.</th></tr>
<tr><td>1</td><td>PM10</td><td>100</td><td>59.36</td><td>79.55</td><td>60.29</td><td>77.95</td></tr>
<tr><td>2</td><td>PM2.5</td><td>60</td><td>30.38</td><td>46.66</td><td>32.3</td><td>39.7</td></tr>
<tr><td>3</td><td>SO_2</td><td>80</td><td>11.75</td><td>12.73</td><td>10.61</td><td>10.61</td></tr>
<tr><td>4</td><td>NOx</td><td>80</td><td>17.19</td><td>19.66</td><td>16.34</td><td>17.02</td></tr>
<tr><td>5</td><td>CO</td><td>4000</td><td>490.0</td><td>510.0</td><td>495.0</td><td>525.0</td></tr>
</table></td></tr>
<tr><td>ix</td><td>A statement on carbon budgeting including the quantum of equivalent CO2 being emitted by the existing plant operations, the amount of carbon sequestered annually by the existing green belt and the proposed green belt and the quantum of equivalent CO2 that will be emitted due to the proposed expansion shall be prepared by the project proponent and submitted to the Ministry and the Regional Office of the Ministry. This shall be prepared every year by the project proponent. The first such budget shall be prepared within a period of 6 months and subsequently it should be prepared every year.</td><td>Carbon Budgeting report of FY 2023-2024 is enclosed as Annexure - III</td></tr>
<tr><td>x</td><td>For the employees working in high temperature zones falling in the plant operation areas, the total shift duration would be 4 hrs or less per day where the temperature is more than 50 deg C. Moreover, the jobs of these employees will be alternated in such a way that no employee is subjected to working in high temperature area for more than 1 hr continuously. Such employees would be invariably provided with proper</td><td>Point noted and complying. We have provided proper protective equipment’s, garments etc to all personnel involved in hot work. And provide proper arrangement for sufficient drinking water at site to prevent dehydration etc.</td></tr>
</table>

	protective equipments, garments and gear such as head gear, clothing, gloves, eye protection etc. There should also be an arrangement for sufficient drinking water at site to prevent dehydration etc.	
xi	Vehicular pollution due to transportation of raw material shall be controlled. Proper arrangements shall also be made to control dust emissions during loading and unloading of the raw material.	We have installed closed conveyor belts with efficient bag filters to minimize the internal vehicular movement of raw materials. Paved/ concrete roads have been provided for all vehicular movement. No vehicle is allowed inside the plant without PUC certificate. Proper arrangements have also been made to control dust emissions during loading and unloading of raw materials. Fugitive emission monitoring results of our plants are attached in **Annexure- I (D).**
xii	'Zero' effluent discharge shall be strictly followed and no wastewater shall be discharged outside the premises.	We are maintaining the "Zero" effluent discharge strictly and no waste water is being discharged.
xiii	Regular monitoring of influent and effluent surface, sub-surface and ground water shall be ensured and treated wastewater shall meet the norms prescribed by the State Pollution Control Board or described under Environment (Protection) Act, 1986.	Domestic Sewage & industrial effluent from thermal power plants is being treated in our own STP & neutralization pit respectively to meet the prescribed norms. Regular monitoring of treated sewage & treated industrial effluent from thermal power plants is being conducted through MoEF&CC approved external laboratory.
xiv	Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid/ hazardous waste shall be submitted to the Ministry's Regional Office, SPCB and CPCB.	We have facility for proper handling, storage, utilization and disposal of hazardous & other wastes and details of hazardous & other wastes are being submitted to SPCB in Form-IV. Copies of the same are enclosed herewith as **Annexure-IV.**
xv	A time bound action plan shall be submitted to reduce solid waste generated due to the project related activities, its proper utilization and disposal.	No solid waste is generated from our cement plant however fly ash generated from our captive thermal power plants is being 100% utilized in cement manufacturing.
xvi	A Risk and Disaster Management Plan shall be prepared and a copy submitted to the Ministry's Regional Office, SPCB and CPCB within 3 months of issue of environment clearance letter.	We have prepared and submitted detailed Risk and Disaster Management Plan to the Ministry's Regional Office- Lucknow, CPCB- New Delhi and RSPCB Jaipur vide our letter no. MCL/Env-95/2016-17/7006 dated 15.03.2017.
xvii	Green belt shall be developed in at least 33% of the project area by planting native and broad leaved species in consultation with local DFO and local communities as per CPCB guidelines. 10 to 15 m wide green belt should be developed all along the boundary of the site and both the side of the road.	Green belt development is our ongoing process and we have planted **133102 numbers** of plant saplings in & around the plant premises and developed more than 33 % green belt area, as per the CPCB guidelines. Year wise details of plantation are given in **Annexure- V**.

xviii	All the commitments made to the public during Public Hearing/ Public consultation meeting shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	We are implementing all the commitments made to the public during Public Hearing/ Public consultation.
xix	At least 2.5% of the total cost of project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues, locals need and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured by constituting a Committee comprising of the proponent, representatives of village Panchyat and District Administration. 'Action taken report in this regard shall be submitted to the Ministry's Regional Office.	We are implementing all the commitments made to the public during Public Hearing/ Public consultation.
xx	The proponent shall prepare a detailed CSR plan for every year for the next 5 years for the existing cum expansion project, which includes village wise, sector-wise (Health, Education, Sanitation, Health, Skill Development and Infrastructure requirements such as strengthening of village roads, avenue plantation, etc.) activities in consultation with local communities and administration. The CSR plan will include the amount of 2% retain annual profits as provided for in Clause 135 of the Companies Act, 2013 which provided for 2% of the average net profits of previous 3 years towards CSR activities for life of the project. A separate budget head shall be created & the annual capital & revenue expenditure on various activities of the plan shall be submitted as part of the Compliance Report to RO. The details of the CSR plan shall be uploaded on the company website & shall be provided in the Annual Report of the company.	We are following the conditions as per guidelines. CSR Report for the period from **April 2024 to Sept 2024** is attached in **Annexure-VI.**

xxi	The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/ procedure to being into focus any infringement/deviation/ violation of environmental or forest norms/ conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non-compliance/ violation environmental norms to the Board of Directors of the company and/ or stakeholders or shareholders.	We have submitted company's Policy for Environment Management System certified by BIS and under this system, we have proper company policy focusing on continual improvement in the field of Environment including prevention of pollution, conservation of natural resources etc. vide our letter no. MCL/ ENV-95/ 2016-17/ dated 11.03.2017.
xxii	Provision shall be made for the housing of construction labour 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.	Point noted. It is a brown field project and we have our own township, where all necessary facilities such as fuel for cooking, toilets, STP, safe drinking water, medical health care, crèche etc. are available.
xxiii	The project proponent shall provide for solar light system for all common areas, street lights, village, parking around project area and maintain the same regularly.	Point noted & complying in phase manner. We have installed solar light in mine's magazine area & solar geysers at guest house & bachelor's hostel.
xxiv	The project proponent shall provide for LED lights in their offices and residential areas.	We have replaced more than 6000 numbers of LED lights in our plant, residential areas, streetlight, parking areas etc.

<table>
<tr><td>B.</td><td><u>GENERAL CONDITIONS:</u></td><td></td></tr>
<tr><td>i</td><td>The project authorities must strictly adhere to the stipulations made by the Rajasthan Pollution Control Board and the State Govt.</td><td>We are strictly complying the stipulations made by the Rajasthan State Pollution Control Board and the State Government.</td></tr>
<tr><td>ii</td><td>No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change (MoEF&CC).</td><td>For expansion or modification of the plant we will take prior approval of the Ministry, if any.</td></tr>
<tr><td>iii</td><td>At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM10, PM2.5, SO2 and NOx are anticipated in consultation with the SPCB. Data on ambient air quality and stack emission shall be regularly submitted to this Ministry including its Regional Office at Lucknow and the SPCB/CPCB once in six months.</td><td>Four ambient air qualities – monitoring stations are provided at the periphery of our factory premises for the monitoring of ambient air quality. The locations of these stations were decided in consultation with RO Kota. We are submitting data on ambient air quality and stack emissions to Regional office at Lucknow and RPCB, CPCB once in six months.
<table>
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<tr><th colspan="5">Avg.</th></tr>
<tr><td>1</td><td>PM10</td><td>100</td><td>59.36</td><td>79.55</td><td>60.29</td><td>77.95</td></tr>
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</table></td></tr>
<tr><td>iv</td><td>Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.</td><td>Industrial waste water is being collected and treated as per GSR 422 (E) dtd. 19th May 1993 guidelines and used for plantation purpose after treatment.</td></tr>
<tr><td>v</td><td>The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).</td><td>Noise is being checked on regularly basis as per standard& limited within the prescribed standards. Copy is enclosed herewith in Annexure – I(C).
<table>
<tr><th colspan="4">Results of Noise</th></tr>
<tr><th rowspan="2">Sr. No.</th><th rowspan="2">Location</th><th colspan="2">Ambient Air Noise Results (dB)</th></tr>
<tr><th>Day Avg.</th><th>Night Avg.</th></tr>
<tr><td>1</td><td>Near Security Gate</td><td>62.62</td><td>53.08</td></tr>
<tr><td>2</td><td>Near Railway Gate</td><td>63.66</td><td>53.16</td></tr>
<tr><td>3</td><td>Near Rack Loading Area</td><td>69.53</td><td>57.55</td></tr>
<tr><td>4</td><td>Near Work Shop</td><td>62.81</td><td>53.71</td></tr>
</table></td></tr>
</table>

<table>
<tr><td>vi</td><td>Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factory Act.</td><td>We are maintaining Occupational health checkup of the workers regular basis as per the factories act. Report is enclosed herewith in Annexure – VII.</td></tr>
<tr><td>vii</td><td>The company shall develop rain water harvesting structures to harvest the rain water for utilization in the lean season besides recharging the ground water table.</td><td>We have developed rainwater harvesting system at our plant buildings.
<u>Rain water Harvesting</u>
 
<table><tr><th colspan="3">Mangalam Cement Ltd.</th></tr><tr><th colspan="3">Details Of water Harvesting</th></tr><tr><th>S. No.</th><th>Location</th><th>Roof Area (m^2)</th></tr><tr><td>1.</td><td>Engineering Building</td><td>725</td></tr><tr><td>2.</td><td>Load Center Building</td><td>1458</td></tr><tr><td>3.</td><td>Store Building</td><td>1620</td></tr><tr><td>4.</td><td>Captive Power Plant-I</td><td>1200</td></tr></table></td></tr>
<tr><td>viii</td><td>The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA/EMP report. Further, the company must undertake socio-economic development activities in the surrounding villages like community development programmes, educational programmes, drinking water supply and health care etc.</td><td>Earmarked capital for environmental projects will be used exclusively for its implementations as maintained in EIA / EMP Reports. We shall implement this condition as per Enterprise Social Commitment scheme. CSR Report for the period from April 2024 to Sept. 2024 is attached in Annexure-VI.</td></tr>
<tr><td>ix</td><td>Requisite funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEFCC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Lucknow. The funds so provided shall not be diverted for any other purpose.</td><td>We agree the condition and complying. Environmental expenditure incurred during the period from April 2024 to Sept. 2024 for environment protection measures is given below.
<table><tr><th colspan="3">Mangalam Cement Ltd</th></tr><tr><th colspan="3">Environmental expenditure incurred during the period from – April 2024 to Sept 2024 for environment protection measures.</th></tr><tr><th>S. No.</th><th>Department</th><th>Total Cost (In Rs.)</th></tr><tr><td>1.</td><td>Total Expenditures</td><td>99625957.94</td></tr></table></td></tr>
</table>

x	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParishad/ Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.	We have put the clearance letter on the website of the company.
xi	The project proponent shall upload the status of compliance of stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MoEFCC at Lucknow. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	We are uploading every six monthly report of plant monitoring results and compliance report of Environmental clearance condition time to time at our web site and same data are being send to the RO, Lucknow, CPCB, RPCB and Zonal office.
xii	The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of this Ministry at Lucknow/ CPCB/SPCB shall monitor the stipulated conditions.	The resulting monitoring data are being submitted, six monthly reports in the month of June and Dec. every year and same copy being sent to the Regional office Lucknow, RPCB and Central Pollution Control Board.
xiii	The environmental 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 environmental conditions and shall also be sent to the respective Regional Office of the MoEFCC at Lucknow by e-mail.	We are submitting Environmental Statement before 30th September in every year and same data available at web site and one copy being sent by e-mail to the Regional office of the MoEF at Lucknow.

xiv	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be sent at website of the Ministry of Environment, Forest and Climate Change (MoEFCC) at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the Regional office at Lucknow.	We had advertised information of Environmental clearance letter in two local newspapers in local language of the locality concerned and same copy sent to the Rajasthan Pollution Control Board, Jaipur and the Regional office at Lucknow.
xv	Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and date of commencing the land development work.	We will inform the regional office as well as to the ministry the date of financial closure and final approval of the project.

Annexure – I

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of April 2024

(All value in mg/Nm3)

Dated	Unit -I						Unit -II						Unit -III	CPP -I			CPP -II		
	Kiln -I (PM)	Kiln -I (NOx)	Kiln -I (SO2)	Cooler -I (PM)	Cement Mill -I (PM)	Coal Mill -I (PM)	Kiln -II (PM)	Kiln -II (NOx)	Kiln -II (SO2)	Cooler -II (PM)	Cement Mill -II (PM)	Coal Mill -II (PM)	Cement Mill -III (PM)	Nox	SO2	PM	Nox	SO2	PM
01-04-2024	21.04	684.55	26.2	21.24	0	12.82	19.4	581.65	8.19	21.48	18.07	22.88	18.02	4.41	4.91	0	301.92	368.93	34.74
02-04-2024	20.09	669.85	23.34	16.08	5.71	11.4	19.06	664.08	7.69	20.98	15.45	12.22	17.66	4.41	4.91	0	280.95	301.39	35.95
03-04-2024	17.52	672.5	26.48	15.99	18.09	11.67	18.89	669.24	25.18	20.86	15.5	16.08	15.51	4.35	4.82	0	283.97	399.04	34.51
04-04-2024	19	667.21	28.45	15.04	15.29	9.9	19.01	667.34	19.9	20.96	16.45	19.4	6.81	4.12	4.5	0	358.07	340.27	34.33
05-04-2024	21	670.35	27.22	14.69	15.92	10.68	17.72	148.02	1.8	19.51	16.36	6.19	6.55	4.09	4.47	0	352.39	382.93	27.71
06-04-2024	20.73	672.29	27.05	16.33	8.51	11.19	4.14	0	0.98	7.41	6.51	0.02	12.09	4.05	4.42	0	335.79	319.94	26.81
07-04-2024	18.51	651.94	27.94	15.54	7.71	9.78	9.03	261.14	1.67	9.65	13.66	9.24	11.31	4.05	4.42	0	331.46	290.25	28.56
08-04-2024	19.59	680.52	27.51	14.66	18.07	11.84	13	625.93	5.64	14.83	14.94	15.25	12.48	4.05	4.42	0	328.39	307.38	26.61
09-04-2024	21.07	680.88	26.25	15.53	8.67	12.93	13.09	608.82	5.2	14.91	16.65	10.44	7.41	4.05	4.42	0	315.09	203.93	27.22
10-04-2024	21.37	680.74	26.28	16.39	14.58	11.41	12.89	573.87	9.55	14.93	17.48	19.39	0.32	4.05	4.42	0	310.67	161.51	28
11-04-2024	20.79	686.9	26.53	12.62	19.14	11.89	9.93	647.01	2.62	13.34	18.08	19.39	12.84	331.88	503.04	32.92	2.64	3.19	0.1
12-04-2024	21.99	681.71	21.65	14.93	11.86	11.53	13.09	654.04	12.66	15.21	15.71	19.67	11.85	300.16	441.81	34.99	2.48	3.16	0.09
13-04-2024	21.61	615.55	33.23	14.81	10.75	11.21	16.91	647.02	23.2	18.95	11.06	17.76	11.34	325.38	522.16	37.81	6.44	8.78	0.09
14-04-2024	19.56	643.08	29.96	14.24	5.41	11.35	16.88	668.34	29.17	18.82	11.57	19.42	12.38	361.18	507.46	40.23	2.47	3.13	0.09
15-04-2024	18.96	643.56	30.14	14.29	17.15	11.11	16.96	670.03	31.44	18.89	14.53	19.39	13.22	331.5	508.42	34.81	2.47	3.16	0.09
16-04-2024	20.49	643.81	29.07	15.8	0	11.51	16.47	671.4	31.62	19.11	14.08	19.46	9.9	323.49	432.58	27.58	2.52	3.19	0.1
17-04-2024	21.35	645.48	29.08	16.58	11.18	11.96	17.05	669.32	26.19	19.02	14.79	20.12	7.63	351.62	274.03	25.68	2.55	3.19	0.1
18-04-2024	21.31	687.95	28.3	16.63	3.14	11.14	17.14	644.44	29.87	19.17	13.56	20.46	0.32	372.41	293.44	26.16	2.54	3.19	0.1
19-04-2024	20.71	684.6	32.17	16.61	0.01	14.15	17.2	639.99	36.81	18.89	8.26	20.29	5.12	388.58	193.19	30.53	2.54	3.19	0.1
20-04-2024	18.56	676.26	29.7	17.3	0.9	15.49	17.14	635.75	32.89	19.07	0	20.37	6.11	400.81	414.73	35.07	2.58	3.19	0.1
21-04-2024	21.38	708.99	28.17	10.28	13.56	16.78	17.44	711.89	21.94	19.46	16.03	21.31	0.37	445.03	353.95	36.01	2.47	3.19	0.09
22-04-2024	21	717.59	25.58	16.83	7.57	12.91	17.01	682.68	24.93	19.04	14.06	21.65	10.65	419.07	364.47	34.95	2.51	3.18	0.09
23-04-2024	21.11	718.65	25.51	18.36	0	13.25	17.06	682.66	24.74	19.09	14.29	16.53	4.74	416.82	462.9	34.79	2.54	3.19	0.09
24-04-2024	19.25	719.89	25.67	20.98	0	13.72	17.13	681.1	22.8	19.03	9.1	21.43	12.36	374.38	496.26	36.45	2.55	3.19	0.1
25-04-2024	18.42	556.87	22.14	17.71	0	12.9	17.05	634.63	25.16	18.95	0	17.49	1.16	337.26	369.76	36.69	2.54	3.19	0.09
26-04-2024	18.79	589.1	21.88	15.9	0	12.93	17.08	587.4	32.76	19.01	10.16	20.14	0.31	332.18	383.04	39.53	2.55	3.19	0.09
27-04-2024	19.79	599.7	32.59	18.21	0	7.36	17.02	656.47	39.65	18.98	12.44	21.4	7.3	282.5	365.17	38.65	7.99	10.85	0.1
28-04-2024	20.26	587.19	24.53	19.63	1.28	0.01	17.04	608.13	28.06	19.01	12.29	20.51	15.63	247.77	364.21	37.93	2.48	3.18	0.1
29-04-2024	20.07	588.6	24.53	20.95	9.18	13.42	16.84	608.79	24.45	18.84	8.53	19.16	19.94	253.82	387.48	37.22	2.53	3.19	0.1
30-04-2024	20.37	590.06	24.99	20.74	12.47	10.75	17.11	610.16	23.7	19.03	5.18	19.18	15.94	255.56	362.83	36.18	2.55	3.19	0.1

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of May 2024

(All value in mg/Nm3)

Dated	Unit -I						Unit -II						Unit -III	CPP -I			CPP -II		
	Kiln -I (PM)	Kiln -I (NOx)	Kiln -I (SO2)	Cooler -I (PM)	Cement Mill -I (PM)	Coal Mill -I (PM)	Kiln -II (PM)	Kiln -II (NOx)	Kiln -II (SO2)	Cooler -II (PM)	Cement Mill -II (PM)	Coal Mill -II (PM)	Cement Mill -III (PM)	Nox	SO2	PM	Nox	SO2	PM
01-05-2024	21.79	609.12	24.56	24.17	13.17	11.43	19.25	634.03	28.17	21.17	12.56	18.58	0.36	249.92	492.23	32.47	2.64	3.19	0.1
02-05-2024	21.34	589.17	25.58	19.81	12.53	10.87	16.96	425.87	22.72	19.63	14.88	14.94	0.31	248.51	415.93	35.64	2.5	3.17	0.09
03-05-2024	19.73	588.39	27.4	20.77	15.59	10.92	16.88	615.78	24.05	18.9	37.61	20.95	5.46	352.05	337.14	40.15	2.47	3.1	0.08
04-05-2024	20.06	524.4	28.66	21.23	26.43	8.3	17.95	608.95	26.18	18.87	13.37	25.69	11.72	359.51	479.19	42.31	2.46	3.06	0.08
05-05-2024	18.36	578.63	33.35	21.44	8.44	11.81	16.76	600.48	34.87	18.87	3.49	22.17	11.01	314.11	456.16	35.3	2.48	3.13	0.08
06-05-2024	17.65	588.45	31.19	21.66	7.31	12.24	17.29	612.25	36.59	19.21	10.43	21.08	13.51	272.13	396.44	40.45	2.49	3.12	0.09
07-05-2024	17.66	587.21	27.86	21.65	8.16	11.8	17.42	621.92	23.56	18.44	6.73	21.25	11.39	238.44	383.64	34.87	2.53	3.19	0.09
08-05-2024	18.54	585.45	30.57	17.88	0	10.25	18.27	613.36	44.36	15.83	0.01	17.78	11.6	195.92	366.28	30.71	2.55	3.19	0.09
09-05-2024	20.7	589.78	25.36	8.27	7.29	11.04	17.46	272.16	34.67	15.31	14.08	10.62	6.58	167.29	225.63	31.37	2.61	3.19	0.1
10-05-2024	20	589.03	25.14	8.33	13.88	12.95	19.02	570.6	41.68	21	12.83	19.21	4.46	156.1	220.2	34.72	2.47	3.21	0.1
11-05-2024	24.29	681.27	16.05	10.19	0	15.65	23.38	611.85	14.08	25.33	0	20.25	0.37	194.93	326.19	38.58	2.29	3.19	0.1
12-05-2024	23.56	600.64	17.05	9.67	12.29	8.05	19.09	647.97	31.45	21.1	0	15.86	0.32	266.84	376.92	37.32	2.29	3.19	0.1
13-05-2024	22.26	625.86	18.77	9.04	4.72	11.77	19.05	666.71	26.57	20.96	6.79	19.08	5.37	278.96	313.39	33.45	2.29	3.19	0.1
14-05-2024	20.41	626.85	19.32	10.61	4.6	10.52	18.96	663.95	31.6	20.89	11.81	19.62	11.58	286.95	363.27	35.78	2.29	3.19	0.1
15-05-2024	21.66	628.75	17.25	9.83	0	9.41	19.11	663.7	25.02	21.38	13.58	14.85	12.72	280.01	298.93	34.7	2.3	3.19	0.1
16-05-2024	22.93	627.48	17.58	12.56	12.41	4.52	19.14	657.01	44.71	21.03	1.97	18.87	4.98	271.44	322.99	35.89	2.29	3.19	0.1
17-05-2024	23.32	619.43	17.69	11.31	12.95	9.58	18.99	655.47	24.32	20.95	1.92	17.17	7.55	274.64	307.78	35.06	2.29	3.19	0.1
18-05-2024	23.47	623.95	18.47	12.11	5.28	10.63	19.05	600.1	14.32	21.1	12.55	20.76	11.48	271.23	343.98	35.88	2.29	3.19	0.09
19-05-2024	23.13	623.59	19.82	11.25	13.1	10.86	19	679.3	12.24	21.06	12.91	20.71	0.31	273.46	449.86	35.58	2.31	3.19	0.1
20-05-2024	19.46	610.37	24.05	13.18	9.43	9.58	19.09	678.78	10.8	21	11.67	16.87	9	280.65	419.56	35.17	2.33	3.2	0.1
21-05-2024	20.63	631.68	31.11	13.38	0.01	10.83	17.24	278	6.55	19.24	0	21.87	14.45	327.83	499.11	31.55	2.47	3.19	0.1
22-05-2024	20.87	625.99	20.29	13.44	0	9.35	19.06	583.03	13.7	20.98	13.5	14.85	12.53	283.53	384.42	35.02	2.33	3.19	0.1
23-05-2024	23.71	625.24	18.78	15.13	8.02	9.41	19.08	662.28	8.02	21.04	13.03	17.35	13.31	284.41	294.5	33.84	2.33	3.2	0.1
24-05-2024	16.87	59.28	19.78	13.6	12.92	0.03	18.91	675.34	17.26	20.99	12	22.29	0.88	316.88	318.3	36.61	2.36	3.22	0.11
25-05-2024	9.41	29.55	49.63	3.81	13.65	0.01	19.08	675.24	33.98	21.11	7.32	19.5	3.16	311.78	298.57	37.78	5.15	7.24	0.1
26-05-2024	3.98	1.17	26.63	0.01	9.44	0.01	19.22	645.44	28.21	21.17	13.79	21.92	9.6	300.56	299.65	35.83	2.34	3.21	0.11
27-05-2024	0.06	1.17	24.01	0.01	0.01	0.01	18.94	585.94	32.18	20.94	11.27	21.97	13.31	293.94	319.3	36.63	2.37	3.22	0.11
28-05-2024	14.65	319.38	24.85	12.76	3.54	4.53	19.21	396	22.33	21.24	13.53	16.68	9.69	296.24	330.16	34.86	2.44	3.27	0.11
29-05-2024	23.93	628.54	30.32	21.18	13.85	8.85	19.18	544.58	13.99	21.2	2.57	20.24	13.91	310.87	316.18	36.32	2.44	3.25	0.11
30-05-2024	23.8	626.67	27.88	22.75	13.78	11.64	19.14	5.36	16.59	21.12	7.61	9.07	7.07	338.41	309.23	35.85	2.43	3.23	0.1
31-05-2024	23.65	627.15	25.56	18.6	13.3	9.22	16.23	0	21.12	6.04	13.19	0.04	11.95	334.13	296.32	34.92	2.4	3.24	0.11

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of June 2024

(All value in mg/Nm3)

Dated	Unit -I						Unit -II						Unit -III	CPP -I			CPP -II		
	Kiln -I (PM)	Kiln -I (NOx)	Kiln -I (SO2)	Cooler -I (PM)	Cement Mill -I (PM)	Coal Mill -I (PM)	Kiln - II (PM)	Kiln -II (NOx)	Kiln - II (SO2)	Cooler -II (PM)	Cement Mill -II (PM)	Coal Mill - II (PM)	Cement Mill -III (PM)	Nox	SO2	PM	Nox	SO2	PM
01-06-2024	21.88	717.92	34.72	15.7	17.15	11.52	0.03	0	24.24	0	13.68	0.04	12.53	346.68	325.45	20.38	2.29	3.19	0.11
02-06-2024	21.78	701.87	23.97	16.09	13.91	10.15	0.04	0	12.96	0	13.9	0.04	13.34	324.48	303.64	23.01	2.34	3.2	0.1
03-06-2024	20.12	700.15	22.56	17.63	12.34	10.86	0.03	0	8.79	19.25	13.89	0.97	13.27	345.44	291.91	25.9	2.33	3.19	0.1
04-06-2024	20.47	700.78	26.63	19.9	9.64	10.91	18.61	178.15	52.71	18.77	13.98	15.6	7.03	347.35	284.66	31.53	2.39	3.3	0.1
05-06-2024	20.59	614.59	61.95	18.89	5.47	9.62	18.96	586.66	11.25	20.94	12.02	19.08	12.66	336.04	268.88	34.09	2.48	3.42	0.1
06-06-2024	21.36	682	40.85	16.68	8.99	9.91	19.01	564.43	9.85	20.95	13.93	19.7	8.9	347.61	269.9	31.75	2.48	3.38	0.1
07-06-2024	21.63	600.4	15.36	19.08	8.06	8.18	18.94	558.15	7.74	20.89	13.8	18.95	7.7	423.26	284.81	33.55	2.44	3.27	0.1
08-06-2024	21.04	703.31	52	17.79	13.71	10.25	19.06	579.8	9.92	21.05	13.85	18.97	11.33	241.14	353.78	33.59	2.45	3.28	0.1
09-06-2024	21.2	701.98	60.59	17.69	3.82	9.57	19.14	578.89	7.13	21.08	13.95	18.81	13.55	182.13	390.21	30.09	2.41	3.22	0.1
10-06-2024	20.82	701.88	58.34	18.69	0.01	9.4	19.18	580.89	5.66	21.21	13.9	19.07	12.5	206.92	413.33	34.91	2.37	3.21	0.1
11-06-2024	20.39	708.53	31.11	15.21	0.01	12.77	17.89	562.31	1.64	23.81	15.89	21.06	12.43	290.64	299.17	35.25	2.29	3.19	0.1
12-06-2024	20.29	673.64	32.36	18.1	5.52	9.22	18.57	550.19	8.19	20.51	10.12	18.44	1.66	304.71	371.28	35.02	2.34	3.19	0.1
13-06-2024	21.13	700.98	35.63	17.32	11.28	10.34	19.04	578.06	10.85	18.82	13.98	21.88	11.37	268.77	336.08	29.51	2.36	3.2	0.1
14-06-2024	22.09	700.87	34.24	17	13.42	10.88	19.09	583.7	10.61	17	13.8	24.31	10.06	421.5	450.12	28.45	2.37	3.2	0.1
15-06-2024	20.07	702.99	40.1	19.87	13.91	10.63	19	607.3	14.87	16.95	14.3	22.18	9.8	418.99	389.3	28.68	4.93	6.81	0.1
16-06-2024	19.61	702.33	35.45	19.94	13.84	11.02	18.97	684.13	10.87	16.94	8.78	21.85	13.48	416.63	374.95	27.85	2.34	3.19	0.1
17-06-2024	19.89	678.11	34.47	20.67	13.4	10.05	19.1	684.5	11.51	17.05	10.45	25.7	13.33	404.74	321.51	28.56	2.39	3.23	0.1
18-06-2024	19.8	702.41	35.38	22.13	3.94	10.68	18.81	687.64	11.84	17.05	14.04	24.38	13.45	394.07	297.61	27.75	2.47	3.32	0.1
19-06-2024	20.56	702.07	36.7	22.78	8.11	10.16	18.74	687.02	12.56	16.66	12.78	19.47	7.88	391.83	306.08	26.9	2.51	3.35	0.1
20-06-2024	23.18	701.72	33.37	20.44	7.21	10.07	17.18	688.51	10.51	15.19	12.92	22.02	14.88	383.34	369.38	31.81	2.51	3.35	0.11
21-06-2024	25.43	724.97	34.39	12.06	12.22	12.07	17.02	684.76	14.41	15.05	0	28.9	14	445.21	553.15	34.05	2.47	3.44	0.12
22-06-2024	21.86	701.6	31.89	13.61	12.23	9.33	18.92	685.15	10.15	16.85	9.2	24.84	15.64	390.71	455.24	33.7	2.46	3.33	0.1
23-06-2024	20.03	701.49	32.49	18.38	13.99	11.74	19.01	685.35	9.47	16.95	13.36	24.44	13.88	391.21	349.86	32.9	2.37	3.21	0.1
24-06-2024	19.9	702.02	35.62	16.83	11.64	9.92	19	684.2	10.17	17	12.06	23.24	11.65	410.74	373.27	33.18	2.4	3.25	0.1
25-06-2024	22.1	701.51	37.42	18.49	13.16	10.37	19.01	700.33	12.89	16.94	13.92	23.34	11.5	386.07	327.21	32.5	2.41	3.25	0.1
26-06-2024	21.66	701.18	36	19.11	0.01	9.9	18.9	708.41	12.96	16.9	13.49	23.01	12.1	414.13	359.63	32.94	2.47	3.33	0.1
27-06-2024	19.44	699.37	37.28	20.02	7.91	11.17	18.91	708.51	12.52	16.91	13.38	17.78	17.27	415.38	378.45	33.98	2.45	3.34	0.11
28-06-2024	19.99	699.26	35.67	19.39	10.89	10.8	19.01	708.26	9.37	17.01	13.13	27.13	19.9	400.98	444.49	34.5	2.37	3.23	0.1
29-06-2024	19.62	696.75	43.13	19.97	8.03	9.08	19.09	685.38	14.99	17.11	5.21	21.04	20.02	238.28	261.33	25.99	120.75	167.23	21.41
30-06-2024	21.31	683.49	35.25	20.35	13.87	10.38	19.15	628.04	8.62	17.11	5.07	23.51	17.68	4.21	4.43	0	362.77	322.32	34.26

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of Aug. 2024

(All value in mg/Nm3)

Dated	Unit -I						Unit -II						Unit -III	CPP -I			CPP -II		
	Kiln -I (PM)	Kiln -I (NOx)	Kiln -I (SO2)	Cooler -I (PM)	Cement Mill -I (PM)	Coal Mill -I (PM)	Kiln -II (PM)	Kiln -II (NOx)	Kiln -II (SO2)	Cooler -II (PM)	Cement Mill -II (PM)	Coal Mill -II (PM)	Cement Mill -III (PM)	Nox	SO2	PM	Nox	SO2	PM
01-08-2024	20.3	727.09	40.61	18.08	0.02	15.79	17.1	638.99	6.22	13.61	0	29.22	20.24	4.23	4.42	0	322.36	235.8	37.48
02-08-2024	20.61	716.13	41.14	13.54	13.52	15.34	18.95	438.76	9.03	16.88	0	25.09	17.99	4.09	4.42	0	274.09	187.5	38.33
03-08-2024	20.7	719.17	40.99	13.15	8.24	12.91	19.07	472.79	18.39	16.73	5.11	23.64	19.61	4.06	4.42	0	184.95	133.85	37.15
04-08-2024	19.54	663.59	41.87	14.78	0.01	11.84	19.01	618.37	8.05	16.89	9.35	23.56	12.32	4.05	4.41	0	132.93	77.93	41.33
05-08-2024	18.06	720.02	41.26	12.92	0.01	10.9	18.94	639.86	8.06	16.99	9.51	23.58	0.35	4.05	4.42	0	204.2	93	37.18
06-08-2024	20.86	720.02	40.93	15.25	0.02	11.81	19.1	640.23	8.55	17.02	0	24.1	20.04	4.05	4.42	0	202.37	115.01	41.62
07-08-2024	22.77	720.15	40.67	15	12.36	8.8	18.95	633.03	8.73	16.89	4.99	23.2	20.23	4.05	4.42	0	192.3	116.81	41.45
08-08-2024	23.39	719.87	48.36	11.99	13.93	11.48	18.92	631.25	8.44	16.96	13.47	21.15	12.29	4.05	4.42	0	200.61	125.47	39.82
09-08-2024	20.3	715.93	49.81	11.76	13.25	11.27	18.99	632.55	9.16	16.91	6.46	22.22	5.36	4.05	4.42	0	197.49	169.91	38.29
10-08-2024	21.04	711.55	46.22	12.04	4.79	11.71	19.21	644.03	16.58	17.19	8.56	23.31	19.91	4.05	4.42	0	186.87	148.14	40.79
11-08-2024	22.23	693.25	41.92	11.36	0.02	10.8	21.16	680.75	7.53	19.1	0	25.32	20.48	4.05	4.42	0	244.28	247.34	44.25
12-08-2024	20.32	675.69	40.04	12.52	12.79	10.14	19.05	670.03	8.56	17.01	5.25	21.46	14.24	4.05	4.42	0	208.09	196.93	44.53
13-08-2024	20.46	657	40.09	13.57	4.82	10.71	19.04	667.05	18.86	16.98	9.65	15.71	8.06	4.05	4.42	0	202.85	141.74	41.63
14-08-2024	20.41	676.12	40.38	13.78	0.02	10.92	18.91	659.54	41.66	16.94	0	21.25	16.32	4.05	4.42	0	193.2	174.16	41.33
15-08-2024	20.23	680.87	40.22	13.78	6.54	12.18	19.04	660.64	43.89	17.07	0	15.21	2.36	4.05	4.42	0	183.64	166.95	38.28
16-08-2024	22.34	682.05	39.3	10.88	0.01	2.58	18.94	665.84	43.12	16.84	13.71	20.49	19.95	4.05	4.42	0	172.27	234.16	40.62
17-08-2024	21.18	682.17	40.68	13.21	9.26	6.65	19.11	662.88	34.72	17.1	14.03	18.68	7.92	4.05	4.42	0	197.56	167.18	43.37
18-08-2024	21.62	682.69	40.21	14.49	8.48	10.31	19.12	424.97	25.28	17.05	2.73	11.92	0.46	4.05	4.42	0	209.3	239.68	37.89
19-08-2024	22.58	682.35	42.23	15.42	5.59	10.55	19.1	666.31	26.84	17.05	0.01	18.55	18.12	4.05	4.42	0	222.3	317.24	38.24
20-08-2024	23.29	681.76	48.94	15.28	5.31	11.68	18.78	549.09	27.6	16.85	0.01	7.75	6.98	4.05	4.42	0	191.32	253.59	35.02
21-08-2024	14.67	0.23	29.8	0	0.01	0	23.85	0	11.79	0	15.4	0.04	20.92	4.05	4.42	0	300.68	393	35.17
22-08-2024	11.93	1.58	30.5	4.74	0.01	0	18.91	0	12.94	0	12.85	0.04	20.16	4.05	4.42	0	176.19	271.31	33.5
23-08-2024	13.55	210.28	32.26	8.36	12.57	1.76	7.48	0	5.73	0	13.92	0.04	6.84	4.05	4.42	0	210.77	275.93	36.9
24-08-2024	22.69	668.63	44.72	22.96	11.48	10.74	0.04	7.37	18.78	0	6.01	0.04	19.48	4.05	4.42	0	241.2	297.95	43.67
25-08-2024	21.1	678.34	36.19	22.63	0.01	11.21	0.04	0.04	15.96	0	12.56	0.04	13.66	4.05	4.4	0	265.67	161.84	41.84
26-08-2024	19.72	237.28	33.99	17.33	12.85	3.21	0.04	4.09	18.37	0	13.9	0.04	0.32	3.93	4.1	0	248.51	104.12	38.23
27-08-2024	13.46	2.21	21.57	6.3	5.4	0	10.16	35.41	22.34	4.64	11.78	3.65	8.01	3.7	3.93	0	238.16	169.59	36.21
28-08-2024	12.25	1.91	1.96	0	0.93	0	19.04	570.82	20.24	17.04	11.28	22.01	12.05	3.72	3.93	0	259.37	204.68	37.08
29-08-2024	4.92	3.62	2.12	0	8.42	0	19	642.93	19.8	16.99	11.16	21.85	18.84	3.92	4.08	0	295.18	238.1	39.75
30-08-2024	0.02	5.88	2.55	0	12.16	0	19.24	661.46	23.59	16.95	0	21.06	20.17	4.05	4.25	0	314.91	350.75	40.83
31-08-2024	0.02	9.04	2.75	0	13.61	0	19.03	654.95	25.41	16.99	9.59	21.77	6.36	4.05	4.24	0	305.66	277.99	41.85

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of Sep. 2024

(All value in mg/Nm3)

Dated	Unit -I						Unit -II						Unit -III	CPP -I			CPP -II		
	Kiln -I (PM)	Kiln -I (NOx)	Kiln -I (SO2)	Cooler -I (PM)	Cement Mill -I (PM)	Coal Mill -I (PM)	Kiln -II (PM)	Kiln -II (NOx)	Kiln -II (SO2)	Cooler -II (PM)	Cement Mill -II (PM)	Coal Mill -II (PM)	Cement Mill -III (PM)	Nox	SO2	PM	Nox	SO2	PM
01-09-2024	0.03	10.81	2.95	0	0.01	0	15.18	689.24	18.01	18.81	15.47	20.98	20.9	4.05	4.18	0	405.2	239.98	44.51
02-09-2024	6.03	12.19	3.14	0	0.02	0	19.15	658.28	16.98	17.2	13	21.16	8.9	4.05	4.22	0	311.85	165.8	37.48
03-09-2024	18.12	317.46	6.49	16.81	12.51	5.55	18.88	653.11	19.2	16.82	10.61	23.41	19.65	4.05	4.24	0	289.14	185.6	41.42
04-09-2024	20.11	655.71	3.72	19.69	11.72	10.76	19.09	486.98	23.21	17.07	13.89	17.2	18.21	4.05	4.26	0	271.13	204.63	43.12
05-09-2024	22.47	661.67	3.1	21.14	2.18	13.48	19.09	631.44	23.4	16.95	2.86	18.56	20.12	4.05	4.18	0	307.46	159.47	39.85
06-09-2024	23.61	646.48	8.85	18.92	9.53	11.76	19.08	645.27	20.17	17.03	0	17.62	10.65	3.99	4.18	0	286.26	159.03	38.06
07-09-2024	22.57	671.76	19.15	21.47	12.83	9.75	19.01	174.68	21.11	17.04	0	8.98	14.52	3.91	4.18	0	245.56	108.4	38.66
08-09-2024	23.15	680.26	12.98	17.86	0.02	10.37	19.08	426.82	20.1	17.08	0	13.46	10.84	3.98	4.18	0	268.57	89.77	36.25
09-09-2024	23.89	679.93	1.06	18.98	8.46	11.02	18.74	593.88	17.62	16.75	0	21.25	3.9	4.05	4.19	0	280.01	115.98	40.75
10-09-2024	21.78	679.52	4.8	18.34	13.89	13.79	18.99	601.89	18.02	16.94	0	21.73	10.87	4.05	4.19	0	292.92	95.33	41.9
11-09-2024	19.47	669.04	11.46	18.27	15.75	11.63	17.26	646.54	25.22	15.27	0	24.36	22.17	4.05	4.18	0	354.61	134.6	44.41
12-09-2024	21.46	679.06	12.32	18.18	13.83	12.68	18.92	616.86	19.58	17.07	1.33	20.97	20.17	4.05	4.19	0	294.6	66.05	41.91
13-09-2024	23.17	677.15	57.87	19.59	13.96	14.83	18.99	626.3	17.46	16.98	9.45	22.48	21.97	4.05	4.18	0	291.91	83.96	43.42
14-09-2024	21.25	689.99	60.73	20.09	5.31	13.4	19.08	640.85	32.2	17.03	12.98	23.53	22.51	10.1	12.66	0	304.96	155.25	42.79
15-09-2024	20.26	666.97	41.37	20.41	5.68	12.74	19.19	617.69	23.71	17.22	6.15	19	21.64	4.05	4.2	0	294.6	185.69	41.86
16-09-2024	20.71	672.73	21.69	20.54	6.8	12.46	19.11	637.85	24.96	16.99	13.03	21.19	20.67	4.05	4.25	0	285.19	202.11	42.81
17-09-2024	22.18	644.36	13.49	21.56	4.4	14.89	19.1	647.16	20.53	17.06	10.17	22.2	21.79	4.05	4.27	0	292.91	210.46	42.04
18-09-2024	24.52	683.17	20.32	20.67	13.13	14.32	19.2	671.37	3.07	17.14	12.08	21.42	20.87	4.05	4.24	0	299.51	176.88	42.64
19-09-2024	24.68	681.62	19.4	20.75	5.2	14.75	19.11	644.81	3.37	17.05	11.65	19.54	21.3	4.04	4.19	0	311.82	176.1	41.71
20-09-2024	23.58	656.98	29.76	21.41	5.51	13.9	19.26	661.92	7.79	17.22	14.02	17.75	21.62	4.05	4.19	0	312.52	215.7	42.34
21-09-2024	18.15	688.55	33.73	22.78	11.63	0	20.95	676.03	9.5	18.89	15.36	20.06	19.23	4.05	4.18	0	384.23	268.47	43.4
22-09-2024	19.66	679.03	23.81	22.53	13.85	15.9	19.11	654.98	10.88	17.02	9.31	17.08	7.09	4.05	4.29	0	327.31	199.71	38.14
23-09-2024	21.14	676.85	21.02	23.09	10.71	13.99	19.07	637.32	8.28	17.07	0	16.25	0.13	4.05	4.28	0	312.25	171.68	35.33
24-09-2024	20.7	681.12	22.73	23.11	13.61	14.77	18.91	654.37	11.88	16.83	9.56	15.46	0.02	4.05	4.37	0	320.85	208.23	38.96
25-09-2024	20.84	678.32	25.95	23.2	12.21	13.17	18.92	640.63	31.3	16.92	13.94	16.46	0.13	4.05	4.41	0	333.99	200.43	38.55
26-09-2024	20.49	680.63	30.49	23.28	13.95	14.24	19.1	634.7	27.42	17	13.46	20.76	9.69	4.05	4.42	0	335.71	184.28	38.56
27-09-2024	20.78	679.58	8.34	22.8	12.22	10.81	19.04	658.11	21.72	16.96	2.38	18.13	22.45	4.05	4.4	0	326.06	188.5	39.92
28-09-2024	21.59	592.75	48.62	22.68	13.9	10.34	18.92	672.06	28.32	17.08	10.76	18.61	20.69	10.73	14.08	0	307.82	203.18	38.82
29-09-2024	21.36	679.07	43.32	22.28	2.6	12.19	19.04	670.58	23.86	17.03	11.34	18.68	22.39	4.05	4.36	0	317.13	217.41	40.57
30-09-2024	21.24	678.58	44.98	23.19	11.14	11.49	19.1	666.17	22.91	17.07	13.94	19.99	21.55	4.05	4.24	0	326.38	184.8	40.49

Annexure-I (A)

Mangalam Cement Ltd. (Morak)

(APCM & CEMS Installation Status Report with Measured Emission Values)

Unit-I

Stack No.	Details of Stack	Stack Attached with	Height (M)	Dia (M)	CEMS Installation Status	Concentration of Emission (mg/Nm^3)			
						Norms	April -24 to June. - 24	July-24 to Sept. - 24	Avg.
1	Kiln Main Stack	Hybrid Bag house	145	4	PM	30	19.12	24.12	21.62
					SO2	100	16.98	14.57	15.77
					NOx	800	617.25	671.32	644.28
2	Clinker Cooler Stack	ESP	35	3.3	PM	30	8.75	23.12	15.93
3	Cement mill Stack	Bag house	30	1.2	PM	30	14.92	14.48	14.70
4	Vertical Coal mill stack	Bag house	53	1.30	PM	30	10.55	16.82	13.68

Unit-II

Stack No.	Details of Stack	Stack Attached with	Height (M)	Dia (M)	CEMS Installation Status	Concentration of Emission (mg/Nm^3)			
						Norms	April -24 to June. - 24	July-24 to Sept. - 24	Avg.
1	Kiln Main Stack	Hybrid Bag house	100	3.2	PM	30	19.05	19.73	19.39
					SO2	100	21.51	1.79	11.65
					NOx	800	653.92	653.49	653.70
2	Clinker Cooler Stack	ESP	35	3.3	PM	30	20.03	16.89	18.46
3	Cement mill Stack	Bag house	30	0.9	PM	30	13.48	13.88	13.68
4	Coal mill stack	Bag house	60	1.35	PM	30	19.82	20.79	20.30

Unit-III

Stack No.	Details of Stack	Stack Attached with	Height (M)	Dia (M)	CEMS Installation Status	Concentration of Emission (mg/Nm^3)			
						Norms	April -24 to June. - 24	July-24 to Sept. - 24	Avg.
1	Cement Mill Stack	Bag House	45	0.66	PM	30	13.76	22.95	18.35

CPP-I									
Stack No.	**Details of Stack**	**Stack Attached with**	**Height (M)**	**Dia (M)**	**CEMS Installation Status**	**Concentration of Emission (mg/Nm^3)**			
						Norms	**April -24 to June. - 24**	**July-24 to Sept. - 24**	**Avg.**
1	Main Stack Power plant - I	ESP	77	2.5	PM	50	41.58	NR	41.58
					SO2	600	377.10	NR	377.10
					NOx	450	276.35	NR	276.35
CPP-II									
Stack No.	**Details of Stack**	**Stack Attached with**	**Height (M)**	**Dia (M)**	**CEMS Installation Status**	**Concentration of Emission (mg/Nm^3)**			
						Norms	**April -24 to June. - 24**	**July-24 to Sept. - 24**	**Avg.**
1	Main Stack Power plant - II	ESP	77	2.5	PM	50	26.2	42.30	34.25
					SO2	600	215.20	242.20	228.70
					NOx	450	360.2	318.20	339.20

Annexure-I (B)

Mangalam Cement Ltd. (Morak)

Ambient Air Quality Monitoring Results
(All values in µg/m3)

Sr No	Location/ Parameters ↓	Norms	Near Railway Gate			Near Security Gate			Near Rack Loading Area			Near Work Shop		
			April - 24 to June. - 24	July-24 to Sept. -24	Avg.	April - 24 to June. - 24	July-24 to Sept. -24	Avg.	April - 24 to June. - 24	July-24 to Sept. - 24	Avg.	April - 24 to June. - 24	July-24 to Sept. - 24	Avg.
1	**PM10**	**100**	64.23	54.50	**59.36**	87.11	72.0	**79.55**	70.29	50.30	**60.29**	79.21	76.7	**77.95**
2	**PM2.5**	**60**	31.16	29.60	**30.38**	47.22	46.10	**46.66**	36.10	28.50	**32.3**	47.10	32.30	**39.70**
3	**SO_2**	**80**	13.37	10.13	**11.75**	15.19	10.28	**12.73**	11.34	9.88	**10.61**	12.24	8.99	**10.61**
4	**NOx**	**80**	19.84	15.96	**17.90**	23.18	16.15	**19.66**	17.89	14.80	**16.34**	20.64	13.40	**17.02**
5	**CO**	**4000**	600.0	380.0	**490.0**	610.0	410.0	**510.0**	590.0	400.0	**495.0**	640.0	410.0	**525.0**

Annexure-I (C)

Mangalam Cement Ltd. (Morak)

Ambient Noise Monitoring Report (All values in (dB)A)

Sr. No.	Location	April -24 to June. - 24		July-24 to Sept. -24		Day Avg.	Night Avg.
		Day	Night	Day	Night		
1	Near Security Gate	60.14	52.96	65.10	53.20	**62.62**	**53.08**
2	Near Railway Gate	62.23	53.73	65.10	52.60	**63.66**	**53.16**
3	Near Rack Loading Area	73.76	66.80	65.30	48.30	**69.53**	**57.55**
4	Near Work Shop	61.32	53.13	64.30	54.30	**62.81**	**53.71**

Annexure-I (D)

Mangalam Cement Ltd. (Morak)

Results of Fugitive Emission (All values in µg/m³)

S.No.	Location	April -24 to June. - 24	July-24 to Sept. -24	Avg.
Common Location				
1	Raw Material Storage Area-I & II	368.85	431.40	**400.12**
2	Near Coal Storage area- I & II	431.00	447.00	**439.00**
3	Near Additive Storage I & II	365.26	440.0	**402.68**
4	Near Packing Plant-I & II	243.52	305.6	**274.56**
5	Near Time Office	216.42	200.1	**208.26**
Unit-I				
6	Near Crusher-I	232.61	330.0	**281.30**
7	Near Cement Mill-I	294.24	380.0	**337.12**
8	Stacker & Reclaimer-I	218.79	370.50	**294.64**
Unit-II				
9	Near Crusher-II	240.49	432.0	**336.24**
10	Near Cement Mill-II	412.86	396.10	**404.48**
11	Stacker & Reclaimer-II	330.71	300.50	**315.60**
12	Near Clinker Stock Pile (CSP)-II	285.39	300.0	**292.69**
Unit-III				
13	Near Packing Plant-III	265.64	314.10	**289.87**
14	Near Cement Mill-III	295.83	401.00	**348.41**
CPP-I & II				
15	Near Coal Storage (CPP-I & II)	441.25	426.00	**433.62**

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

TC-6299

Test Report

Sample Number:	VEL/A/05	**Report No.:**	VEL/A/2405170005
Name & Address of the Party:	M/s Mangalam Cement Ltd. Po Aditya Nagar-326520, Morak, Dist-Kota.(Raj)	**Format No.:**	7.8 F-03
		Party Reference No.:	By Mail
		Reporting Date:	27/05/2024
		Period of Analysis:	17/05/2023-24/05/2024
Name of Sample :	Ambient Air	**Receipt Date:**	17/05/2024
Sample Group:	Atmospheric Pollution		

General Information:-

Sampling Location	:	Near Avalimeri Mahal Darrah Village
Sample collected by	:	VEL Representative (Rajesh Yadav)
Sampling Equipment used	:	Combo Sampler
Instrument Code	:	VEL/ Combo/11
Instrument Calibration Status	:	Calibrated
Meteorological condition during monitoring	:	Clear sky
Date of Sampling	:	**15/05/2024 to 16/05/2024**
Time of Sampling	:	03:00 PM to 03:00 PM
Ambient Temperature (^{o}C)	:	27.0 Min. 40.0 Max.
Surrounding Activity	:	Human, Vehicular& Other Activities
Scope of Monitoring	:	Regulatory Requirement
Sampling & Analysis Protocol	:	IS-5182 & CPCB Guidelines
Sampling Duration	:	24.0 Hours
Parameter Required	:	As per Work Order

S. No.	Test Parameter	Test Method	Result	Units	Limits as per CPCB
Discipline : Chemical					
1.	Particulate Matter as ($PM_{2.5}$)	IS 5182 (P -24)	29.56	$\mu g/m^3$	60
2.	Particulate Matter as (PM_{10})	IS 5182 (P -23)	69.13	$\mu g/m^3$	100
3.	Nitrogen Dioxide as (NO_2)	IS 5182 (P- 6)	15.37	$\mu g/m^3$	80
4.	Sulphur Dioxide as (SO_2)	IS 5182 (P- 2)	8.11	$\mu g/m^3$	80
5.	#Carbon Monoxide (by NDIR)	IS 5182 (P-10),NDIR Method	0.54	mg/m^3	4
6.	Ammonia (as NH3)	VEL/ENV/STP/155,Issue No.-1, date on 20/06/2022	BLQ(LOQ 20)	µg/m3	400
7.	Lead (as Pb)	IS: 5182 (P-22)	BLQ(LOQ 0.02)	µg/m3	1
8.	Benzene(as C6H6)	IS: 5182 (P-11)	BLQ(LOQ 1.0)	µg/m3	05
9.	Benzo(a)pyrene	IS: 5182 (P-12)	BLQ(LOQ 0.5)	ng/m3	01
10.	Ozone (as O3)	IS: 5182 (P-9)	BLQ(LOQ 4.0)	µg/m3	180
11.	Arsenic(as As)	VEL/ENV/STP/110,Issue No.-01,Issue date 01/11/2021	BLQ(LOQ 1.0)	ng/ m3	6
12.	Nickel (as Ni)	IS 5182 (P -26)	BLQ(LOQ 5.0)	ng/ m3	20

#-indicates 1 hour monitoring of CO.

End of Report

(Reviewed By)

(Authorized Signatory)

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TC-6299

Test Report

Sample Number:	VEL/A/06	**Report No.:**	VEL/A/2405170006
Name & Address of the Party:	M/s Mangalam Cement Ltd. Po Aditya Nagar-326520, Morak, Dist-Kota.(Raj)	**Format No.:**	7.8 F-03
		Party Reference No.:	By Mail
		Reporting Date:	27/05/2024
		Period of Analysis:	17/05/2023-24/05/2024
Name of Sample :	Ambient Air	**Receipt Date:**	17/05/2024
Sample Group:	Atmospheric Pollution		

General Information:-

Sampling Location	:	Near Darrah National Park Boundary Approach Road of Kukara Kala Village
Sample collected by	:	VEL Representative (Rajesh Yadav)
Sampling Equipment used	:	Combo Sampler
Instrument Code	:	VEL/ Combo/10
Instrument Calibration Status	:	Calibrated
Meteorological condition during monitoring	:	Clear Sky
Date of Sampling	:	**15/05/2024 to 16/05/2024**
Time of Sampling	:	03:15 PM to 03:15 PM
Ambient Temperature (^{0}C)	:	27.0 Min. 40.0 Max.
Surrounding Activity	:	Human, Vehicular& Other Activities
Scope of Monitoring	:	Regulatory Requirement
Sampling & Analysis Protocol	:	IS-5182 & CPCB Guidelines
Sampling Duration	:	24.0 Hours
Parameter Required	:	As per Work Order

S. No.	Test Parameter	Test Method	Result	Units	Limits as per CPCB
Discipline : Chemical					
1.	Particulate Matter as ($PM_{2.5}$)	IS 5182 (P -24)	31.24	$\mu g/m^3$	60
2.	Particulate Matter as (PM_{10})	IS 5182 (P -23)	70.62	$\mu g/m^3$	100
3.	Nitrogen Dioxide as (NO_2)	IS 5182 (P- 6)	15.37	$\mu g/m^3$	80
4.	Sulphur Dioxide as (SO_2)	IS 5182 (P- 2)	10.13	$\mu g/m^3$	80
5.	#Carbon Monoxide (by NDIR)	IS 5182 (P-10),NDIR Method	0.54	mg/m^3	4
6.	Ammonia (as NH3)	VEL/ENV/STP/155,Issue No.-1, date on 20/06/2022	BLQ(LOQ 20)	µg/m3	400
7.	Lead (as Pb)	IS: 5182 (P-22)	BLQ(LOQ 0.02)	µg/m3	1
8.	Benzene(as C6H6)	IS: 5182 (P-11)	BLQ(LOQ 1.0)	µg/m3	05
9.	Benzo(a)pyrene	IS: 5182 (P-12)	BLQ(LOQ 0.5)	ng/m3	01
10.	Ozone (as O3)	IS: 5182 (P-9)	BLQ(LOQ 4.0)	µg/m3	180
11.	Arsenic(as As)	VEL/ENV/STP/110,Issue No.-01,Issue date 01/11/2021	BLQ(LOQ 1.0)	ng/ m3	6
12.	Nickel (as Ni)	IS 5182 (P -26)	BLQ(LOQ 5.0)	ng/ m3	20

#-indicates 1 hour monitoring of CO.

End of Report

(Reviewed By) 27/05/2024

(Authorized Signatory) Dr. Shiv Pal Singh 27/05/2024

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/AA/07

Name & Address of the Party : M/s Mangalam Cement Ltd.
P.O Aditya Nagar -Morak Kota Rajasthan

Report No. : VTL/A/2409280014/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 04/10/2024
Period of Analysis : 28/09/2024-04/10/2024
Receipt Date : 28/09/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location : Nr. Darrah National Park Boundary Approch Road of Kukara Kala Village
Sample Collected By : VTL Team
Sampling Equipment used : RDS/FPS
Instrument Code : VTL/RDS/FPS/06
Coordinates : 24°47'34" & 75°51'37"
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 23/09/2024 To 24/09/2024
Time of Monitoring : 12:00 TO 12:00 Hrs.
Ambient Temperature (°C) : Min. 26°C Max. 32°C
Surrounding Activity : Human, Vehicular & Plant Act.
Scope of Monitoring : Regulatory Requirment
Method of Sampling : IS :5182
Sampling Duration : 24 Hrs.
Parameter Required : As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	50.34	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	22.58	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	12.16	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	7.22	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ (**LOQ 0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/07

Name & Address of the Party : M/s Mangalam Cement Ltd.
P.O Aditya Nagar -Morak Kota Rajasthan

Report No. : VTL/A/2409280014/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 04/10/2024
Period of Analysis : 28/09/2024-04/10/2024
Receipt Date : 28/09/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Nr. Darrah National Park Boundary Approch Road of Kukara Kala Village
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/06
Coordinates	: 24°47'34" & 75°51'37"
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 23/09/2024 To 24/09/2024
Time of Monitoring	: 12:00 TO 12:00 Hrs.
Ambient Temperature (°C)	: Min. 26°C Max. 32°C
Surrounding Activity	: Human, Vehicular & Plant Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.33	mg/m³	4

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

End of Report

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0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

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TEST REPORT

TC-11227

Sample Number : VTL/AA/08

Name & Address of the Party : M/s Mangalam Cement Ltd.
P.O Aditya Nagar -Morak Kota Rajasthan

Report No.	: VTL/A/2409280020/A
Format No	: 7.8 F-02
Party Reference No	: NIL
Report Date	: 04/10/2024
Period of Analysis	: 28/09/2024-04/10/2024
Receipt Date	: 28/09/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Nr. Avalimeri Mahal Darrah Village
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/07
Coordinates	: --
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 24/09/2024 To 25/09/2024
Time of Monitoring	: 11:00 TO 11:00 Hrs.
Ambient Temperature (°C)	: Min. 26°C Max. 33°C
Surrounding Activity	: Human, Vehicular & Plant Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	56.38	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	24.15	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	13.32	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	8.19	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ (**LOQ 0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

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

Vibrant Techno Lab Pvt. Ltd.
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0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
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Sample Number : VTL/AA/08

Name & Address of the Party : M/s Mangalam Cement Ltd.
P.O Aditya Nagar -Morak Kota Rajasthan

Report No.	: VTL/A/2409280020/B
Format No	: 7.8 F-02
Party Reference No	: NIL
Report Date	: 04/10/2024
Period of Analysis	: 28/09/2024-04/10/2024
Receipt Date	: 28/09/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Nr. Avalimeri Mahal Darrah Village
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/07
Coordinates	: --
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 24/09/2024 To 25/09/2024
Time of Monitoring	: 11:00 TO 11:00 Hrs.
Ambient Temperature (°C)	: Min. 26°C Max. 33°C
Surrounding Activity	: Human, Vehicular & Plant Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.38	mg/m³	4

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

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

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CARBON FOOTPRINT MONITORING REPORT (CARBON BUDGETING 2023-24)

For

MANGALAM CEMENT LIMITED

VILL-MORAK, TEHSIL- RAMGANJ MANDI, KOTA (RAJASTHAN)

Prepared By

VIBRANT TECHNO LAB PVT. LTD.

(NABET/EIA/2225/IA 0104)

Plot No.SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur, Rajasthan-302020

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1 INTRODUCTION

PRELUDE

Carbon footprint, also called carbon profile, defines the overall amount of carbon dioxide and other greenhouse gas (GHG) emissions associated with a product throughout the entire supply chain, from raw materials to end-of-life recovery and disposal. Electricity production in power plants, heating with fossil fuels, transport operations, other industrial and agricultural processes, among others, cause these emissions. Carbon footprint is the total greenhouse gas (GHG) emissions caused directly or indirectly by an individual or organization during production of products. It is mostly expressed as a carbon dioxide (CO_2) equivalent or tons of CO_2. When driving a car, the engine burns fuel, which creates a certain amount of CO_2; that amount depends on fuel consumption and distance travelled. Using electricity or coal generates CO_2. The production of foods and goods also emits some quantities of CO_2. The carbon footprint is the sum of all CO_2 emissions induced by the activities in each time frame. The CO_2 is calculated based on fuel consumption. The next is to add the CO_2 emission to the carbon footprint. Other greenhouse gases (GHGs) such as methane might be emitted and ozone can be depleted because of human activities. Other GHGs are also taken into account in the carbon footprint. They are converted to an amount of CO_2 and referred to as equivalent CO_2— an amount that would cause the same effects on global warming.

Greenhouse Gases and Global Warming

As greenhouse gases produced by human activities accumulate and their concentration increases in the atmosphere, it causes global warming. The main contributor to global warming is carbon dioxide, which accounts for nearly 80 per cent of emissions from the industrialized countries. The gas is released from burning of fossil fuels: oil, petrol and natural gas. With the rising population and increasing demands on transport and energy the rate at which carbon dioxide is being released is also accelerating.

Global Warming and the Cement Industry

Everything that we do has a direct or indirect impact on the environment, because all our activities right from commuting to work to flying on a vacation involves burning fossil fuels that causes the production of greenhouse gases. The impact of our activities is not limited to commuting but extends to everything we consume right down to the food we eat and the clothes we wear. Infact, the modern cement industry is one of the biggest sources of greenhouse gases.

The Carbon Foot print is assessed in 2 layers

- **Primary footprint**- monitors carbon emission directly through energy consumption- burning fossil fuels for electricity, heating and transportation, etc.
  We have direct control over these emissions.

- **Secondary foot print**-relates to indirect carbon emissions (Life cycle of products and Sustainability).

Thus, the most effective way to decrease a carbon footprint is to either decrease the amount of energy needed for production or to decrease the dependence on carbon emitting fuels.

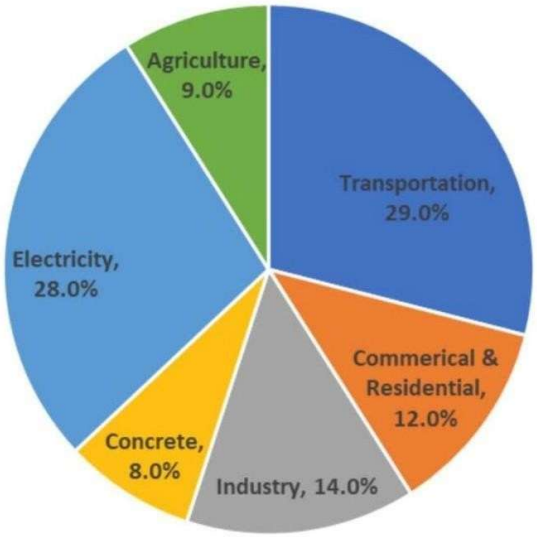


Figure1: Global CO_2 emission

BRIEF ABOUT PROJECT

M/s. Mangalam Cement Ltd (MCL) was established in the year 1981 by eminent and illustrious industrial house of B.K. Birla Group. The Company is engaged in the business of cement manufacturing, with efficient dry cement manufacturing process technology. The Company is committed to adopt sustainable practices as a socially and environmental responsible company. Company, in its operations, has deployed best-in-class technology and processes which optimally utilize resources and leave minimal footprints on environment. The total cement production for FY 2023-24 was **2882331.412 TPA** and clinker production was **2603023 TPA.**

As a responsible corporate, the Company has also implemented a fully integrated Environmental, Health & Safety and Quality Management System in its manufacturing plants, which are certified by the internationally recognized by ISO-9001:2015; ISO-14001:2015 and ISO-45001:2018. Further, to improve operational efficiency, the Company has implemented Energy Management System (EnMS) ISO 50001:2018.

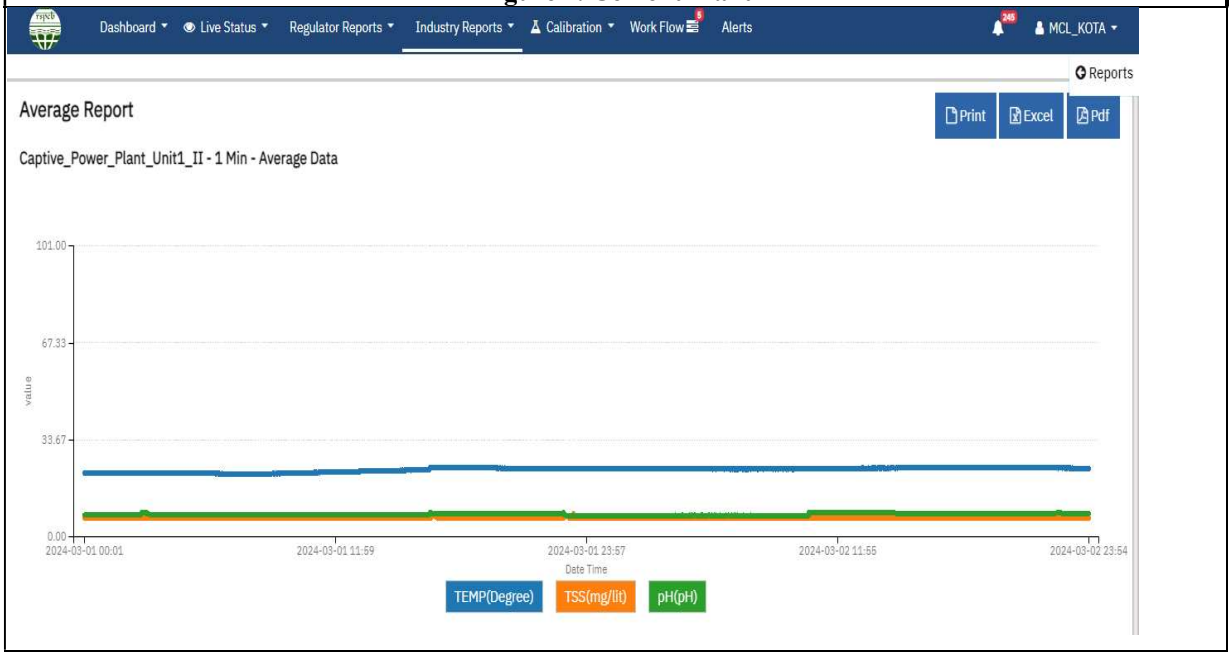
Further, to improve operational efficiency, the Company has implemented Energy Management System (EnMS) ISO 50001:2018.

It is a professionally managed and well established cement manufacturing company enjoying the confidence of consumers because of its superior quality product and excellent customer service.

Table 1. Chronology of Events

1981	Installation of Cement Plant Unit-I
1993	Installation of Cement Plant Unit-II
2007	Installation of Captive Thermal Power Plant (CPP-I) of 17.5 MW
2008	7 Wind Mills with a total capacity of 6.15 MW installed at Jaisalmer
2010	New 6 Wind Mills installed at Jaisalmer to enhanced the combined overall Capacity upto 13.65 MW
2011	Installation of Captive Thermal Power Plant (CPP-II) of 17.5 MW
2013	Installation of Cement Grinding Unit-III
2020	Waste Heat Recovery Plant of 11 MW was commissioned at Morak, Rajasthan.

Figure 2. Cement Plant




Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Reports
Average Report
Print
Excel
Pdf
KILN_MAIN_STACK_UNIT_1 - 1 Min - Average Data
801.00
534.00
267.00
0.00
value
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
NOx(mg/Nm3)
PM(mg/Nm3)
SO2(mg/Nm3)


Dashboard
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Work Flow
Alerts
MCL_KOTA
Average Report
Print
Excel
Reports
CLINKER_COOLER_STACK_UNIT_1 - 1 Min - Average Data
34.10
22.73
11.37
0.00
value
Prescribed Standards - PM(mg/Nm3)
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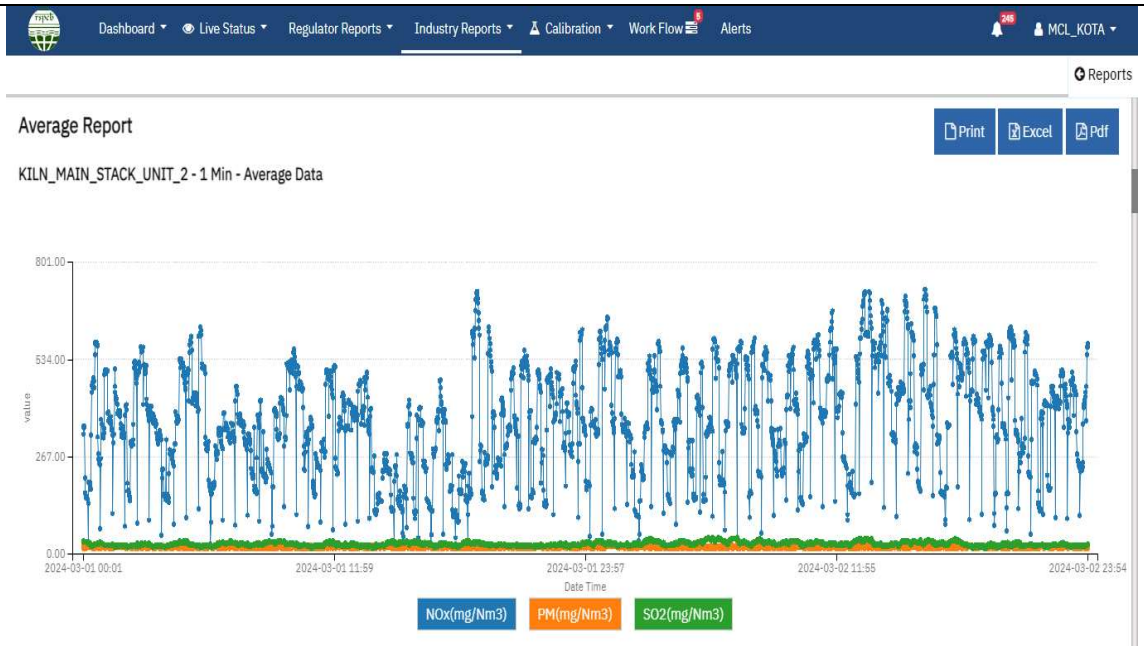
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
PM(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Reports
Average Report
Print
Excel
Pdf
KILN_MAIN_STACK_UNIT_2 - 1 Min - Average Data
801.00
534.00
267.00
0.00
value
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
NOx(mg/Nm3)
PM(mg/Nm3)
SO2(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Average Report
Print
Excel
Reports
CLINKER_COOLER_STACK_UNIT_2 - 1 Min - Average Data
34.10
22.73
11.37
0.00
value
Prescribed Standards - PM(mg/Nm3)
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
PM(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Average Report
Print
Excel
Reports
CEMENT_MILL_STACK_UNIT_2 - 1 Min - Average Data
34.10
22.73
11.37
0.00
value
Prescribed Standards - PM(mg/Nm3)
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
PM(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Reports
Average Report
Print
Excel
Pdf
CEMENT_MILL_STACK_UNIT_3 - 1 Min - Average Data
34.10
22.73
11.37
0.00
value
Prescribed Standards - PM(mg/Nm3)
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
PM(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Average Report
Print
Excel
Reports
CAPTIVE_POWER_PLANT_UNIT_2 - 1 Min - Average Data
56.10
37.40
18.70
0.00
value
Prescribed Standards - PM(mg/Nm3)
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
PM(mg/Nm3)


Dashboard
Live Status
Regulator Reports
Industry Reports
Calibration
Work Flow
Alerts
MCL_KOTA
Reports
Average Report
Print
Excel
Pdf
CAPTIVE_POWER_PLANT_UNIT_2 - 1 Min - Average Data
601.00
400.67
200.33
0.00
value
2024-03-01 00:01
2024-03-01 11:59
2024-03-01 23:57
2024-03-02 11:55
2024-03-02 23:54
Date Time
CO(mg/Nm3)
NOx(mg/Nm3)
SO2(mg/Nm3)

Figure 3. Screenshots of Online Continuous Emission Monitoring System (CEMS), Online Continuous Ambient Air Quality Monitoring System (CAAQMS) and Online Continuous Effluent Quality Monitoring System (CEQMS) data uploading on Rajasthan Pollution Control Board Server.

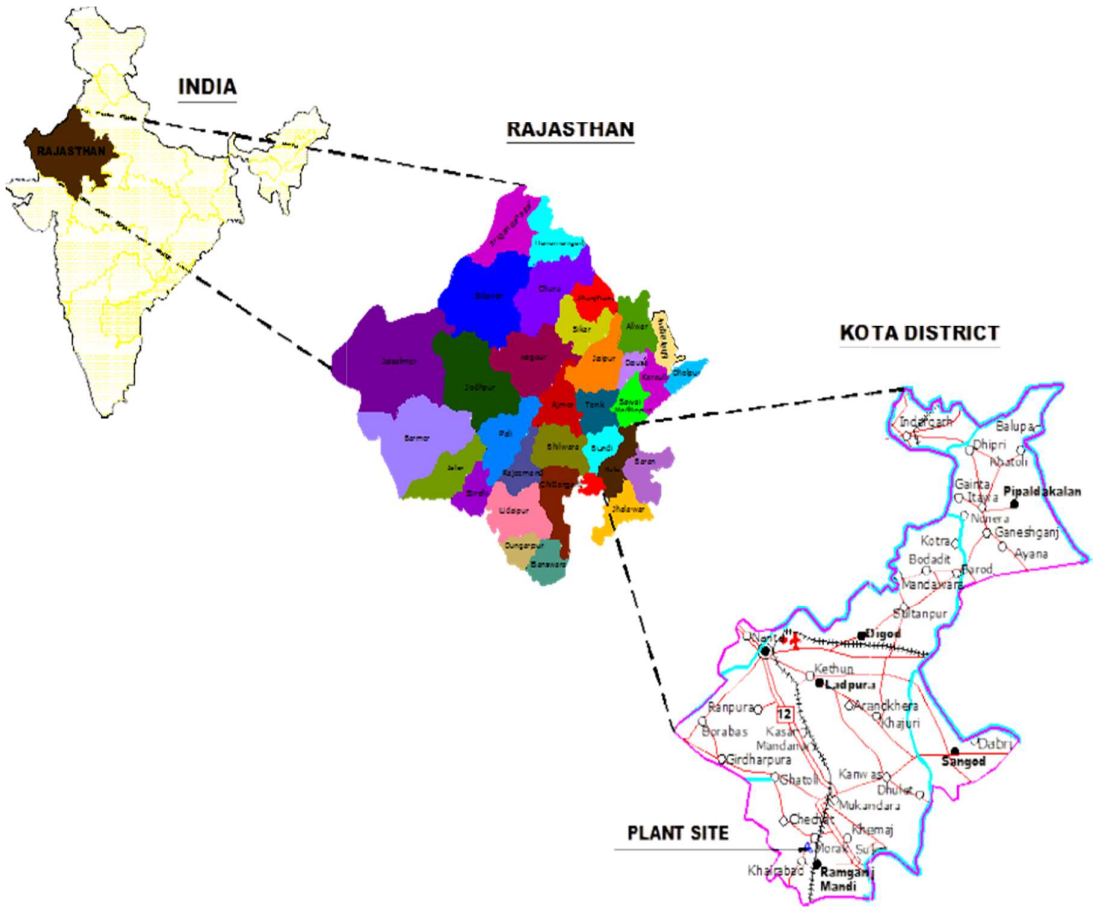


Figure 4. Location Map

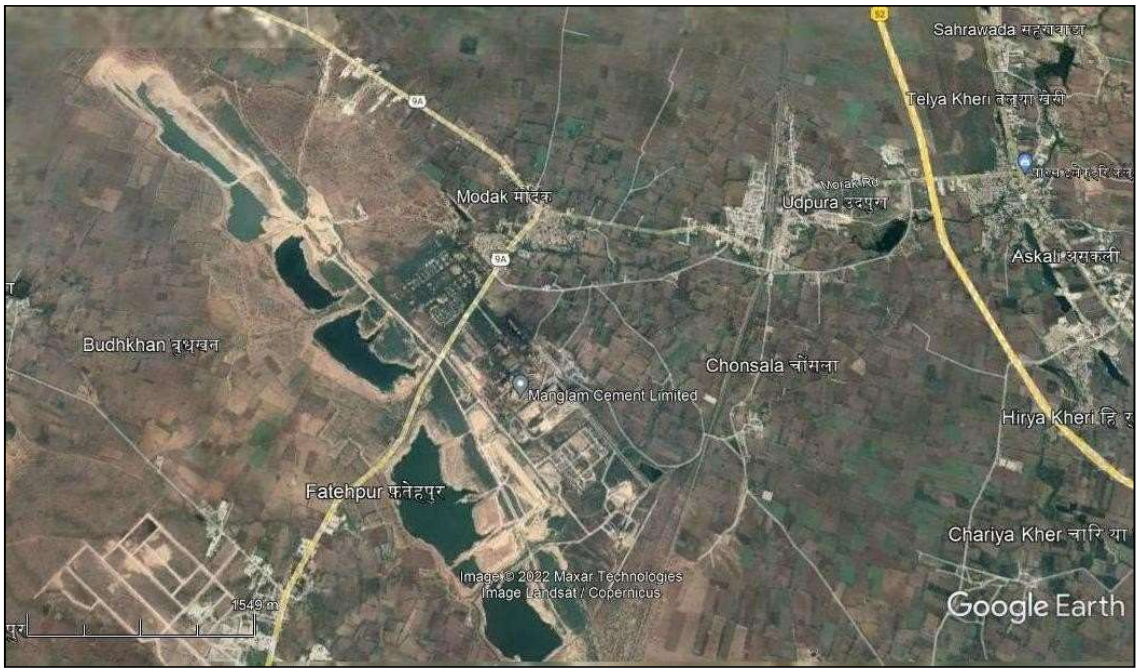


Figure 5. Google Earth Imagery of Site

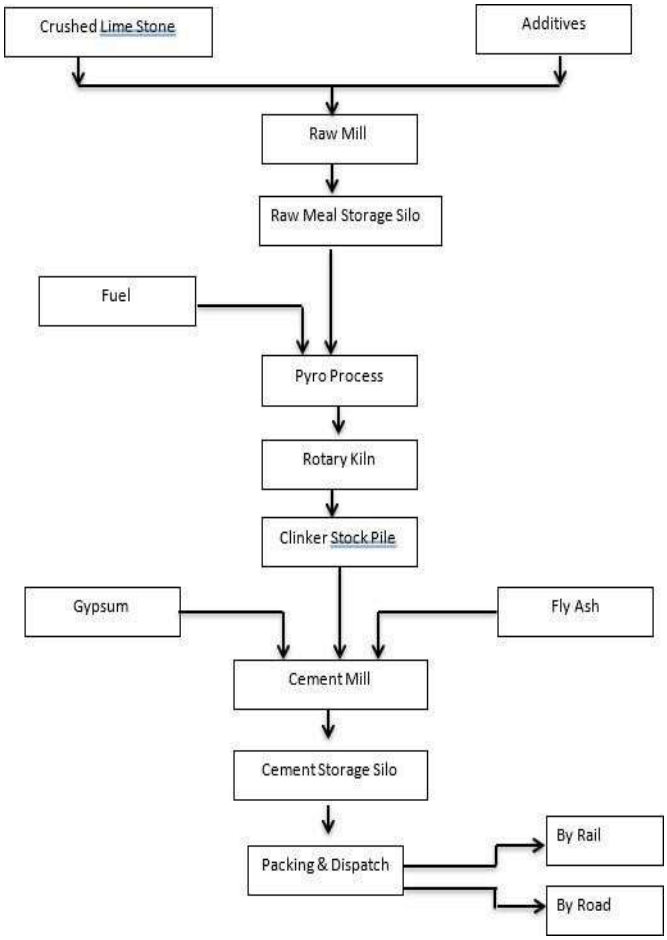


Figure 6. Process Flow Diagram (Cement Plants)

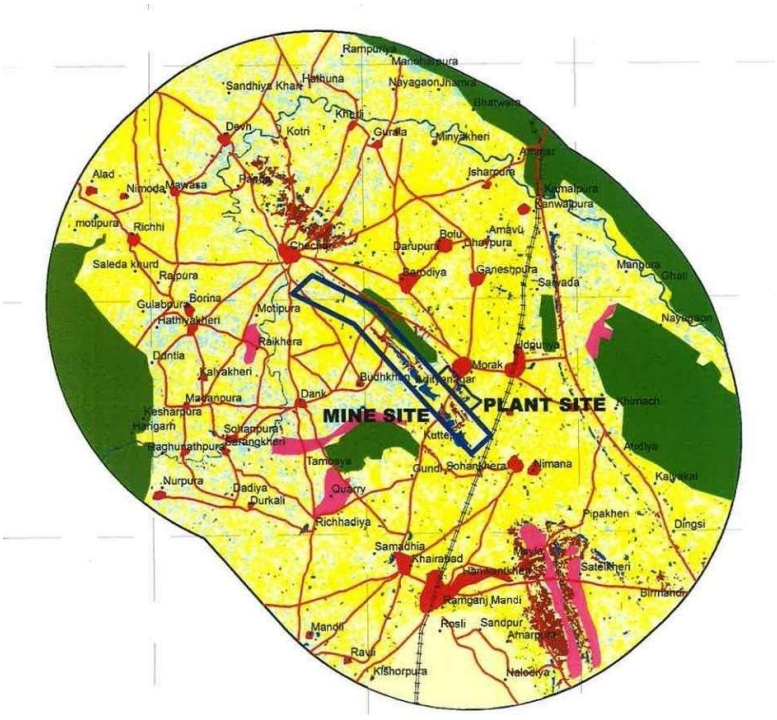


Figure 7. Study Area Map

Products Profile & Carbon Emission

Cement is an important construction ingredient produced in virtually all countries. Carbon dioxide (CO_2) is a by-product of a chemical conversion process used in the production of clinker, an intermediate component of cement. In this calcination process limestone ($CaCO_3$) is converted to lime (CaO) & Carbon Dioxide (CO_2) while heating at high temperature. This CO_2 is liberated into the atmosphere. The simplified stoichiometric relationship is as follows:

$$CaCO_3 + heat \longrightarrow CaO + CO_2$$

In addition to CO_2 emission due to calcination process, CO_2 is also emitted during cement production by fossil fuel combustion used for heating of limestone at high temperature.

Around half of the emissions from cement are process emissions arising from the reaction above. This is principle reason cement emissions are often considered difficult to cut: since this CO_2 is released by a chemical reaction.

Remaining CO_2 emissions come from burning fossil fuels to heat kilns to the high temperatures needed for this calcination process and some marginal amount of CO_2 comes from electricity & fuel consumption for equipment running & transportation of raw materials & product.

Table 2. Detail of Land Breakup

S. No.	Area Name	Area(Ha)	Percentage (%)
1.	Area for Int. Cement Plant (Unit I,II,III)	8.17	4.89
2.	Roads & Parking	10.61	6.35
3.	Railway Siding	10.36	6.20
4.	Other Facilities & Infrastructure	59.29	35.51
5.	Green Belt	57.40	34.37
6.	Open Area	21.17	12.68
Total Plot Area		**167.0**	100

Table 3. List of Various Units for Production of Cement

S. No.	Name of the unit	Capacity (TPH)
1.	Crusher	900
2.	Raw Mill /VRM	600
3.	Coal Mill/VCM	60
4.	Cement Mill	580

Table 4. List of Products & Its Capacity

S.No.	Name of the Product	Capacity as per EC	Current Installation	End Use
1.	Clinker	5.3 Million TPA	2.67 Million TPA	Captive & Saleable
2.	Cement	9.0 Million TPA	6.1 Million TPA	Saleable
3.	Power	52.5 MW	35 MW	Captive

ENVIRONMENTAL SENSITIVITY

Table 5. Environmental Sensitivity of the Site

S. No.	Particulars	Details
1.	Proponent	Mangalam Cement Ltd.
2.	Location	Village- Morak, Tehsil- Ramganj Mandi, District- Kota, Rajasthan.
3.	Geographical location	24° 43' 21.73"N to 24° 42' 51.76"N & 75° 56' 32.29"E to 75° 57' 32.78"E
4.	Site Description	The project site is well connected by road, railway and airways.
5.	Nearest Human Settlement	Morak 0.4 km NE
6.	Nearest Town, city or Headquarter	Ramganj Mandi
7.	Nearest River	TakliNadi at 6 km in West and Amajar River at 8 km ENE
8.	Nearest Highway	NH-52 at 4 km NE
9.	Nearest Railway Station	Morak R.S at 2.4 km ENE
10.	Nearest Airport	Kota 51 km NNW
11.	Forest, National Park, Wildlife Sanctuary, Biosphere Reserve	Barodiaya RF- 1.7 km NW Fatehpur RF-2.1 km SW MasalpuraRF -7.7 km NE Darrah WL Sanctuary at 8 km in NE
12.	Eco-Sensitive Zone/Marine Sanctuary	Darrah WL Sanctuary at 8 km in NE
13.	Temperature	4.5°C to 48.5°C
14.	Annual rainfall	900 mm
15.	List of surrounding Industries	None within 10 km radius

CLIMATE STUDY OF CITY- KOTA

The climate of Kota is subtropical, with a rainy season that runs from approximately mid-June to late September, due to the monsoon, and a dry season from October to mid-June. The city is located in north-central India, in the state of Rajasthan, at 25 degrees north latitude and 270 meters (885 feet) above sea level. Since the dry season is long, the landscape is arid. Anyway, we are in the southeast of Rajasthan, the rainiest part of the state, apart from the Aravalli Mountains. From March to mid-June, before the monsoon, it is very hot. In the hottest periods, the temperature can reach or exceed 45 °C (113 °F). It reached 48.4 °C (119 °F) in May 2010, 48.3 °C (118.9 °F) in June 2019 and 48.2 °C (118.8 °F) in May 2016. On the other hand, nights are cool from November to February, and can sometimes be even a bit cold when air masses come from thenorth. In December 2019, the temperature dropped to 2.8 °C (37 °F). In Kota, the average temperature of the coldest month (January) is of 17.6 °C (63.6 °F), that of the warmest month (May) is of 36.6 °C (97.8 °F). The average temperature from 1991 to 2022 is depicted in table below-

Table 6. Kota - Average Temperatures (1991-2020)

Kota – Average temperatures (1991-2020)						
Month	**Min (°C)**	**Max (°C)**	**Mean (°C)**	**Min (°F)**	**Max (°F)**	**Mean (°F)**
January	11.3	23.8	17.6	52	75	63.6
February	14.6	27.8	21.2	58	82	70.2
March	19.9	34	26.9	68	93	80.5
April	24.2	39.2	31.7	76	103	89.1
May	29.9	43.2	36.6	86	110	97.8
June	29.3	40.9	35.1	85	106	95.2
July	26.7	35	30.8	80	95	87.5
August	25.7	32.9	29.3	78	91	84.7
September	25.4	34.4	29.9	78	94	85.8
October	22.5	35	28.8	73	95	83.8
November	17.3	30.6	23.9	63	87	75
December	12.4	26	19.2	54	79	66.6
Year	21.6	33.6	27.55	70.9	92.5	81.5

In Kota, precipitation amounts to 695 millimeters (27.4 inches) per year: so, it is at an intermediate level. It ranges from 3 mm (0.1 in) in the driest month (December) to 255 mm (10 in) in the wettest one (July). The average precipitation is listed below as-

Table 7. Kota-Average Precipitation

Kota- Average Precipitation			
Month	**Millimeters**	**Inches**	**Days**
January	6	0.2	1
February	10	0.4	1
March	4	0.1	0
April	7	0.3	0
May	11	0.4	1
June	65	2.6	4
July	255	10	11
August	225	8.9	11
September	85	3.3	5
October	15	0.6	1
November	8	0.3	1
December	3	0.1	0
Year	695	27.4	36

In Kota, there are on average around 3100 sunshine hours per year. The average hours of sunshine per day is given below:

Table 8. Kota–Sun Shine Hours

Kota–Sun Shine Hours		
Month	**Average**	**Total**
January	9	280
February	9.5	275
March	9.5	290
April	10.5	310
May	10.5	320
June	7.5	230
July	5	150
August	5	150
September	7.5	225
October	9.5	300
November	9.5	290
December	9	280
Year	8.5	3100

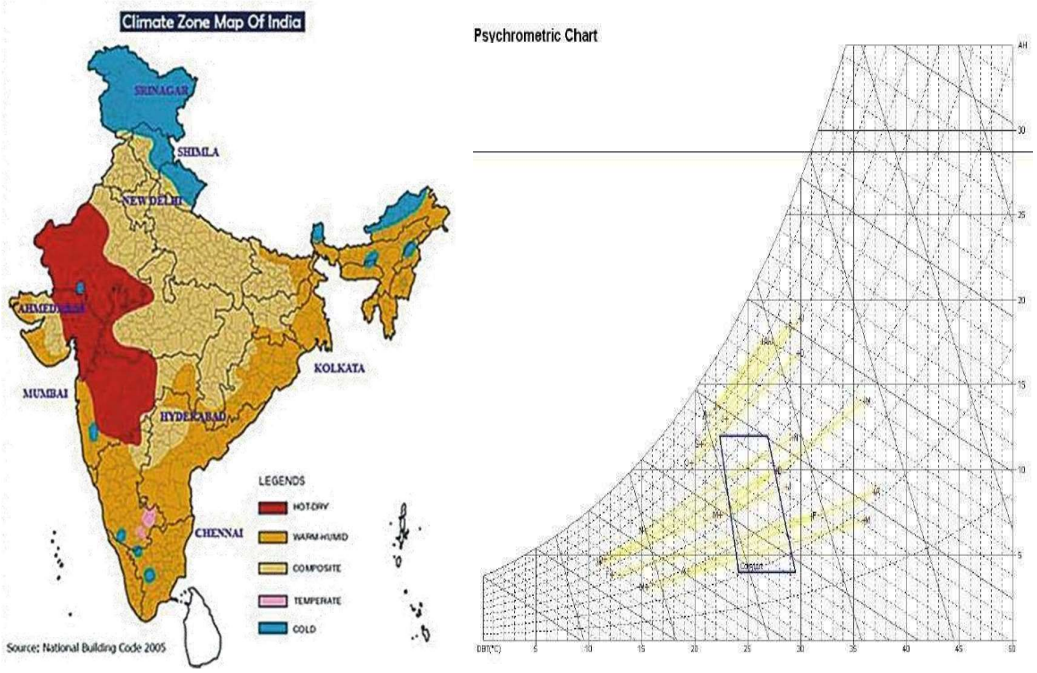


Figure 8.(a) Climate zones in India 8.(b) Comfort zones

2 SCOPE OF CARBON EMISSION

India's Cement Industry is the second largest producer of cement in world. It plays an important role in development of a country and contributes very high in Indian GDP. A significant factor which aids the growth of this sector is the ready availability of the raw materials for making cement, such as limestone and coal. India's overall cement production accounted for 374.55 million tonnes (MT) in FY23. The cement demand is estimated to touch 419.92 MT by FY 2027. As India has a high quantity and quality of limestone deposits through-out the country, the cement industry promises huge potential for growth.

Carbon footprint is the total quantum of carbon emissions of an individual or a household as a result of air travel, car travel, usage of electricity and other household appliances. Carbon footprints are expressed as a carbon dioxide equivalent (CO_2e), which is a measure used to describe how much global warming a given type of greenhouse gas may cause, using the functionally equivalent amount of concentration of carbon dioxide as the reference. It is the amount of greenhouse gases produced to directly and indirectly support human activities and is expressed in equivalent tons of carbon dioxide. It can be when we drive a car whose engine burns fuel that creates some CO_2, depending on its fuel consumption and the driving distance, use of electricity, oil, gas or coal can generate CO_2. The production of the food and goods also emits some quantities of the gas. Carbon footprint is the sum of all emissions of CO_2 induced by our activities in a given time-frame. Usually a carbon footprint is calculated for the time period of a year. Carbon dioxide emissions are calculated on the fuel consumption.

The concept of the carbon footprint revolves around transportation and heating issues. The cement industry is one of the major consumers of water and fuel (energy required for electric power, steam and transportation). Generally cement plants are known to be associated with exposure to quartz, cement, and dust, which can potentially contribute to Chronic Bronchitis, Silicosis and Interstitial lung diseases. Since concrete is such a widespread item, the amount of CO_2 released in the industry continues to grow. There are countless companies and organizations who have designed specific solutions to improve the concrete industry's environmental impact. Many of the top grossing cement companies in the world have decided to take immediate action.

It is impossible to envisage a modern life without cement. Cement is an extremely important construction material used for housing and infrastructure development and a key to economic growth. Cement demand is directly associated to economic growth and many growing economies are striving for rapid infrastructure development which underlines the tremendous growth in

cement production. The cement industry plays a major role in improving living standard all over the world by creating direct employment and providing multiple cascading economic benefits to associated industries. Despite its popularity and profitability, the cement industry faces many challenges due to environmental concerns and sustainability issues. The cement industry contributes significantly to the imbalances of the environment; in particular air quality. The key environmental emissions are nitrogen oxides (NOx), sulphur dioxide (SO_2) and grey dust. Industrial plant smoke stacks from cement and construction companies are some of the biggest contributors to poor air quality, especially in urban developments. The Portland cement manufacturing industry is under close scrutiny these days because of the large volumes of CO_2 emitted. Actually this industrial sector is thought to represent 5–7% of the total CO_2 anthropogenic emissions. Therefore, numerous studies have been done to evaluate CO_2 emissions and energy consumption. Technological advancement has resulted in cement making companies being able to produce higher volumes compared to the past. However, the higher production levels have also been largely labelled as the leading cause of pollution. The main sources of air pollution in the industry include excavation activities, dumps, tips, conveyer belts, crushing mills and kiln emissions. As of 2007, the cement industry alone was reported to produce 5% of total greenhouse gases in the atmosphere. The cement industry is an energy intensive and significant contributor to climate change. The major environment health and safety issues associated with cement production are emissions to air and energy use. Cement manufacturing requires huge amount of non-renewable resources like raw material and fossil fuels. It is estimated that 5-6% of all carbon dioxide greenhouse gases generated by human activities originates from cement production. Raw material and Energy consumption result in emissions to air which include dust and gases. The exhaust gases from a cement kiln contains are nitrogen oxides (NO_x), carbon dioxide, water, oxygen and small quantities of dust, chlorides, fluorides, sulfur dioxide, carbon monoxide, and still smaller quantities of organic compounds and heavy metals. Toxic metals and organic compounds are released when industrial waste is burnt in cement kiln. Other sources of dust emissions include the clinker cooler, crushers, grinders, and materials-handling equipment.

SCOPE OF CARBON FOOTPRINT

The cement industry has carbon emission from various process and at different stage like mining, fuel processing, clinkerlization, grinding, packing, transportation etc. There are three scope of GHG emission calculations.

In this report, the organization has identified the GHG sources for scope 1, scope 2 and scope 3. However, the scope 3 is optional and voluentary. Direct GHG emission sources are further divided

into stationary combustion, mobile combustion, and other direct GHG source (e.g. fugitive emissions from usage of refrigerant gases etc.). Purchased electricity is accounted under scope 2 and employee commuting is the part of scope 3 emissions.

Table 9. Scope of Emissions as per ISO14064

Scopes	Activities
Scope 1	Stationary Combustion Transportations (Mobile) Fugitive Emissions
Scope 2	Consumption of Purchased Electricity
Scope 3	Employee Commuting Rented Vehicles

Scope 1: The organization has identified stationary fuel combustion in captive power plant and in cement units, and fugitive emissions from operations as a major source of its direct GHG emissions. Emission due to transport by company owned vehicles have been also considered in scope 1.

Scope 2: The only GHG emission source for scope 2 emissions at the company is grid electricity consumption. The electricity is imported from Rajasthan Rajya Vidyut Prasaran Nigam Ltd.

Scope 3: Scope 3 is an optional category that allows for the treatment of all other indirect GHG emissions which are a consequence of the activities of the company but occur from sources not owned by the company and not included under scope 1 and scope 2 emissions. Rented Vehicles and employee commute has been considered for calculation.

To quantify and analyze the carbon emissions in a manufacturing process all the stages.

3 AIM & OBJECTIVES

OBJECTIVE

The scope includes the following items:

- To study Carbon Emission of manufacturing phase
- Daily energy demand and peak demand
- The functions of the product system or, in the case of comparative studies
- To set a system boundary for calculating the carbon foot print
- Assumptions to be made
- Carbon sequestering and Carbon arrest

METHODOLOGY

Calculating emissions is a multi-step process. Increasing greenhouse gaseous concentration in the atmosphere is perturbing the environment to cause grievous global warming and associated consequences. The methodologies for carbon footprint calculations are still evolving and it is emerging as an important tool for greenhouse gas management. The concept of carbon footprinting has permeated and is being commercialized in all the areas of life and economy, but there is little coherence in definitions and calculations of carbon footprints among the studies. A carbon footprint is the total sum of greenhouse gas (GHG) emissions caused by an organization, event, product or person. As we are aware, the increasing concentration of GHGs in the atmosphere can accelerate climate change and global warming, it is very necessary to measure these emissions from our day to day activities. The first step towards managing GHG emissions is to measure them. The methodology adopted for carrying out the study is calculations for energy consumption of manufacturing, Operation Phase of the cement as well as the cooling system, emission from different types of sources like mobile sources, stationary sources, emissions from paper consumption, from waste generation and analysis using a base case and a current case using following formula as per IPCC:

Kg CO_2e = Activity Data (**unit**) x Emission Factor

[kg GHG/unit] x GWP [Co_2/kg GHG]

4 CALCULATION OF CARBON EMISSION

EMISSION SOURCES–SCOPE 1

Different types of Emission sources for cement industry are listed below:

- Emission of Carbon dioxide from Employees as temporary and permanent all types of workers/employees/visitors/etc.
- Stationary emissions relate to the combustion of fuels in stationary equipment owned or controlled by the Industry for heating and power and from purchased heat and power.
- Mobility emissions relate to the combustion of fuels in the vehicles owned or controlled by Industry or third party transport for employee business travel and commuting to and from work.
- Paper consumption emissions relate to the emissions released in the production of office paper that is then used by Industry (not paper waste which is accounted for under waste).
- Waste analysis includes all types of waste (Mixed, Organic, Paper, Glass, Plastic, Metals, Woods, etc.) generation, treatment, transportation and disposal activities.
- Company owned vehicle

Table10. Inventory for Waste Analysis

S. No.	Type of waste	Solid Waste (%)	Liquid Waste (%)	Gaseous Waste (%)	Organic Waste (%)	Plastics Waste (%)	Metal Waste (%)	C&D Waste (%)	Agricultural Waste (%)	Biomedical Waste (%)	E - Waste (%)	Total (%)
1	Canteen waste				83	10	7					100
2	Packaging waste	75				25						100
3	Office waste	85				15						100
4	Broken glass	100										100
5	Corrugated boxes	100										100
6	M.S. scrap						100					100
7	S.S. Scrap						100					100
8	Boiler Ash	100										100
9	ETP Sludge											
10	Distillation Residue	100										100
11	Off specification products	95	5									100
12	Spent oil/waste/process/ residues containing oil etc.		100									100
13	MEE Salt											
14	Carbon/ Hyflow	75	25									100
15	Discarded containers, Barrels, used for HW chemicals					85	15					100
16	Electronic Devices										100	100
17	Medical Services									100		100
18	Hoticulture								100			100
19	Debris							100				100
20	Fuel*	30		10								40

CARBON EMISSION MONITORING

Ambient air monitoring has been done with Respirable Dust Sampler and Fine Dust Sampler within in house laboratory facilities. The observations from the monitoring conducted at 4 locations within the premises are summarized below. The ambient results were found well within limit as prescribed under NAAQS, 2009. All the units are in $\mu g/m^3$.

Table 11. Ambient Air Quality Monitoring

Location Month	Near Railway Gate					Near Work Shop					Near Rack Loading Area				
	PM 10	PM 2.5	SO2	NOx	CO	PM 10	PM 2.5	SO2	NOx	CO	PM 10	PM 2.5	SO2	NOx	CO
Limits	**100**	**60**	**80**	**80**	**4000**	**100**	**60**	**80**	**80**	**4000**	**100**	**60**	**80**	**80**	**4000**
Apr-23	66.4	31.7	3.3	11.3	351.7	69.8	36.1	3.6	13.6	395.6	62.6	32.2	3.5	11.6	382.9
May-23	63.1	28.4	3.3	11.4	362.2	69	33.9	3.8	13.6	354.3	61.4	29.4	3.7	11	409.9
Jun-23	66.2	26.7	3.1	11.1	416.8	72.9	35.7	3.7	13.9	382.1	60.7	31.9	3.6	11.4	354.3
Jul-23	53.9	26.8	4.8	11.5	409.9	58.9	30.2	5.2	12.6	375.1	47.1	26.3	4.9	11	396
Aug-23	46.8	29.4	5.4	11.2	423.9	49.3	31.6	6.2	11.7	329.3	44.1	30.1	5.2	11.5	423.8
Sep-23	47.1	28.7	4.2	11.7	423.8	48.1	31.1	5	10.3	419.6	42.1	29	6.2	14	373.7
Oct.-23	50.6	33.6	5.1	11.7	444.6	60.1	36.3	6	12.2	436.3	47.5	32.6	5.7	13.2	426.5
Nov.-23	49.5	33.3	4.3	10.6	400.1	59.8	34.9	4.9	14.5	412.6	43.4	29.6	3.8	10.7	386.2
Dec.-23	54	33.1	4.2	11.2	458.5	62.5	32.6	5.3	16	401.5	44.6	31.1	4.8	11.8	434.9
Jan-24	58.1	33	4.9	10	447.4	66.6	35	5.2	13.3	401.5	50.4	31.6	4.9	11.3	396
Feb-24	62.1	33.1	4.1	11.5	431.4	68.4	35.1	5.5	12.1	450.2	50	30.9	5.1	11.7	375.1
Mar-24	63.9	34	4.7	11	393.2	70.5	36	5.8	14.1	401.5	47.6	34	5.7	12.3	432.1

Location Month	Near Security Gate				
	PM 10	PM 2.5	SO2	NOx	CO
Limits	**100**	**60**	**80**	**80**	**4000**
Apr-23	69.5	41.5	7.1	16.7	429.8
May-23	72.6	39.4	6.2	16.2	402.9
Jun-23	76.7	42	4.7	17.3	409.9
Jul-23	55.1	31.2	6.1	14.1	347.3
Aug-23	46.4	32.7	6.1	9.5	436.3
Sep-23	44.8	32.2	8.6	7.3	415.4
Oct.-23	57.9	35.8	6.7	14	675.2
Nov.-23	61	32.8	8	17.3	432.1
Dec.-23	52.9	34.3	7.3	17.4	437.7

Jan-24	63.1	36.4	7.4	12.8	408.5
Feb-24	67.3	35.3	7.8	13.5	423.6
Mar-24	68.3	36.4	6.7	13.3	434.9

The norms for above pollutants as per national Ambient Air Quality standard 2009 are as follows:

S. No.	Pollutant	NAAQS, 2009 (µg/m³)
1.	PM2.5	60
2.	PM10	100
3.	SO_2	80
4.	NOX	80
5.	CO	4000

The stack emission data was also collected. The emission from the stack for PM, SOx and NOx were well within limit as prescribed in consent as per Air Act 1981.

Table12. Ambient Air Quality (µg/m³)

S. No	Location/ Parameters ↓	Norms	Near Railway Gate				Near Security Gate			
			April 23 to June 23	July 23 to Sept 23	Oct-23 to Dec-23	Jan-24 to March-24	April 23 to June 23	July 23 to Sept 23	Oct-23 to Dec-23	Jan-24 to March-24
1	**PM10**	**100**	75.68	49.25	72.16	66.36	86.12	68.32	80.18	89.79
2	**PM2.5**	**60**	38.91	28.33	30	32.4	49.79	33.33	32.5	49.38
3	**SO_2**	**80**	10.69	10.78	14.12	16.16	12.44	10.29	14.12	13.55
4	**NOx**	**80**	19.54	17.97	20.6	23.39	21.18	17.42	22.36	23.88
5	**CO**	**4000**	0.57	0.45	590	830	0.62	0.47	590	810

S. No	Location/ Parameters ↓	Norms	Near Rack Loading Area				Near Workshop			
			April 23 to June 23	July 23 to Sept 23	Oct-23 to Dec-23	Jan-24 to March-24	April 23 to June 23	July 23 to Sept 23	Oct-23 to Dec-23	Jan-24 to March-24
1	**PM10**	**100**	80.65	44.42	68.8	72.85	90.58	65.48	85.92	82.27
2	**PM2.5**	**60**	43.81	28.75	28.75	38.66	52.34	31.66	51.66	50.82
3	**SO_2**	**80**	11.6	11.27	12.35	18.23	14.64	9.8	12.94	14.91
4	**NOx**	**80**	20.18	17.42	18.83	24.44	22.86	16.88	21.19	25.03
5	**CO**	**4000**	0.59	0.52	610	820	0.61	0.54	620	880

Unit-I						
Stack No.	**CEMS Installation Status**	**Concentration of Emission (mg/Nm³)**				
		Norms	**April 23 to June 23**	**July 23 to September 23**	**Oct-23 to Dec-23**	**Jan-24 to March-24**
1	PM	30	15.1	16.19	20.26	20.4
	SO2	100	13.05	36.64	23.68	26.72
	NOx	800	589.96	533.99	565.01	711.64
2	PM	30	14.92	17.87	24.37	14.14
3	PM	30	19.61	18.09	19.17	19.11
4	PM	30	14.12	14.18	15.69	17.55
Unit-II						
Stack No.	**CEMS Installation Status**	**Concentration of Emission (mg/Nm³)**				
		Norms	**April 23 to June 23**	**July 23 to September 23**	**Oct-23 to Dec-23**	**Jan-24 to March-24**
1	PM	30	16.47	18.65	18.59	19.45
	SO2	100	20.18	13.25	4.77	21.78
	NOx	800	661.57	533.06	502.72	348.65
2	PM	30	18.21	21.5	21.28	21.23
3	PM	30	18.43	18.51	17.77	19.6
4	PM	30	19.21	17.82	23.25	19.71
Unit-III						
Stack No.	**CEMS Installation Status**	**Concentration of Emission (mg/Nm³)**				
		Norms	**April 23 to June 23**	**July 23 to September 23**	**Oct-23 to Dec-23**	**Jan-24 to March-24**
1	PM	30	16.82	19.02	16.7	17.59
CPP-I						
Stack No.	**CEMS Installation Status**	**Concentration of Emission (mg/Nm³)**				
		Norms	**April 23 to June 23**	**July 23 to September 23**	**Oct-23 to Dec-23**	**Jan-24 to March-24**
1	PM	50	NR	37.21	36.72	NR
	SO2	600	NR	268.19	218.42	NR
	NOx	450	NR	162.69	270.74	NR
CPP-II						
Stack No.	**CEMS Installation Status**	**Concentration of Emission (Mg/Nm³)**				
		Norms	**April 23 to June 23**	**July 23 to September 23**	**Oct-23 to Dec-23**	**Jan-24 to March-24**
1	PM	50	24.77	29.95	NR	34.23
	SO2	600	496.78	255.7	NR	218.02
	NOx	450	326.08	323.88	NR	270.06

Table13. Stack Monitoring Results (mg/Nm^3)- Unit- I

S.No.	Month	Kiln-I Stack			Cooler-I	Cement Mill-I	Vertical Coal Mill-I
		PM	SO2	NOx			
Prescribed Standards		**30**	**100**	**800**	**30**	**30**	**30**
1	Apr-23	16.40	17.75	499.50	19.45	18.10	15.40
2	May-23	16.28	18.60	688.00	18.52	17.00	16.90
3	Jun-23	17.60	18.06	690.00	18.45	18.60	13.60
4	Jul-23	18.05	16.10	658.50	20.30	18.20	15.65
5	Aug-23	18.30	17.80	557.00	18.20	19.40	15.95
6	Sep-23	16.05	32.20	535.00	20.50	19.70	15.35
7	Oct-23	17.30	19.20	650.20	22.80	19.30	13.10
8	Nov-23	18.19	13.06	637.20	18.73	17.78	19.28
9	Dec-23	21.60	26.60	640.50	13.70	17.80	15.20
10	Jan-24	24.00	7.8	685.2	22.30	18.70	17.72
11	Feb-24	24.10	25.2	647.5	17.70	18.70	17.80
12	Mar-24	19.00	27.6	675.5	17.10	18.90	18.00
Average		**22.37**	**20.20**	**669.40**	**19.03**	**18.77**	**17.84**
Min		19.00	7.80	647.50	17.10	18.70	17.72
Max		24.10	27.60	685.20	22.30	18.90	18.00

Stack Monitoring Results - Unit- II

S. No.	Month	Kiln-II	Cooler-II	Cement mill-II	Coal mill-II
			Flow (Nm3/Hr.)		
1	Apr-23	266366.88	184663.78	13077.15	73906.74
2	May-23	273552.58	179209.44	13717.62	70306.14
3	Jun-23	273284.33	179006.07	13787.81	70556.97
4	Jul-23	282104.61	177730.61	13674.37	65337.45
5	Aug-23	298091.76	196437.39	13745.51	67238.20
6	Sep-23	250590.28	174012.42	14004.08	69356.76
7	Oct-23	253329.05	177058.66	13566.75	69630.06
8	Nov-23	255530.93	179514.84	14532.98	69097.26
9	Dec-23	330132.41	181411.35	14575.20	70658.34
10	Jan-24	257818.11	169700.58	13521.54	72127.09
11	Feb-24	376471.16	205714.72	16708.08	80775.85
12	Mar-24	305748.11	193108.80	16002.25	76348.24

Stack Monitoring Results - Unit- II

S.No.	Month	Kiln-II Stack			Cooler-II	Cement Mill-II	Vertical Coal Mill-II
		PM	SO2	NOx			
Prescribed Standards		30	100	800	30	30	30
1	Apr-23	18.5	11.9	482.19	17.25	17.7	14.1
2	May-23	19.45	16.55	617	14.7	20.75	16.9
3	Jun-23	16.6	20.2	670	19.98	18.85	16.4

4	Jul-23	17.7	22.21	515	19.95	17.98	18.95
5	Aug-23	12.85	9.1	410	20.9	18.55	15.3
6	Sep-23	18.9	17.2	515.5	18.95	19.4	20.35
7	Oct-23	18.85	8.4	498.5	18.95	18.65	15.55
8	Nov-23	19.33	16.59	566.63	21.1	18.95	25.05
9	Dec-23	19.4	20.1	600	21.3	18.48	25
10	Jan-24	19.56	21.95	610.5	21.80	18.00	19.30
11	Feb-24	19.50	5.30	345.20	20.90	19.00	24.10
12	Mar-24	18.60	15.1	670	21.05	18.30	20.60
Average		19.22	14.12	541.90	21.25	18.43	21.33
Min		18.60	5.30	345.20	20.90	18.00	19.30
Max		19.56	21.95	670.00	21.80	19.00	24.10

Stack Monitoring Results - Unit- III

S.No.	Month	Cement Mill-III
Prescribed Standards (in mg/NM3)		**30 Mg/Nm3**
1	Apr-23	15.00
2	May-23	17.25
3	Jun-23	14.82
4	Jul-23	22.55
5	Aug-23	19.35
6	Sep-23	15.68
7	Oct-23	16.32
8	Nov-23	17.01

9	Dec-23	25.40
10	Jan-24	22.50
11	Feb-24	22.00
12	Mar-24	18.80
Average		**21.10**
Min		18.80
Max		22.50

The ambient noise has been monitored at 4 places within viz. Near Workshop, Near Rack Loading, Railway Gate and Near Security Gate. The results were within prescribed limit as per Ambient Noise Rules 2000 under EPA 1986. The results are given in table below-

Table 14. Ambient Noise

Month	Measured Noise Level (in dBA)							
	Near Railway Gate		Near Work shop		Near Rack Loading Area		Near Security gate	
	Day	Night	Day	Night	Day	Night	Day	Night
Limits	**75.0**	**70.0**	**75.0**	**70.0**	**75.0**	**70.0**	**75.0**	**70.0**
Apr-23	**66.0**	**55.4**	69.9	56.2	63.5	54.9	**68.4**	**56.6**
May-23	**66.1**	**55.2**	64.9	55.6	66.7	55.6	68.6	56.3
Jun-23	66.8	54.4	**64.3**	**54.7**	64.1	54.5	**67.5**	**55.6**
Jul-23	**65.8**	**56.4**	64.0	55.1	64.4	54.2	67.6	55.5
Aug-23	64.3	56.3	65.1	57.6	63.4	56.0	64.6	59.2
Sep-23	65.2	54.4	64.8	55.9	63.9	56.0	68.1	58.5
Oct-23	66.7	55.5	65.5	56.3	65.2	55.8	66.9	56.9
Nov-23	64.4	54.9	67.4	57.8	**64.4**	**56.1**	68.2	57.0
Dec-23	66.5	55.3	68.4	57.9	63.8	55.4	66.6	57.2
Jan-24	66.5	55.7	68.8	57.2	65.3	56.7	67.6	57.2
Feb-24	66.5	55.8	70.7	57.4	64.2	54.7	67.4	55.5
Mar-24	66.3	55.8	69.1	57.8	64.1	56.1	67.4	57.2

Ambient Noise Monitoring Report (All values in (dB)A)									
Sr. No.	Location	April 23 to June 23		July 23 to September 23		Oct-23 to Dec-23		Jan-24 to March-24	
		Day	Night	Day	Night	Day	Night	Day	Night
1	Near Security Gate	63.6	52.4	64.24	52.02	61.23	53.95	70.61	61.38
2	Near Railway Gate	63.4	51.3	64.64	53.34	59.81	47.56	69.21	58.61
3	Near Rack Loading Area	63.1	47.6	73.47	63.52	69.88	58.72	68.29	59.96
4	Near Work Shop	62.3	53.1	58.5	45.75	60.14	47.35	60.34	50.72

EMISSION FROM MOBILE SOURCES

Transportation of Raw Material & Finished products

Carbon footprints through transportation also come into major consideration when whole picture has to be taken care of the reason is the utilization capacity of fuels vary for the carrying of the raw materials and also due to selection of material, distance between extraction and/or manufacturing unit and project site, etc. Furthermore, the project of this size has variation in carbon footprints of the same material, because of availability of the material from the same supplier is uncertain during the whole manufacturing duration. Travelling distance, mode of transportation and type of fuel used for transportation are other major factors associated with carbon emission. The total 365 (24x7) working days has been considered for the production of cement plants. The unit has its mining for limestone and it is being transported using conveyer belt hence no road transportation used for limestone. The water is being used from mine pits using pump house in entire cement plant and residential colony for domestic, irrigation, dust suppression, cooling towers, boilers etc.

It is assumed that the raw materials and finished goods are transported by trucks which run on diesel; this is the most common mode of transport and fuel type.

Table 15. Raw material Transportation details 2023-2024

Material	Source	Mode	Distance	MT (BY ROAD) per annum
BAUXITE	Katni,MP	Road	590	59,817.820
BIOMASS	Morak	Road	40	10,066.540
COAL OPEN	Varanasi	Road	860	27,076.900
SECLCOAL	Bilaspur, Chhatisgarh	Road	780	15,440.230
CPPCOALKRIS	Krishnashill	Road	1045	26,589.060
CPP COALBG9	Bina,UP	Road	1047	31,637.030
US COAL	Kandla Port	Road	845	195,277.010
FLYASH	Kawai	Road	111	580,648.780
	Chhabra, Bara	Road	147	
	Jhalawar	Road	35	
	Kota	Road	70	
GYPSUM	Bharuch	Road	538	38,307.180
LATERITE	Shamgarh, MP	Road	85	108,326.320
REDMUD	Muri, Jharkhand	Rail	1359	69,685.750
	Renukoot, UP	Rail	978	
PETCOKE	Kandla Port	Rail	852	80,377.460
	Koyali, Gujarat	Road	466	
	Jamnagar, Gujarat	Rail	897	
HGLS	Jodhapur	Road	465	372,898.770
	Gagrana, Merta	Road	367	
	Borunda	Road	400	
	Mavli, Udaipur	Road	330	
	Makarana	Road	360	
SLURRY WASTE	Ramgannjmandi	Road	15	206,013.210
Total Distance			12682	
Total tCO2e			**11.1797**	

Table 16. Transportation of Finished Goods in FY 2023-24

		RAIL		ROAD		GRAND TOTAL	
Ship-to party Region Desc	**Ship to City Code / District Desc**	**QTY**	**DISTANCE**	**QTY**	**DISTANCE**	**QTY**	**DISTANCE**
Delhi	WEST DELHI	74,667	544		-	74,667	544
Gujarat	DAHOD		-	890	393	890	393
Gujarat	VADODARA		-	15,969	525	15,969	525
Haryana	BALLABHGARH		-	35	115	35	115
Haryana	BHIWANI		-	2,610	596	2,610	596
Haryana	FARIDABAD	2,887	501	4,788	201	7,675	314
Haryana	HISAR		-	3,957	650	3,957	650
Haryana	JHAJJAR		-	45	594	45	594
Haryana	MAHENDER GARH		-	1,890	512	1,890	512
Haryana	MEWAT		-	768	135	768	135
Haryana	PANIPAT	5,317	619	945	676	6,262	628
Haryana	ROHTAK		-	3,825	600	3,825	600
Haryana	SOHANA		-	45	563	45	563
Haryana	SONEPAT	2,166	581	6,435	640	8,601	625
Madhya Pradesh	SONEPAT		-	42	189	42	189
Madhya Pradesh	ALIRAJPUR		-	136	381	136	381
Madhya Pradesh	ASHOK NAGAR		-	13,283	250	13,283	250
Madhya Pradesh	BHIND		-	834	402	834	402
Madhya Pradesh	BHOPAL		-	33,190	291	33,190	291
Madhya Pradesh	BINA		-	494	318	494	318
Madhya Pradesh	DATIA		-	126	380	126	380
Madhya Pradesh	DEWAS		-	1,152	259	1,152	259
Madhya Pradesh	DHAR		-	3,419	315	3,419	315
Madhya Pradesh	GUNA	48,628	249	27,075	190	75,703	228
Madhya Pradesh	GWALIOR	2,729	477	3,304	350	6,032	407
Madhya Pradesh	HOSHANGABAD	12,369	488		-	12,369	488
Madhya Pradesh	INDORE	80,658	296	7,330	265	87,988	293
Madhya Pradesh	JHABUA		-	206	306	206	306
Madhya Pradesh	KHARGONE		-	45	342	45	342
Madhya Pradesh	MANDSAUR		-	33,359	112	33,359	112
Madhya Pradesh	MORENA		-	2,485	363	2,485	363
Madhya Pradesh	NEEMUCH		-	6,713	145	6,713	145
Madhya Pradesh	RAISEN		-	1,245	348	1,245	348
Madhya Pradesh	RAJGARH		-	43,751	175	43,751	175
Madhya Pradesh	RATLAM	12,763	206	15,801	178	28,564	191
Madhya Pradesh	SAGAR	1,468	440	1,178	369	2,646	408
Madhya Pradesh	SEHORE		-	5,990	273	5,990	273
Madhya Pradesh	SHAJAPUR		-	31,758	174	31,758	174
Madhya Pradesh	SHEOPUR		-	35,797	192	35,797	192
Madhya Pradesh	SHIVPURI	4,915	351	23,437	237	28,351	256
Madhya Pradesh	UJJAIN		-	31,378	204	31,378	204
Madhya Pradesh	VIDISHA		-	21,183	287	21,183	287
Rajasthan	AJMER		-	20,253	255	20,253	255

Rajasthan	ALWAR		-	4,969	404	4,969	404
Rajasthan	BANSWARA		-	1,642	319	1,642	319
Rajasthan	BARAN		-	1,28,872	110	1,28,872	110
Rajasthan	BARMER		-	1,485	572	1,485	572
Rajasthan	BHARATPUR	34,030	355	1,455	389	35,485	356
Rajasthan	BHILWARA		-	39,914	220	39,914	220
Rajasthan	BUNDI		-	66,070	125	66,070	125
Rajasthan	CHITTOR GARH		-	42,748	155	42,748	155
Rajasthan	CHURU		-	3,690	570	3,690	570
Rajasthan	DAUSA		-	2,953	321	2,953	321
Rajasthan	DHOLPUR		-	3,636	389	3,636	389
Rajasthan	DUNGARPUR		-	66	327	66	327
Rajasthan	HANUMANGARH		-	5,431	683	5,431	683
Rajasthan	JAIPUR		-	74,125	331	74,125	331
Rajasthan	JALORE		-	4,753	555	4,753	555
Rajasthan	JHALAWAR		-	86,141	73	86,141	73
Rajasthan	JHUNJHUNU		-	2,562	465	2,562	465
Rajasthan	JODHPUR		-	87	473	87	473
Rajasthan	KAROLI		-	19,544	321	19,544	321
Rajasthan	KOTA		-	2,32,583	66	2,32,583	66
Rajasthan	NAGAUR		-	6,240	408	6,240	408
Rajasthan	PALI		-	3,083	422	3,083	422
Rajasthan	PRATAPGARH		-	10,788	202	10,788	202
Rajasthan	RAJSAMAND		-	16,192	366	16,192	366
Rajasthan	SAWAI MADHOPUR		-	28,053	240	28,053	240
Rajasthan	SIKAR		-	40,318	423	40,318	423
Rajasthan	SIROHI		-	30	418	30	418
Rajasthan	SRIGANGANAGAR		-	180	742	180	742
Rajasthan	TONK		-	33,483	227	33,483	227
Rajasthan	UDAIPUR		-	18,507	337	18,507	337
Uttar Pradesh	AGRA	2,49,187	400	326	105	2,49,513	400
Uttar Pradesh	ALIGARH	1,37,677	498	90,088	21	2,27,765	309
Uttar Pradesh	AMROHA		-	12,019	129	12,019	129
Uttar Pradesh	BADAUN		-	40,360	124	40,360	124
Uttar Pradesh	BAGHPAT		-	2,890	181	2,890	181
Uttar Pradesh	BAREILLY	4,005	598	25,125	225	29,130	277
Uttar Pradesh	BIJNOR		-	56,744	195	56,744	195
Uttar Pradesh	BULAND SHAHAR		-	38,160	82	38,160	82
Uttar Pradesh	ETAH		-	24,983	100	24,983	100
Uttar Pradesh	FARRUKHABAD		-	30	200	30	200
Uttar Pradesh	FIROZABAD		-	922	102	922	102
Uttar Pradesh	GAUTAM BUDDHA NAGAR		-	21,377	101	21,377	101
Uttar Pradesh	GHAZIABAD	2,01,498	545	18,449	207	2,19,947	517
Uttar Pradesh	HAPUR		-	6,662	122	6,662	122
Uttar Pradesh	HATHRAS		-	17,133	50	17,133	50
Uttar Pradesh	KANPUR	13,314	650		-	13,314	650
Uttar Pradesh	KASGANJ		-	17,211	91	17,211	91

Uttar Pradesh	LUCKNOW	1,07,377	725		-	1,07,377	725
Uttar Pradesh	MAINPURI		-	8,378	154	8,378	154
Uttar Pradesh	MATHURA	1,18,729	391	4,212	82	1,22,941	380
Uttar Pradesh	MEERUT	28,338	585	8,654	148	36,992	483
Uttar Pradesh	MORADABAD	50,711	641	9,560	161	60,271	565
Uttar Pradesh	MUZAFFAR NAGAR	93,530	648	1,205	214	94,735	642
Uttar Pradesh	PILIBHIT		-	5,371	276	5,371	276
Uttar Pradesh	RAMPUR		-	14,963	191	14,963	191
Uttar Pradesh	SAHARANPUR		-	6,554	276	6,554	276
Uttar Pradesh	SAMBHAL	54,405	597	39,670	94	94,075	385
Uttar Pradesh	SHAHJAHANPUR	1,342	671	175	230	1,516	620
Uttar Pradesh	SHAMLI		-	2,342	232	2,342	232
Uttar Pradesh	SITAPUR	13,047	792		-	13,047	792
Uttarakhand	DEHRADOON		-	2,585	310	2,585	310
Uttarakhand	HARDWAR	23,326	851	1,661	256	24,987	811
Uttarakhand	NAINITAL		-	7,621	235	7,621	235
Uttarakhand	UDHAM SINGH NAGAR		-	6,629	223	6,629	223

Total Distance (Road)	29,520
Total tCO2	**2.60055**
Total Distance (Train)	13699
Total tCO2	**0.2057**

Table 17. Diesel Consumption from April 2023 to March 2024

S.No.	Particulars	Diesel (Litres)
1.	Diesel Consumption –Security Department (Hired Vehicles)	17134
2.	Diesel Consumption –Commercial Department	5603
3.	Diesel Consumption –Ambulance	5799
4.	Mechanical	10091
5.	Tractor RJ33-R0620	2859
6.	Water Supply	214
7.	Laboratory	4552
Total Consumption		**46252**

Total Diesel (KL)		tCO_2e
Diesel	**47**	**124.08**

Transportation of Workforce

Development of industrial work can lead to increased greenhouse gas (GHG) pollution caused by the resulting growth in vehicular traffic, energy use, and other activities. This unit seeks to identify a workplace's impact on global climate change through its emissions of greenhouse gases (GHGs), notably carbon dioxide (CO_2), the most common such gas. GHG pollution and local air pollution threaten to undermine development with the increasing evidence of their adverse environment and health impacts. Transportation is the fastest growing major contributor to global climate change, accounting for 23% of energy-related carbon dioxide (CO_2) emissions.

Table 18. Carbon Footprint from Workforce Transportation within premises

Mode of Transportation	Fuel	No. of Vehicles	Travelling Distance/ Day(km)	Travelling Distance/ Annum(km)	tCO2e
Two wheeler (Aprox.)	Petrol	600	2.0	360000	68.15
Four wheeler (Aprox.)	Petrol	25	2.0	15000	2.839
Four wheeler (Aprox.)	Diesel	35	2.0	21000	3.7024
Total		**660**	**-**	**396000**	**74.6914**

The carbon emission from transportation for raw material, finished goods, workforce and other transportation is 11.1797 tons; 2.80625 tons, 74.6914 tons and 124.08 tons respectively. Total Carbon emission from mobile sources is 212.75735 tons for FY 2023-24.

EMISSION FROM STATIONARY SOURCES

Different fuels emit different amounts of carbon dioxide (CO2) in relation to the energy they produce when burned. The amount of CO2 produced when a fuel is burned is a function of the carbon content of the fuel. The heat content, or the amount of energy produced when a fuel is burned, is mainly determined by the carbon (C) and hydrogen (H) content of the fuel. Heat is produced when C and H combine with oxygen (O) during combustion. Natural gas is primarily methane (CH4), which has higher energy content relative to other fuels, and thus, it has a relatively lower CO2-to-energy content. Water and various elements, such as sulfur and noncombustible elements in some fuels, reduce their heating values and increase their CO2-to- heat contents.

Table19. Carbon Foot print from Stationary Sources

S. No.	Type of Fuel	Quantity (TPA)	tCO_2e
1.	Coal	293926.001	532006.061
2.	Petcoke	78434.394	248637.03
3.	Diesel (HSD in Kiln 1 & Kiln 2)	1.16 KL	3.016
4.	Petrol	0.571 KL	1.3
Total			**780647.40**

EMISSION FROM PAPER CONSUMPTION

The average weight of A4 plain paper is 4.9896 g while registers/note pad etc. has variable weight ranges from 100-500 g. The average weight of total paper consumed within unit is 88201.25 Tons.

Table 20. Carbon Footprint from Paper Consumption

S.No.	Type of Paper	Quantity (TPA)	tCO_2e
1	All type of papers	88201.25	84320
Total			**84320**

EMISSION FROM WASTE GENERATION

Table 21. Carbon Footprint from Waste Generation

S. No.	Source	Quantity (Per Annum)	Remarks
1	Biomedical waste	50.5 Kg	-
2	E–waste	-	-
3	Agro-Waste	9223.230	Avoided Emission

EMISSION FROM CEMENT PRODUCTION

The cement production include the raw material from various sources, preparation, mixing in a required ratio, mixing to kiln, clinkerization, grinding, storing in silo, packaging, etc. The emission from Cement production is given below-

Table 22. Carbon emission from Cement production

S. No.	Total Cement production (TPA)	Clinker to Cement Ratio (%)	Ton of Raw Material per Ton of Clinker	$CaCO_3$ Equivalent Raw Material Ratio (%)	CO_2 to $CaCO_3$ Stoichiometric Ratio	Annual tCO_2e
1	2882331.412	78.6%	1.48	77%	0.44	1135982.33

EMISSION FROM POWER CONSUMPTION (SCOPE 2)

Table 23. Carbon Emission from Power Consumption

S.No.	Source	Quantity (Gross KWH)	tCO_2e
1.	Ele. Board	45596227.931	37388.9069
2.	Wind PP	14620255.813	Avoided Emission
3.	CPP	116295000	Included in scope 1
4.	WHR	72138115	Avoided Emission
5.	D.G	679	Included in scope 1
Total			37388.9069

NET CARBON EMISSION

Table 24. Net Carbon Emission of FY 2023-24

S.No.	Emission Area	tCO2e
	Scope 1	
1	Stationary Sources	**780647.40**
2	Paper Consumption	84320
3	Production Process	1135982.33
Total Scope 1		**2000949.73**
	Scope 2	
4	Electricity Purchased	37388.9069
Total Scope 2		**37388.9069**
	Scope 3	
5	Mobile Sources	212.75735

Total Scope 3		**212.75735**
Total Scope 1+2+3		**2038551.394**
6	**Avoided Emission**	
i	WHRB	59153.2543
ii	Wind (WTG)	11988.60977
	Avoided Emission	**71141.86407**
7	**Mitigation measure**	
Plantation		**4,155,927.32**
		4227069.184
Net Emission		**(-)2,188,517.779**

5 MITIGATION MEASURES FOLLOWED

CARBON SINKING/SEQUESTRATION

It is a natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form.

The increase in greenhouse gases, particularly carbon dioxide, into the atmosphere is considered to be one of the main causes of global warming. Human activity is releasing vast amounts of carbon dioxide, principally through the burning of fossil fuels to power industry, transport, heating etc. Land-use changes such as the unsustainable exploitation and destruction of tropical forests are also having an impact.

Forests are capable of effective sequestration and storage of atmospheric carbon in above- ground and below-ground biomass by way of processes of photosynthesis and tree growth. Carbon is absorbed and assimilated by tree foliage and is stored as carbon-rich organic compounds such as cellulose and hemicelluloses, lignin, starch, lipid and waxes, mostly in secondary woody tissues in tree boles and in large roots, as well as in foliage, branches and fine roots.

Sustainable forestry is positively contributing to the carbon sequestration and is an important management tool is combating climate change. International agreements to regulate carbon emissions such as the Kyoto Protocol recognize the importance of forests as carbon sinks. The area of forest this is taken into account when deriving national targets for allowable emissions.

The project proposes to opt for various active and passive carbon sequestering measures. The major factor being the plantation of the site that will supplement the carbon sequestration to the Maximum level. The site retains the entire old and existing plantation. The trees that will fall in the designed area will be replanted on site and the ecosystem of the site is retained to enhance the local biodiversity. The plant list is carefully chosen to include the major sequesters species. The overall landscape proposition supports the carbon curb and gets the impact to approximate neutral.

Additional measures like roof painting to reject heat, lime paints, etc. will also be opted for in the project as per the design recommendations.

Carbon capture, use, and storage technologies can capture more than 90% of carbon dioxide (CO_2) emissions from power plants and industrial facilities. Captured carbon dioxide can be put to productive use in enhanced oil recovery and the manufacture of fuels, building materials, and more, or be stored in underground geologic formations. Almost two dozen commercial-scale carbon capture projects are operating around the world with 22 more in development. Carbon capture can

achieve 14% of the global greenhouse gas emissions reduction is needed by 2050 and is viewed as the only practical way to achieve deep de-carbonization in the industrial sector.

AIR POLLUTION CONTROL SYSTEM

ESP, Bag house (pulse jet bag filters) has been installed as the Air Pollution Control Equipment to control the particulate matter at source. ESP work on 99.9% efficiency. Therefore, only 0.1% of carbon emissions are released to the atmosphere.

CARBON SEQUESTRATION THROUGH TREES

Carbon sequestration generally refers to the long-term storage of carbon in plants, soils, geologic formations, and the oceans. Therefore, it is suggested to plant trees to sequester 100% carbon emissions from stationary fuel and at least 33% under all other heads. This accounts for growing trees to sequester at least 4,155,927.32 tCO_2e.




Figure 9. Photographs of Green vegetation developed by M/s Mangalam Cement Ltd

Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings by U.S. Department of Energy Information Administration has been used in this report.

Table 25. Carbon Sequestration by Green Belt (FY2023-24)

S.No.	Year of Plantation	No. of tree/plants	Average Age (years)	Carbon Sequestration (tCO2e)/annum
1	2008	20000	15	619200
2	2009	22000	14	681200
3	2010	16000	13	719840
4	2011	18000	12	481440
5	2012	10700	11	540180
6	2013	16607	10	319609
7	2014	10238	9	422814.22
8	2015	3788	8	216328.94
9	2016	4044	7	62880.8
10	2017	3923	6	47153.04
11	2018	2231	5	28284.83
12	2019	3153	4	10151.05
13	2020	470	3	6242.94
14	2021	510	2	291.4
15	2022	767	1	311.1
16	2023	567	0	-
-	Total	1,32,727	-	4,155,927.32

By following the green belt and existing tree at site, total 4,155,927.32 tons of CO2e has been sequestered for the FY 2023-24. The further plantation should be considered on the basis of survival rate of the species and only local species should be planted form ore survival. It is also suggested to provide adequate air pollution control measures Flyash/process dust collection at every point and should be used within premises to reduce the carbon footprint.

OTHER SUSTAINBLE MEASURE TO REDUCE THE CARBON EMISSION

Mangalam Cement Limited is committed to adopt sustainable practices as a socially and environmentally responsible company. Company, in its operations, has deployed best-in-class technology and processes which optimally utilize resources and leave minimal footprints. Further, the Company has tried to optimize the best utilization from its renewable energy sources such as its wind turbines, Waste Heat Recovery (WHR) based power plant.

Wind Energy

Mangalam Cement Limited has successfully commissioned 13 WTG at four villages of Jaisalmer district (Rajasthan), the details as hereunder:

Table 26. WTG Installation by M/s Mangalam Cement Ltd.

S.No.	WTG Capacity	Location	Year of Commissioning
1	6x1250 KW	Vill- Chicha & Sirwa, Jaisalmer	2010
2	1x600 KW	Vill- Sadiya, Jaisalmer	2007
3	3x600 KW	Vill- Sadiya, Jaisalmer	2007
4	3x1250 KW	Vill- Gorera, Jaisalmer	2008
Total	**13.65 MW**	-	-

Mangalam Cement Limited operates wind turbines of an aggregate capacity of 13.65 MW at Jaisalmer, Rajasthan; reducing an equivalent of 11988.60977 of tCO2e emissions during the FY 2023-24 by replacing fossil fuel-based grid power with renewable wind energy based green power.

Figure10.Wind Mill (WTG)

Waste Heat Recovery Systems

The Company has commissioned 11 MW Waste Heat Recovery (WHR) based Power Plant to capture waste heat of kilns to utilize the same for power generation and resultantly save fossil fuels & reduce carbon foot-print hand on hand.

Figure11. WHRB at Mangalam Cement Ltd.

Table 27.GHG Reduction from Renewal Energy Sources

Particular	Net Generation	Unit	tCO2e Reduction
Wind Mills	14620255.813	kWh	11988.609
Waste Heat Recovery	72138115	kWh	59153.2543
Carbon Sequestration through Greenbelt	-	-	4,155,927.32
		Total	**4,227,069.184**

6 CONCLUSION

Mangalam cement has implemented GHG Management System as per the requirements specified under ISO 14064-I: 2006, aiming at managing relevance, completeness, consistency, transparency and accuracy of GHG inventory of the organization.

Total Emission at Mangalam Cement by all scopes for FY 2023-24= **2038551.394 tCO_2e**

Avoided Emission= **4227069.184 tCO_2** per year.

Net Emission (FY2023-24)= (-)2,188,517.779 tCO_2

Furthermore, it can be confirmed, that the calculation was developed according to the relevant International Standard for the quantitative analysis, monitoring and reporting of greenhouse gases and meets the requirements of the ISO14064-1standard as well as of the GHG Protocol, which is the basis of the calculation.

Contact Person Information

Contact Person:	Sh. P. K. Bansal,
Designation:	D.G.M. (Quality Control),
Address:	Mangalam Cement Limited,
	P.O. Aditya Nagar, Village: Morak,
	District: Kota-326520
	Rajasthan, INDIA
Email:	pkbansal@mangalamcement.com

****

VIBRANT TECHNO LAB PVT. LTD.

(NABET/EIA/2225/IA 0104)

Plot No.SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road,
Jaipur, Rajasthan-302020

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Redg. A/D

MCL / Haz./E-11(II)/2024-2025/224 21.05.2024

Environmental Engineer & GIC, (CPP)
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri, JAIPUR (Raj)

Sub: Submission of Annual Return under the Hazardous & Other Wastes (M&TM) Rules, 2016 & its amendments for M/s Mangalam Cement Ltd., (Unit-I), Morak, Dist: Kota, (Raj)

Ref: 1. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/58 dt. 29.01.2021
2. Hazardous Waste Authorization No. RPCB/HWM/2022-2023/CPM/HSW/3 dt. 11.04.2022
3. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/47 dt. 19.01.2021
4. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/45 dt. 19.01.2021

Dear Ma'am,

In connection to the above mentioned subject & referred authorizations, we are submitting herewith Annual Return for the FY 2023-2024 in prescribed Form-IV under the Hazardous & Other Wastes (Management & Transboundary Movement) Rule, 2016 & its amendments for M/s Mangalam Cement Limited (Unit-I), P.O. Aditya Nagar, Village Morak, Tehsil: Ramganj Mandi, Dist: Kota (Raj).

This is for your information & record please. Kindly acknowledge the receipt.

Thanking you,

Yours faithfully

For Mangalam Cement Ltd. (Unit – I)

P. R. Chaudhary
Sr. Jt. President (Operation) & FM

Encl: a/a

Cc to: - The Regional Officer
Rajasthan Pollution Control Board
Plot No. Spl. 2A, Paryavaran Marg
Road No. 6, Indraprastha Indl. Area
Kota – 324005

Regd. Office & Works : P.O. Aditya Nagar-326520, Morak, Distt. Kota (Raj.) CIN : L26943RJ1976PLC001705, Telefax : 07459 - 232156
Website : www.mangalamcement.com, E-mail : email@mangalamcement.com
Kota Office : Shop No. 20, 80 Feet Road, Opp. Sukhdham Colony, (Near SBI Bank) Kota - 324001 (Rajasthan)
Delhi Office : 153, Leela Building (GF), Okhla Indl. Estate, Phase-III, New Delhi - 110020
Tel. No. : 011- 43539132, 43539133, 43539137 Fax : 011- 23421768
E-mail : delhi.purchase@mangalamcement.com, delhi.marketing@mangalamcement.com
Jaipur Office : 2nd Floor, Geejgarh Tower, Hawa-Sarak, Jaipur - 302 006 (Rajasthan)
Tel. : 0141 - 2218933, 2218931, E-mail : jaipur.marketing@mangalamcement.com

FORM 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

1.	Name and address of facility	:	**M/S Mangalam Cement Ltd. (Unit-I),** P.O. Aditya Nagar, Village: Morak, Tehsil: Ramganj Mandi, Dist: Kota Pin code: 326520 (Rajasthan)
2.	Authorization No. and Date of issue	:	RPCB/HWM/2020-2021/CPM/HSW/58 dt. 29.01.2021 RPCB/HWM/2022-2023/CPM/HSW/3 dt. 11.04.2022 RPCB/HWM/2020-2021/CPM/HSW/47 dt. 19.01.2021 RPCB/HWM/2020-2021/CPM/HSW/45 dt. 19.01.2021
3.	Name of the authorised person and full address with telephone, fax number and e-mail	:	**P. R. Chaudhary** **Sr. Jt. President (Operation) & FM** **Mangalam Cement Ltd.** **Mob. No. 07230003274** **E-Mail Id. :pr.chaudhary@mangalamcement.com**
4	Production during the year (product wise), wherever applicable	:	**Year 2023-2024** Clinker : 1344920 MT Cement : 825156.734 MT

Part A. To be filled by hazardous waste generators

1	Total quantity of waste generated category wise	:	**Quantity generated during FY 2023-2024** Used Oil : 11000 Ltr. (Sch.-I, Category 5.1) Oil Soaked Cotton: NIL (Sch-I, Category 5.2) Waste/ Residue Containing Oil: NIL (Sch-I, Category 5.2)
2	Quantity dispatched	:	
(i)	to disposal facility	:	Nil
(ii)	to recycler or co-processors or pre-processor	:	**11000 Ltr. (Sold to Authorized Recycler)** **M/S Bharat Industrial Oil Co. (BIOC)** S-758 (1), Road No. 9F1 Vishwakarma Industrial Area Jaipur- 302013

Hazardous Waste Type	Quantity of Hazardous Waste (Ltr)	Date of Manifest	Mode of Disposal
Used Oil Cat: 5.1	5600	12.12.2023	Sold to Authorized Recycler i.e. M/s BIOC, Jaipur
Used Oil Cat: 5.1	5400	20.03.2024	Sold to Authorized Recycler i.e. M/s BIOC, Jaipur

(iii)	Others	:	Nil
3	Quantity utilized in-house, if any	:	Nil
4	Quantity in storage at the end of the year		Nil
Part B. To be filled by Treatment, storage and disposal facility operators			
1	Total quantity received	:	N.A.
	Quantity in stock at the beginning of the year	:	N.A.
	Quantity treated	:	N.A.
	Quantity disposed in landfills as such and after treatment	:	N.A.
	Quantity incinerated (if applicable)	:	N.A.
	Quantity processed other than specified above	:	N.A.
	Quantity in storage at the end of the year	:	N.A.
Part C. To be filled by recyclers or co-processors or other users			
1	Quantity of waste received during the year	:	Plastic Waste: 173.705 MT (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 10066.540 MT(Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)
(i)	domestic sources	:	Plastic Waste: 173.705 MT (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 10066.540 MT(Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)
(ii)	imported (if applicable)	:	Nil
2	Quantity in stock at the beginning of the year	:	Plastic Waste: NIL (Common for Unit-I & II) Chemical Gypsum: NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 55.620 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)
3	Quantity recycled or co-processed or used	:	Plastic Waste: NIL (Unit-I) Chemical Gypsum: NIL (Unit-I) Waste Mix Liquid & Solid: NIL(Unit-I) Agro Waste: NIL (Unit-I) & 8382.86 MT (CPP-I & II) Iron Sludge: NIL (Unit-I)
4	Quantity of products dispatched (wherever applicable)	:	N.A.
5	Quantity of waste generated	:	N.A.
6	Quantity of waste disposed	:	N.A.

7	Quantity re-exported (wherever applicable)	:	N.A.
8	Quantity in storage at the end of the year	:	Plastic Waste: NIL (Common for Unit-I & II) Chemical Gypsum: NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 414.05 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)

Date: **21.05.2024**
Place: **Morak**

Signature of the Occupier or
Operator of the disposal facility

BK BIRLA GROUP OF COMPANIES

MANGALAM CEMENT LTD.

MANGALAM CEMENT LTD.

Redg. A/D

MCL / Haz./E-11(II)/2024-2025/225 21.05.2024

Environmental Engineer & GIC, (CPP)
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri, JAIPUR (Raj)

Sub: Submission of Annual Return under the Hazardous & Other Wastes (M&TM) Rules, 2016 & its amendments for M/s Mangalam Cement Ltd., (Unit-II), Morak, Dist: Kota, (Raj)

Ref: 1.Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/54 dt. 29.01.2021
2. Hazardous Waste Authorization No. RPCB/HSM/2022.2023/CPM/HSW/1 dt. 11.04.2022
3. Hazardous Waste Authorization No. RPCB/HWM/2022-2023/CPM/HSW/4 dt. 19.04.2022
4. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/46 dt. 19.01.2021
5. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/43 dt. 18.01.2021
6. Hazardous Waste Authorization No. RPCB/HWM/2022-2023/CPM/HSW/27 dt. 02.01.2023

Dear Ma'am,

In connection to the above mentioned subject & referred authorizations, we are submitting herewith Annual Return for the FY 2023-2024 in prescribed Form-IV under the Hazardous & Other Wastes (Management & Transboundary Movement) Rule, 2016 & its amendments for M/s Mangalam Cement Limited (Unit-II), P.O. Aditya Nagar, Vill: Morak, Tehsil: Ramganj Mandi, Dist: Kota (Raj).

This is for your information & record please. Kindly acknowledge the receipt.

Thanking you,

Yours faithfully

For Mangalam Cement Ltd. (Unit – II)

P. R. Chaudhary
Sr. Jt. President (operation) & FM

Encl: a/a

Cc to: - The Regional Officer
Rajasthan Pollution Control Board
Plot No. Spl. 2A, Paryavaran Marg
Road No. 6, Indraprastha Indl. Area
Kota – 324005

Regd. Office & Works : P.O. Aditya Nagar-326520, Morak, Distt. Kota (Raj.) CIN : L26943RJ1976PLC001705, Telefax : 07459 - 232156
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Delhi Office : 153, Leela Building (GF), Okhla Indl. Estate, Phase-III, New Delhi - 110020
Tel. No. : 011- 43539132, 43539133, 43539137 Fax : 011- 23421768
E-mail : delhi.purchase@mangalamcement.com, delhi.marketing@mangalamcement.com
Jaipur Office : 2nd Floor, Geejgarh Tower, Hawa-Sarak, Jaipur - 302 006 (Rajasthan)
Tel. : 0141 - 2218933, 2218931, E-mail : jaipur.marketing@mangalamcement.com

FORM 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

1.	Name and address of facility	:	**M/S Mangalam Cement Ltd. (Unit-II),** P.O. Aditya Nagar, Village: Morak, Tehsil: Ramganj Mandi, Dist: Kota Pin code: 326520 (Rajasthan)
2.	Authorization No. and Date of issue	:	**RPCB/HWM/2020-2021/CPM/HSW/54 dt. 29.01.2021** **RPCB/HSM/2022-2023/CPM/HSW/1 dt. 11.04.2022** **RPCB/HWM/2022-2023/CPM/HSW/4 dt. 19.04.2022** **RPCB/HWM/2020-2021/CPM/HSW/46 dt. 19.01.2021** **RPCB/HWM/2020-2021/CPM/HSW/43 dt. 18.01.2021** **RPCB/HWM/2022-2023/CPM/HSW/27 dt. 02.01.2023**
3.	Name of the authorised person and full address with telephone, fax number and e-mail	:	**P. R. Chaudhary** **Sr. Jt. President (Operation)& FM** **Mangalam Cement Ltd.** **Mob. No. 07230003274** **E-Mail Id. :pr.chaudhary@mangalamcement.com**
4	Production during the year (product wise), wherever applicable	:	**Year 2023-2024** Clinker : 1258103 .00 MT Cement: 890392.833 MT
Part A. To be filled by hazardous waste generators			
1	Total quantity of waste generated category wise	:	**Quantity Generated during FY 2023-2024** Used Oil: 11400 Ltr. (Sch.-I, Category 5.1) Oil Soaked Cotton: NIL (Sch-I, Category 5.2) Waste/ Residue Containing Oil: NIL (Sch-I, Category 5.2)
2	Quantity dispatched	:	
(i)	to disposal facility	:	Nil
(ii)	to recycler or co-processors or pre-processor	:	**11400 Ltr. (Sold to Authorized Recycler)** **M/S Bharat Industrial Oil Co. (BIOC)** S-758 (1), Road No. 9F1 Vishwakarma Industrial Area, Jaipur- 302013

Hazardous Waste Type	**Quantity of Hazardous Waste (Ltr)**	**Date of Manifest**	**Mode of Disposal**
Used Oil Cat: 5.1	6600	12.12.2023	Sold to Authorized Recycler i.e. M/s BIOC, Jaipur
Used Oil Cat: 5.1	4800	20.03.2024	

(iii)	Others	:	Nil
3	Quantity utilized in-house, if any	:	Nil
4	Quantity in storage at the end of the year		Nil

Part B. To be filled by Treatment, storage and disposal facility operators			
1	Total quantity received	:	N.A.
	Quantity in stock at the beginning of the year	:	N.A
	Quantity treated	:	N.A.
	Quantity disposed in landfills as such and after treatment	:	N.A.
	Quantity incinerated (if applicable)	:	N.A.
	Quantity processed other than specified above	:	N.A.
	Quantity in storage at the end of the year	:	N.A.
Part C. To be filled by recyclers or co-processors or other users			
1	Quantity of waste received during the year	:	Plastic Waste: 173.705 MT (Common for Unit-I & II) Chemical Gypsum: NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 10066.540 MT (Common for Unit-I, II, CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment: NIL
(i)	domestic sources	:	Plastic Waste: 173.705 MT (Common for Unit-I & II) Chemical Gypsum: NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 10066.540 MT (Common for Unit-I, II, CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment: NIL
(ii)	imported (if applicable)	:	Nil
2	Quantity in stock at the beginning of the year	:	Plastic Waste: NIL (Common for Unit-I & II) Chemical Gypsum: NIL(Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL(Common for Unit-I & II) Agro Waste: 55.620 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment : NIL
3	Quantity recycled or co-processed or used	:	Plastic Waste: 173.705 (Unit-II) Chemical Gypsum: NIL (Unit-II) Waste Mix Liquid & Solid: NIL(Unit-II) Agro Waste: 1325.25 (Unit-II) Iron Sludge: NIL (Unit-II) Chemical Sludge from waste water treatment : NIL
4	Quantity of products dispatched (wherever applicable)	:	N.A.
5	Quantity of waste generated	:	N.A.
6	Quantity of waste disposed	:	N.A.

7	Quantity re-exported (wherever applicable)	:	N.A.
8	Quantity in storage at the end of the year	:	Plastic Waste: NIL (Common for Unit-I & II) Chemical Gypsum: NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: NIL (Common for Unit-I & II) Agro Waste: 414.05 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment : NIL

Date: **21.05.2024**
Place: **Morak**

Signature of the Occupier or
Operator of the disposal facility

BK BIRLA GROUP OF COMPANIES

MANGALAM CEMENT LTD.

MANGALAM CEMENT LTD.

Redg. A/D

MCL / Haz./E-11(II)/2024-2025/ 223 21.05.2024

Environmental Engineer & GIC, (CPP)
Rajasthan Pollution Control Board,
4, Institutional Area,
Jhalana Doongri, JAIPUR (Raj)

Sub: Submission of Annual Return under the Hazardous & Other Wastes (M&TM) Rules, 2016 & its amendment for M/s Mangalam Cement Ltd., (Unit-III), Morak, Dist: Kota, (Raj)

Ref: 1. Hazardous Waste Authorization No. RPCB/HWM/2020-2021/CPM/HSW/70 dt. 12.02.2021
2. Hazardous Waste Authorization No. RPCB/HWM/2022-2023/CPM/HSW/2 dt. 11.04.2022.

Dear Ma'am,

In connection to the above mentioned subject & referred authorizations, we are submitting herewith Annual Return for the FY 2023-2024 in prescribed Form-IV under the Hazardous & Other Wastes (Management & Transboundary Movement) Rule, 2016 & its amendments for M/s Mangalam Cement Limited (Unit-III), P.O. Aditya Nagar, Vill: Morak, Tehsil: Ramganj Mandi, Dist: Kota (Raj).

This is for your information & record please. Kindly acknowledge the receipt.

Thanking you,

Yours faithfully

For Mangalam Cement Ltd. (Unit – III)

P. R. Chaudhary
Sr. Jt. President (Operation) & FM

Encl: a/a

Cc to: - The Regional Officer
Rajasthan Pollution Control Board
Plot No. Spl. 2A, Paryavaran Marg
Road No. 6, Indraprastha Indl. Area
Kota – 324005

Regd. Office & Works : P.O. Aditya Nagar-326520, Morak, Distt. Kota (Raj.) CIN : L26943RJ1976PLC001705, Telefax : 07459 - 232156
Website : www.mangalamcement.com, E-mail : email@mangalamcement.com
Kota Office : Shop No. 20, 80 Feet Road, Opp. Sukhdham Colony, (Near SBI Bank) Kota - 324001 (Rajasthan)
Delhi Office : 153, Leela Building (GF), Okhla Indl. Estate, Phase-III, New Delhi - 110020
Tel. No. : 011- 43539132, 43539133, 43539137 Fax : 011- 23421768
E-mail : delhi.purchase@mangalamcement.com, delhi.marketing@mangalamcement.com
Jaipur Office : 2nd Floor, Geejgarh Tower, Hawa-Sarak, Jaipur - 302 006 (Rajasthan)
Tel. : 0141 - 2218933, 2218931, E-mail : jaipur.marketing@mangalamcement.com

FORM 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March]

1.	Name and address of facility	:	**M/S Mangalam Cement Ltd. (Unit-III),** P.O. Aditya Nagar, Village: Morak, Tehsil: Ramganj Mandi, Dist: Kota Pin code: 326520 (Rajasthan)
2.	Authorization No. and Date of issue	:	RPCB/HWM/2020-2021/CPM/HSW/70 dt. 12.02.2021 RPCB/HWM/2022-2023/CPM/HSW/2 dt. 11.04.2022.
3.	Name of the authorised person and full address with telephone, fax number and e-mail	:	**P. R. Chaudhary** **Sr. Jt. President (Operation) & FM** **Mangalam Cement Ltd.** **Mob. No. 07230003274** **E-Mail Id. :pr.chaudhary@mangalamcement.com**
4	Production during the year (product wise), wherever applicable	:	**Year 2023-2024** Cement: 1166781.035 MT
Part A. To be filled by hazardous waste generators			
1	Total quantity of waste generated category wise	:	**Quantity generated during FY 2023-2024** Used Oil : NIL (Sch.-I, Category 5.1) Oil Soaked Cotton: NIL (Sch-I, Category 5.2) Waste/ Residue Containing Oil: NIL (Sch-I, Category 5.2)
2	Quantity dispatched	:	
(i)	to disposal facility	:	Nil
(ii)	to recycler or co-processors or pre-processor	:	**Hazardous Waste Type** / **Quantity of Hazardous Waste (Ltr)** / **Date of Manifest** / **Mode of Disposal** Used Oil Cat: 5.1 / NIL / NIL / NIL
(iii)	Others	:	Nil
3	Quantity utilized in-house, if any	:	Nil
4	Quantity in storage at the end of the year		Nil

Part B. To be filled by Treatment, storage and disposal facility operators			
1	Total quantity received	:	N.A.
	Quantity in stock at the beginning of the year	:	N.A
	Quantity treated	:	N.A.
	Quantity disposed in landfills as such and after treatment	:	N.A.
	Quantity incinerated (if applicable)	:	N.A.
	Quantity processed other than specified above	:	N.A.
	Quantity in storage at the end of the year	:	N.A.
Part C. To be filled by recyclers or co-processors or other users			
1	Quantity of waste received during the year	:	Chemical Gypsum : NIL Waste Mix Liquid & Solid: NIL
(i)	domestic sources	:	Nil
(ii)	imported (if applicable)	:	Nil
2	Quantity in stock at the beginning of the year	:	Chemical Gypsum : NIL Waste Mix Liquid & Solid: NIL
3	Quantity recycled or co-processed or used	:	Chemical Gypsum : NIL Waste Mix Liquid & Solid: NIL
4	Quantity of products dispatched (wherever applicable)	:	N.A.
5	Quantity of waste generated	:	N.A.
6	Quantity of waste disposed	:	N.A.
7	Quantity re-exported (wherever applicable)	:	N.A.
8	Quantity in storage at the end of the year	:	Chemical Gypsum : NIL Waste Mix Liquid & Solid: NIL

Date: **21.05.2024**
Place: **Morak**

Signature of the Occupier or
Operator of the disposal facility

Annexure-V

Mangalam Cement Ltd. Morak (Unit-I, II & III)

Year Wise Tree Plantation

Sr. No.	Year	Plant Names	Numbers	Survival Rate	Location	Area (hector)	
						Total Plant Area	Total 33 % Plantation area to be developed
1	08-09	Neem, Karanj, Sheesam, Sirus, Bad, Peepal, Palash, Khejri, Chareel, Mango, Jamphaletc	20000	70%	Plant & Colony	167	55.11
2	09-10		22000	70%	Plant & Colony	167	55.11
3	10-11		16000	70%	Plant & Colony	167	55.11
4	11-12		18000	70%	Plant & Colony	167	55.11
5	12-13		10700	70%	Plant & Colony	167	55.11
6	13-14		16607	70%	Plant & Colony	167	55.11
7	14-15		10238	70%	Plant & Colony	167	55.11
8	15-16		3788	70%	Plant & Colony	167	55.11
9	16-17		4044	70%	Plant & Colony	167	55.11
10	17-18		3923	70%	Plant & Colony	167	55.11
11	18-19		2231	70%	Plant & Colony	167	55.11
12	19-20		3153	70%	Plant & Colony	167	55.11
13	20-21		470	70%	Plant & Colony	167	55.11
14	21-22		510	70%	Plant & Colony	167	55.11
15	22-23		496	70%	Plant & Colony	167	55.11
16	23-24		567	70%	Plant & Colony	167	55.11
17	April 24 to Sept. 24		375	70%	Plant & Colony	167	55.11

Annexure-VI

MANGALAM CEMENT LIMITED

CSR Expenditure for the period from April 2024 to Sept. 2024		
S.No.	**Particulars of CSR Activities**	**AMOUNT (in Rs.)**
1.	Total CSR Expenditure	**1452574.00**

Date:- 23/10/2024

Period from April 2024 to Sept. 2024, Health activities conducted by OHC are as following....

1. Periodical health checks up.

Periodical health Examination & general medical & health Examination of workers & Staff done to detect occupational and aging diseases Result of periodical health examinations (twice in a year) are as follows...

2. Periodical health examination & general medical & health examination of 323 Staff & 358 workers & 380 contractor workers was done period from April 2024 to Sept. 2024 **(twice in a year)**. Some Staff/workers were suffering from hypertension, Cardiac disease & refractive errors, rheumatoid arthritis respectively.

Hypertensive patients were investigated, treated and Cardiac patients referred to cardiologist, refractive errors were referred to ophthalmologist and suffering from skin disorder were treated and instructed to use PPE regularly.

3-Health knowledge of workers are improved through health talks on various topics like health and hygiene, Diarrhoea & vomiting, hypertension, diabetes, heart disease, obesity, nutrition, dog bite, snake bite, heat stroke etc.

4-Follow up action of diseased/affected workers is done & remedial measure taken.

Medical Superintendent

OHC