BK BIRLA GROUP OF COMPANIES

MANGALAM CEMENT LTD.

MANGALAM CEMENT LTD.

Regd. A/D

MCL/Env.- 6(VII)/2025-2026/ 2518 **Date: 20.11.2025**

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

Sub.: Half Yearly Compliance Report of Environmental Clearance conditions 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) of **M/s Mangalam Cement Ltd.,** situated at P.O. Aditya Nagar, Village Morak, tehsil Ramganj Mandi, District Kota – 326520 Rajasthan for the **Period from Apr-2025 to Sep-2025 (FY 2025-26).**

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

Dear Sir,

With reference to the above subjected matter and referred EC letter dated 20.12.2016, in this regard. We are submitting herewith the point wise half yearly compliance report for the period from Apr-2025 to Sep-2025 of the conditions of environment clearance 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) issued to M/s Mangalam Cement Ltd., situated at P.O. Aditya Nagar, Village Morak, tehsil Ramganj Mandi, District Kota – 326520 Rajasthan.

Submitted for your kind information & records please.

Thanking You,
Yours Faithfully,
For Mangalam Cement Ltd.

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

Cc to:

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

Encl: as above

Regd. Office & Works : P.O. Aditya Nagar - 326520, Morak, Distt. Kota (Raj.) CIN : L26943RJ1976PLC001705, Telefax : 07459 - 232156
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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 2025 to September 2025	

S. No	Conditions	Compliance Status
A.	**SPECIFIC CONDITIONS:**	
i.	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.	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**.
ii	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.	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).**

Unit-I

Stack No.	Details of Stack	Emission (mg/Nm³)	
		Norms	Avg. Emission
1	Kiln Main Stack	30	16.30
		100	34.98
		800	365.87
2	Clinker Cooler Stack	30	21.50
3	Cement Mill Stack	30	17.65
4	Vertical Coal Mill Stack	30	14.45

Unit-II

Stack No.	Details of Stack	Emission (mg/Nm³)	
		Norms	Avg. Emission
1	Kiln Main Stack	30	17.05
		100	53.95
		800	580.10
2	Clinker Cooler Stack	30	19.23
3	Cement Mill Stack	30	15.30
4	Coal Mill stack	30	18.85

Unit-III

Stack No.	Details of Stack	Emission (mg/Nm³)	
		Norms	Avg. Emission
1	Cement Mill Stack	30	15.15

<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>45.10</td></tr>
<tr><td>600</td><td>122.00</td></tr>
<tr><td>450</td><td>50.20</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>38.825</td></tr>
<tr><td>600</td><td>276.725</td></tr>
<tr><td>450</td><td>189.9</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>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>49.00</td><td>59.00</td><td>47.00</td><td>59.00</td></tr>
<tr><td>2</td><td>PM2.5</td><td>60</td><td>24.00</td><td>29.00</td><td>25.00</td><td>31.00</td></tr>
<tr><td>3</td><td>SO_2</td><td>80</td><td>7.82</td><td>8.51</td><td>6.33</td><td>7.71</td></tr>
<tr><td>4</td><td>NOx</td><td>80</td><td>11.47</td><td>13.00</td><td>10.25</td><td>10.83</td></tr>
<tr><td>5</td><td>CO</td><td>4000</td><td>360.00</td><td>365.00</td><td>310.00</td><td>335.00</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 2024-2025 is attached in Annexure – VII.</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-III.**
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 **134744 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- IV**.

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 2025 to September 2025** is attached in **Annexure-V.**
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	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.

	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.	
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, creche 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.
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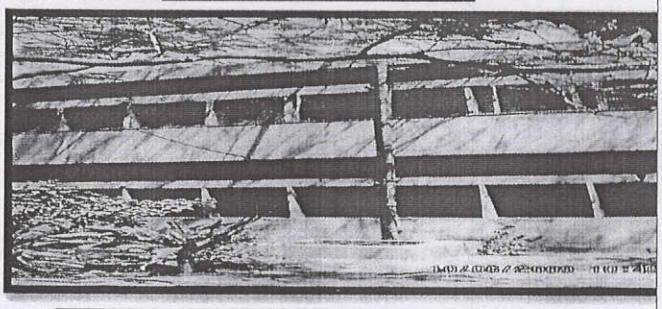
</table></td></tr>
<tr><td>iv</td><td>Industrial wastewater shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. The treated wastewater shall be utilized for plantation purpose.</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>60.4</td><td>51.2</td></tr>
<tr><td>2</td><td>Near Railway Gate</td><td>62.7</td><td>50.9</td></tr>
<tr><td>3</td><td>Near Rack Loading Area</td><td>62</td><td>45.3</td></tr>
<tr><td>4</td><td>Near Work Shop</td><td>61.7</td><td>51.4</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 – VI.</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 2025 to September 2025 is attached in Annexure-V.</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 2025 to September 2025 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 2025 to September 2025 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>105,279,767.85</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.

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of April 2025

(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
01/04/2025	19.28	584.3	14.12	22.05	16.83	19.61	20.81	0	77.47	22.8	16.07	17.29	0.17	1.62	1.77	0	263.6	357.83	39.67
02/04/2025	17.75	571.53	19.23	19.65	8.7	10.28	18.74	312.48	65.5	20.73	7.71	15.65	0.19	1.62	3.09	0	246.12	294.22	37.58
03/04/2025	19.69	473.94	18.56	18.08	5.95	6.73	18.84	366.19	44.27	20.87	0.02	14.27	2.83	1.62	1.77	0	197.44	230.12	36.57
04/04/2025	20.14	538.36	4.31	18.47	17.35	7.92	18.83	429.7	31.74	20.83	13.26	14.52	12.09	1.62	1.77	0	219.16	251.62	38.27
05/04/2025	16.54	500.3	3.42	19.13	16.77	9.27	18.93	342.91	32.36	20.91	15.65	14.21	12.15	1.62	1.77	0	222.89	272.16	38.82
06/04/2025	17.77	542.9	3.32	19.12	17.38	7.71	18.91	281.64	14.09	20.85	15.59	14.06	12.08	1.62	1.78	0	224.62	285.65	38
07/04/2025	17.33	474.85	4.47	19.95	17.38	10.32	18.8	277.64	5.21	20.78	4.25	14.85	11.89	1.64	1.79	0	227.18	255.47	34.59
08/04/2025	16.68	390.74	14.7	21.03	17.21	10.05	18.82	326.25	8.34	20.79	8.38	16.76	12.48	1.65	1.81	0	233.65	295.99	35.28
09/04/2025	17.61	699.1	37	20.01	6.85	10.24	18.81	416.35	8.4	20.79	11.37	10.46	11.41	1.66	1.83	0	234.69	256.35	35.73
10/04/2025	16.08	691.8	36.08	19.39	6.35	9.39	18.83	306.31	12.64	20.8	15.44	10.66	11.64	1.68	1.85	0	237.2	242.78	35.45
11/04/2025	16.59	699.08	24.89	22.61	16.99	0.01	17.26	505.88	19.42	19.25	13.89	16.91	10.29	1.62	1.77	0	287.64	250.24	39.11
12/04/2025	17.8	674.79	55.12	19.22	15.95	9.21	18.83	407.81	31.59	20.84	15.55	17.31	11.07	2.96	3.69	0	232.9	245.74	36.46
13/04/2025	18.96	623.52	38.94	18.59	15.62	10.41	18.73	401.42	42.97	20.74	4.45	17.38	12.38	1.65	1.83	0	222.68	270.93	33.74
14/04/2025	19.86	631.01	16.48	18.69	17.37	9.18	18.83	415.15	47.04	20.82	0.02	16.1	12.44	1.64	1.8	0	229.19	244.08	32.15
15/04/2025	19.34	306.79	25.5	18.3	17.26	4.53	18.79	337.84	27.87	20.8	1.79	16.24	12.31	1.67	1.84	0	239.75	258.96	33.15
16/04/2025	20.44	617.21	25.82	19.26	10.62	9.58	18.77	46.12	10.72	20.73	15.29	17.12	11.62	1.67	1.84	0	235.8	277	33.95
17/04/2025	19.06	553.81	44.31	18.61	4.55	9.06	18.79	271.22	17.11	20.75	15.42	16.73	12.33	33.4	31	9.46	234.44	253.99	33.26
18/04/2025	18.57	579.99	54.21	19.54	15.65	9.85	18.79	381.81	27.44	20.83	15.12	16.57	9.88	302.49	340.87	29.72	124.57	152.29	21.65
19/04/2025	18.77	628.75	49.37	20.39	16.09	9.15	18.74	378.52	55.84	20.74	14.19	16.65	11.26	358.4	411.55	31.87	1.05	1.35	0.11
20/04/2025	19.04	586.35	16.47	20.88	0.05	10.24	18.79	346.13	42.68	20.81	15.48	15.81	11.73	295.17	357.82	30.35	1.05	1.34	0.1
21/04/2025	22.03	768.73	15.06	18.57	15.55	16.7	21.12	383.95	6.44	23.11	0.02	16.63	13.29	385.28	449	31.94	1.06	1.28	0.1
22/04/2025	18.93	656.48	16.46	19.33	17.3	9.84	18.77	339.03	4.47	20.75	10.83	15.11	12.04	344.11	412.27	33.24	1.04	1.31	0.1
23/04/2025	18.8	594.92	16.37	20.42	4.6	8.83	18.84	355.61	4.55	20.83	7.36	15.39	12.4	348.14	419.12	30.85	1.01	1.28	0.1
24/04/2025	19.4	607.26	16.38	19.59	8.64	9.53	18.83	396.98	4.68	20.85	4.72	15.57	5.42	280.93	348.7	29.83	0.99	1.28	0.1
25/04/2025	19.24	629.77	16.42	19.4	15.23	9.16	18.76	373.3	4.59	20.74	14.61	14.93	10.94	288.22	383.63	35.8	0.99	1.28	0.09
26/04/2025	19.58	585.01	40	19.95	4.57	9.42	18.83	459.49	17.71	20.83	14.61	17.33	12.22	326.34	398.47	40.45	3.55	5.76	0.1
27/04/2025	20.41	546.89	52.94	19.52	12.55	9.98	18.78	484.73	29.52	20.77	14.55	15.23	12.4	347.93	416.72	38.5	1.04	1.3	0.1
28/04/2025	20	529.53	47.5	19.55	13.03	10.34	19.06	433.62	29.29	21.07	8.75	16.22	10.2	349.02	412.96	35.42	1.05	1.3	0.09
29/04/2025	18.15	531.13	25.2	19.28	0.05	8.98	18.8	531.88	28.68	20.78	3.3	15.01	12.05	338.08	389.65	38.65	1.04	1.31	0.1
30/04/2025	20.78	443.29	25.87	19.4	16.75	10.74	18.73	307.58	37.15	20.71	14.83	14.28	11.76	364.48	403.45	36.56	1.06	1.33	0.1

Day Average Report of Continuous Emission Monitoring System for the Month of May 2025

(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
01/05/2025	24.58	537.91	25.27	20.45	19.33	16.53	18.77	35.06	32.41	18.86	14.03	0.03	12.64	118.3	140.5	36.42	1.06	1.38	0.1
02/05/2025	18.96	555.4	19.63	19.07	10.36	9.83	18.81	254.01	29.6	20.81	12.9	11.06	11.88	298.21	335.19	37.2	1.05	1.31	0.09
03/05/2025	21.45	530.1	46.75	18.59	2.43	9.56	18.91	379.57	26.45	20.88	14.57	14.2	9.51	317.94	341.65	38.41	1.06	1.33	0.09
04/05/2025	20.04	491.87	56.62	17.95	16.75	10.5	18.76	528.22	38.85	20.71	14.01	10.79	12.07	269.03	232.36	38.66	1.06	1.35	0.1
05/05/2025	19.9	438.37	53.65	17.16	10.41	10.16	18.83	404.75	49.91	20.84	14.87	12.31	10.62	237.05	164.21	38.08	1.06	1.32	0.1
06/05/2025	17.61	442.06	54.88	16.24	4.24	9.35	18.71	527.47	48.44	20.76	15.14	15.86	11.51	207.72	108.45	38.2	1	1.28	0.1
07/05/2025	18.47	439.32	49.39	16.58	4.63	9.23	18.67	526.23	49.6	20.61	13.64	16.39	12.52	219.06	96.46	39.76	0.97	1.28	0.09
08/05/2025	19.42	490.45	34.62	17.46	14.85	10.88	18.81	508.6	44.67	20.75	14.64	16.18	11.44	229.14	127.1	40.86	0.99	1.28	0.09
09/05/2025	19.44	539.37	40.07	17.75	12.2	9.3	18.88	489.33	44.31	20.83	6.59	13.49	8.56	217.05	120.68	39.87	0.99	1.28	0.1
10/05/2025	19.8	273.89	36.37	16.59	9.03	5.45	18.77	384.29	46.96	20.83	9.71	14.91	10.86	204.16	164.25	41.41	3.95	5.61	0.1
11/05/2025	16.37	641.27	27.12	18.61	0.06	15.41	18.38	511.56	30.9	20.37	15.42	18.17	8.94	98.56	123.5	29.91	0.99	1.28	0.1
12/05/2025	17.58	577.43	27.68	17.96	6.45	9.34	19	524.37	31.45	20.92	15.49	15.57	11.5	173.32	269.07	40.95	0.98	1.28	0.1
13/05/2025	19.8	635.21	28.1	17.05	17.07	8.45	18.77	520.26	40.01	20.79	15.57	13.51	10.8	186.08	240.81	40.59	0.95	1.28	0.1
14/05/2025	18.54	572.16	44.06	18.58	17.33	8.73	18.9	582.93	38.25	20.88	12.73	14.54	10.34	299.94	416.43	39	0.95	1.28	0.1
15/05/2025	19.12	611.22	42.41	18.2	17.31	8.74	18.77	590.93	36.5	20.78	15.55	14.2	7.95	322.84	398.28	39.29	0.99	1.29	0.1
16/05/2025	17.32	521.69	43.8	18.39	10.49	8.06	18.84	591.47	28.43	20.84	8.83	15.13	8.64	315.27	374.81	35.95	1.01	1.32	0.1
17/05/2025	15.31	563.68	41.04	19.73	2.41	9.42	18.87	602.72	38.52	20.88	14.57	16.99	10.79	315.59	390.89	39.61	1.05	1.37	0.1
18/05/2025	16.55	577.86	41.44	19.41	14.28	7.94	18.75	604.99	31.61	20.74	12.9	15.28	10.35	316.02	393.07	41.37	1.06	1.38	0.1
19/05/2025	18.48	603.11	45.61	19.61	16.47	6.3	18.89	590.43	40.45	20.84	15.61	14.37	10.94	311.81	379.94	42.61	1.06	1.38	0.1
20/05/2025	18.77	381.43	33.45	18.73	16.96	8.52	18.74	555.01	32.09	20.76	15.65	13.26	10.12	318.23	354.17	42.66	1.06	1.38	0.1
21/05/2025	16.34	659.03	26.3	19	18.11	15.78	19.84	489.27	66.19	21.84	14.64	16.49	12.37	354.47	369.91	46.47	1.06	1.38	0.1
22/05/2025	16	617.05	26.33	19.06	16.59	7.4	18.86	445.53	53.72	20.88	15.65	13.42	11.01	335.25	367.09	44.01	1.08	1.41	0.1
23/05/2025	16.27	506.43	46.67	18.14	17.38	9.54	18.76	527.35	66.67	20.78	14.87	14.5	10.4	233.2	251.45	44.14	1.06	1.39	0.1
24/05/2025	17.31	579.87	63.31	18.62	15.92	10.51	18.76	543.64	57.79	20.78	14.86	14.45	10.47	52.27	100.68	44.49	2.88	4.05	0.1
25/05/2025	18.24	579.05	60.97	18.69	17.31	9.53	18.83	536.43	47.03	20.81	9.91	15.92	11	66.45	107.6	44.34	1.07	1.39	0.1
26/05/2025	18.34	584.87	58.75	19.13	16.79	9.39	18.76	548.05	44.06	20.77	15.61	17.46	11.53	57.88	105.32	44.87	1.06	1.38	0.1
27/05/2025	16.32	542.64	63.76	19.51	17.36	7.31	18.96	551.99	37.06	20.95	15.57	15.56	6.96	57.52	105.83	45.51	1.06	1.38	0.1
28/05/2025	15.27	469.61	63.31	19.15	15.49	10.06	18.83	554.33	40.31	20.8	15.2	16	0.19	64.1	102.81	45.15	1.06	1.38	0.1
29/05/2025	16.09	454.08	62.79	18.65	17.38	7.81	18.76	488.1	40.63	20.72	15.5	17.04	4.45	66.83	115.63	45.21	1.06	1.38	0.11
30/05/2025	15.93	506.81	60.84	17.45	17.31	9.04	18.78	500.39	41.09	20.75	15.55	14.69	10.82	62.09	118.32	42.99	1.06	1.38	0.1
31/05/2025	15.5	548.16	61.13	18.63	17.07	9.06	18.83	479.42	45.05	20.84	15.51	16.38	12.05	55.45	118.42	43.69	1.06	1.37	0.1

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of January 2025

(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
01/06/2025	19.07	631.12	68.87	17.53	15.73	0	17.24	570.75	36.83	19.23	0.02	17.33	11.53	77.62	152.68	43.33	1.06	1.38	0.1
02/06/2025	18.2	653.19	49.47	17.58	17.12	9.12	18.8	507.86	46.23	20.82	0.02	14.83	11.63	78.39	136.56	42.61	1.06	1.38	0.1
03/06/2025	18.54	593.62	49.2	17.96	17.09	8.18	18.55	504.14	48.26	20.5	9.39	14.91	11.29	77.42	116.9	43.86	1.06	1.37	0.1
04/06/2025	19.67	587.33	42.88	13.96	6.79	7.72	18.77	498.72	51.97	20.74	15.51	13.68	11.9	76.31	108.06	43.39	1.04	1.34	0.09
05/06/2025	17.28	518.39	46.96	16.89	17.32	8.09	18.86	406	54.26	20.83	12.74	15.28	12.52	55.17	103.83	44.13	0.99	1.28	0.1
06/06/2025	16.36	560.53	38.29	17.97	16.46	7.99	18.88	382.48	49.99	20.92	15.38	17.18	10.76	57.78	100.79	44.61	1.02	1.31	0.1
07/06/2025	15.65	523.35	44.79	18.97	16.6	7.41	18.82	347.55	44.2	20.8	15.49	15.98	8.53	69.17	111.19	44.56	1.06	1.35	0.09
08/06/2025	17	408.18	55.62	17.44	16.41	6.14	18.86	467.54	44.86	20.83	15	14.23	8.76	80.36	120.72	44.09	1.06	1.37	0.1
09/06/2025	15.57	561.29	63.17	17.53	15.85	8.14	18.81	632.67	42.96	20.79	15.53	16.68	9.48	94.44	131.6	43.57	1.06	1.38	0.1
10/06/2025	15.62	586.75	60.4	18.68	15.97	8.35	18.8	619.1	43.59	20.8	15.55	15.34	13.5	110.82	143.13	43.61	1.07	1.39	0.1
11/06/2025	20.94	356.17	69.97	15.24	15.4	0.01	22.51	629.65	53.46	23.49	14.06	16.37	13.17	54.5	44.21	36.05	1.13	1.38	0.1
12/06/2025	16.48	526.78	67.69	18.66	13.94	7.04	20.68	620.73	37.41	18.28	13.81	12.96	12.43	89.34	121.15	33.38	1.09	1.39	0.1
13/06/2025	16.43	540.37	60.92	14.3	15.05	10.32	17.47	564.42	37.08	15.42	16.33	10.14	15.25	54.54	86.04	31.72	1.09	1.41	0.11
14/06/2025	17.16	564.68	58.55	14.1	15.74	8.88	18.63	533.92	39.5	17.56	17.28	14.11	15.55	56	144.44	35.64	1.11	1.42	0.1
15/06/2025	16.5	512.59	53.52	12.99	6.9	10.02	20.61	564.4	50.92	17.59	13.02	15.2	15.52	56.87	113.59	36.63	1.09	1.4	0.1
16/06/2025	17.35	505.75	54.5	12.69	14.96	10.18	20.53	607.51	54.79	17.54	13.98	14.92	15.82	45.27	111.06	36.62	1.06	1.38	0.1
17/06/2025	18.24	461.7	53.36	12.76	16.44	8.07	20.58	626.81	50.29	17.57	11.86	13.65	15.76	49.11	77.05	38.39	1.06	1.37	0.1
18/06/2025	19.03	523.39	55.88	11.92	16.55	10.46	20.5	590.43	50.14	17.51	12.92	15.12	15.94	75.5	260.72	37.59	1.06	1.35	0.1
19/06/2025	19.34	534.12	56.62	11.29	16.79	8.5	20.57	624.78	52.57	17.59	14.27	14.71	15.95	119.44	164.88	37.47	1.06	1.38	0.1
20/06/2025	18.94	585.3	55.54	10.84	14.93	8.69	20.55	444.27	55.83	17.51	13.88	13.42	15.36	165.57	137.41	38.15	1.06	1.36	0.1
21/06/2025	19.01	325.15	62.62	9.33	16.49	0	19.62	577.28	59.28	16.62	15.35	16.99	15.9	179.85	174	36.52	1.06	1.28	0.1
22/06/2025	18.66	523.89	51.61	10.43	15.28	7.72	20.57	510.35	59.4	17.53	14.19	16.25	15.24	254.14	318.39	37.54	1.06	1.34	0.1
23/06/2025	18.37	506.38	55.17	11.66	14.5	7.8	20.57	367.58	44.28	17.57	14.28	15.58	15.16	271.98	327.17	37.86	1.06	1.35	0.1
24/06/2025	19.29	533.83	55.26	10.07	17.1	8	20.54	375.19	44.22	17.52	14.3	13.15	9.93	281.32	354.36	37.4	1.06	1.36	0.1
25/06/2025	18.09	517.82	52.15	11.37	17.35	7.64	20.6	427.74	40.54	17.57	5.31	14.12	0.23	267.79	318.81	34.92	1.06	1.36	0.1
26/06/2025	18.97	491.31	55.86	12.51	14.07	7.01	20.61	453.37	38.25	17.54	11.32	13.75	0.23	244.55	296.75	35.02	1.06	1.36	0.1
27/06/2025	17.66	502.03	51.45	13.15	16.72	8.14	20.53	474.3	34.81	17.55	13.24	15.54	0.2	383.7	496.18	36.03	164.56	229.27	0.1
28/06/2025	18.33	513.25	54.22	12.84	16.14	8.26	20.59	625.32	46.05	17.54	14.25	17.89	0.23	300.97	289.39	36.09	2.44	3.66	0.1
29/06/2025	18.03	541.3	72.39	16	16.56	8.86	20.52	638.26	63.24	17.55	14.25	19.31	8.1	317.35	157.98	37.04	0.99	1.31	0.1
30/06/2025	18.63	533.02	72.93	15.1	16.78	11.55	20.52	636.58	64.45	17.52	14.26	19.36	15.4	274.43	176.14	37.36	0.99	1.31	0.1

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of July 2025

(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
01/07/2025	19	534.95	26.27	14.13	17.42	16.55	22.24	260.75	65.09	19.23	14.09	23.17	17.18	306.82	230.59	34.21	0.99	1.38	0.11
02/07/2025	19.62	582.81	26.43	14.95	11.38	12.73	21.68	636.83	63.5	18.67	14.12	22.69	15.83	252.28	178.88	34.99	1	1.31	0.11
03/07/2025	20.24	560.49	26.85	12.35	11.45	9.89	20.57	503.7	39.38	17.58	0.05	17.89	10.73	243.54	168.71	34.76	1	1.28	0.1
04/07/2025	18.68	473.45	29.54	16.87	15.67	14.4	20.57	598.61	34.76	17.58	5.17	18.65	2.14	281.19	331.16	37.95	1	1.28	0.1
05/07/2025	18.1	525.53	29.52	15.54	17.03	12.19	20.6	617.9	39.31	17.61	14.16	20.85	2.55	269.96	341.02	39.21	1	1.28	0.1
06/07/2025	18.97	522.75	29.59	13.73	17.4	9.09	20.57	581.7	41.46	17.57	4.32	19.77	7.79	266.86	348.41	38.66	0.99	1.28	0.1
07/07/2025	16.99	577.6	29.56	17.08	16.27	11.77	20.57	605.3	35.34	17.58	11.85	19.51	11.39	265.99	344.96	38.77	1	1.28	0.1
08/07/2025	19.27	536.68	29.49	17.35	17.23	9.47	20.59	586.71	33.24	17.56	14.28	20.3	12.67	202.62	266.07	30.86	106.07	163.23	21.09
09/07/2025	18.06	605.69	29.53	16.95	17.35	12.29	20.66	561.11	34.09	17.66	13.2	19.37	10.68	1.72	1.85	0	278	428.32	33.12
10/07/2025	17.24	592.06	29.54	16.7	17.44	12.33	20.61	555.99	33.77	17.62	14	19.56	13.15	1.76	1.88	0	275.88	388.13	33.39
11/07/2025	18.03	595.3	29.9	16.89	16.98	0	19.58	684.44	27.46	16.57	0.03	22.25	14.39	1.83	1.97	0	351.23	559.14	35.61
12/07/2025	17.39	614.73	30.97	16.28	17	13.74	20.59	593.81	33.2	17.56	13.77	20.22	16.06	2.63	16.09	0	232.28	147.99	34.55
13/07/2025	17.51	599.47	29.49	15.68	17.28	11.54	20.57	572.49	29.82	17.6	9.22	22.58	15.84	1.76	62.88	0	22.21	1.38	33.39
14/07/2025	18.51	597.54	29.61	14.42	17.09	13.05	20.67	562.25	32.85	17.76	0.02	20.57	15.76	1.76	62.88	0	22.21	1.38	35.17
15/07/2025	21.22	269.98	29.94	14	17.19	7.29	20.61	533.05	36.9	17.58	3.13	19.31	9.39	1.76	62.88	0	22.21	1.38	36.19
16/07/2025	17.14	3.77	29.02	7.26	16.22	0	20.62	550.92	33.94	17.6	2.9	19.04	12.27	1.73	51.96	0	46.78	35.22	32.72
17/07/2025	17.31	188.58	29.36	8.57	16.4	7.01	20.59	609.4	21.35	17.56	13.04	17.37	12.6	1.62	1.76	0	159.11	213.9	35.56
18/07/2025	19.95	564.28	29.54	14.13	17.3	12.17	20.5	592.56	20.96	17.5	14.21	20.39	11.55	1.62	1.72	0	199.28	365.12	36
19/07/2025	20.65	468.76	29.55	13.2	15.87	11.05	20.56	502.29	34.76	17.5	14.3	20.12	13.62	1.61	1.67	0	260.67	404.27	35.84
20/07/2025	20.08	556.42	29.51	15.17	6.85	9.98	20.7	503.8	45.91	17.68	14.19	18.76	15.18	1.59	1.67	0	255.32	361.7	36.24
21/07/2025	19.46	654.66	27.49	13.79	17.85	0	21.43	539.8	31.77	18.42	12.75	22.6	14.84	1.62	1.77	0	327.54	428.96	36.94
22/07/2025	16.79	573.51	29.55	16.94	17.36	8.86	20.61	510.1	18.93	17.59	14.23	21.35	13.57	1.62	1.77	0	214.7	321.1	38.26
23/07/2025	18.87	463.49	29.48	16.57	17.38	6.65	20.59	570.08	16.69	17.57	14.07	20.39	15.94	1.62	1.77	0	145.66	218.96	38.03
24/07/2025	19.32	587.41	29.63	13.89	14.82	8.47	20.55	456.83	53.72	17.53	4.8	21.99	15.77	1.62	1.77	0	157.77	215.93	36.21
25/07/2025	18.37	570.99	29.54	14.61	16.32	9.33	20.59	362.25	57.04	17.6	2.34	20.64	5.43	1.62	1.72	0	211.15	251.64	31.7
26/07/2025	17.47	551.62	29.2	16.78	17.46	10.18	20.56	200.65	43.79	17.57	10.71	11.78	11	2.97	3.57	0	194.94	274.41	32.77
27/07/2025	19.29	538.47	27.8	14.82	17.29	8.02	19.44	11.88	33.12	16.05	14.23	2.25	16.43	1.62	1.75	0	164.01	333.78	32.39
28/07/2025	20.35	564.55	29.41	11.96	3.18	10.13	20.57	146.64	58.84	17.56	12.49	20.9	15.79	1.62	1.69	0	134.23	281.44	32.02
29/07/2025	19.64	463.95	29.56	13.5	10.06	9.48	20.5	130.27	56.8	17.45	13.74	21.99	15.54	1.62	1.68	0	143.01	263.9	32.58
30/07/2025	20.27	285.71	28.54	15.08	17.29	8.92	20.58	128.27	50.79	17.52	8.31	20.08	8.19	1.61	1.67	0	170.34	275.99	32.91
31/07/2025	20.54	455.12	14.51	13.53	8.84	8.27	20.6	363.32	25.86	17.55	13.47	20.81	3.31	1.6	1.68	0	160.51	250.05	32.02

Mangalam Cement ltd. Morak , Kota (Rajasthan)

Day Average Report of Continuous Emission Monitoring System for the Month of August 2025

(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	SO 2	P M	Nox	SO2	PM
01/08/2025	21.75	399.59	17.98	14.21	16.94	0	21.35	624.4	30.67	15.13	16.17	21.98	16.31	1.62	1.67	0	171.46	246.61	32.63
02/08/2025	18.91	484.83	16.3	15.96	17.37	9.34	20.57	568.53	22.15	17.56	6.62	21.72	6.21	1.62	1.68	0	165.47	232.45	32.37
03/08/2025	18.1	547.53	15.87	15.85	16.3	9.62	20.57	586.8	17.47	17.58	14.28	20.4	7.54	1.58	1.69	0	164.16	236.78	34.17
04/08/2025	19.55	612.47	15.95	16.73	17.33	9.49	20.63	599.08	10.43	17.63	14.26	20.35	15.64	1.62	1.73	0	161.87	238.52	34.93
05/08/2025	19.95	625.98	16.04	15.22	11.4	9.93	20.59	515.05	13.34	17.56	14.26	17.96	16.11	1.65	1.79	0	173.3	254.92	34.54
06/08/2025	17.27	581.61	16.47	14.69	17.36	8.03	20.47	431.58	35.61	17.49	9.43	21.8	10.4	1.66	1.81	0	190.84	282.34	34.33
07/08/2025	18.01	602.02	16.84	15.85	17.23	7.25	20.6	477.42	40.43	17.59	1.93	18.28	13.84	1.62	1.77	0	185.27	256.84	34.01
08/08/2025	16.59	574.06	16.98	15.69	7.66	10.61	20.59	438.08	39.36	17.57	8.25	22	13.69	1.62	1.93	0	201.69	264.28	33.55
09/08/2025	16.48	579.3	28.54	15.28	15.38	9.25	20.63	446.91	44.44	17.63	10.8	22.06	15.44	3.06	3.96	0	169.83	235.54	34.42
10/08/2025	15.78	536.97	52.9	15.21	17.35	9.58	20.52	464.37	51.2	17.52	8.15	19.69	15.95	1.62	1.76	0	144.81	218.01	34.25
11/08/2025	15.7	501.82	55.51	13.02	0.06	16.69	19.13	421.57	55.9	16.12	0.02	22.75	0.26	1.62	1.77	0	106.24	207.5	28.98
12/08/2025	15.45	532.46	41.27	15.48	5.92	10.05	20.58	522.63	52.05	17.61	0.02	19.39	15.08	1.62	1.74	0	128.54	203.61	35.17
13/08/2025	15.49	518.99	26.58	15.88	0.07	10.92	20.55	497.42	51.21	17.56	0.66	20.51	15.42	1.62	1.74	0	110.12	205.27	32.95
14/08/2025	15.86	567.95	26.65	15.97	15.73	8.95	20.58	558.68	43.85	17.58	14.31	17.06	15.14	1.62	1.77	0	140.45	227.11	38.13
15/08/2025	16.7	569.73	27.81	14.33	9.08	10.57	20.59	539.72	39.39	17.57	13.03	18.54	4.91	1.62	1.76	0	124.86	221.38	34.17
16/08/2025	16.43	519.38	28.12	15.75	14.28	9.18	20.59	494.8	35.66	17.59	13.85	19.49	13.59	1.62	1.75	0	150.46	230.04	34.39
17/08/2025	15.9	554.65	28.78	15.39	6.76	7.38	20.58	477.25	40.35	17.54	5.13	20.27	16.14	1.62	1.77	0	147.82	225.18	33.61
18/08/2025	16.84	552.82	31.59	14.89	0.1	9.79	20.59	448.39	38.92	17.54	0.02	18.79	10.6	1.62	1.77	0	113.87	233.94	32.96
19/08/2025	16.04	580.94	29.93	15.52	16.14	9.41	20.48	439.79	48.57	17.47	9.65	18.38	16.37	1.62	1.77	0	146.1	220.3	36.3
20/08/2025	17.71	645.24	30.29	15.18	17.29	8.32	20.55	507.8	64.1	17.57	14.27	20.05	15.85	1.62	1.77	0	144.93	207.61	34.65
21/08/2025	17.5	623.22	29.1	13.21	0.06	0.01	22.69	512.27	57.9	19.68	0.02	21.4	15.87	1.62	1.77	0	176.6	224.21	42.58
22/08/2025	17.44	590.55	25.57	13.74	0.06	9.54	20.58	552.84	48.56	17.55	0.02	13.77	16.08	1.62	1.7	0	112.09	178.8	34.82
23/08/2025	18.46	122.27	18	11.68	1.05	3.64	20.07	335.97	25.3	17.59	13.74	7.88	14.03	3.95	5.04	0	131.21	219.34	39
24/08/2025	14.67	7.22	27.71	3.91	14	0	20.57	474.61	34.96	17.54	14.27	17.69	9.64	1.57	1.67	0	128.91	219.84	38.93
25/08/2025	14.05	5.95	18.19	0	17.2	0	20.56	441.88	38.59	17.53	13.1	17.48	0.23	1.58	1.67	0	129.57	201.38	38.3
26/08/2025	12.7	3.48	1.22	0	17.4	0	20.6	646.54	37.84	17.53	0.02	19.24	15.76	1.61	1.67	0	126.1	200.46	35.22
27/08/2025	14.25	3.73	4.25	0.03	6.21	0	20.55	636.07	40.01	17.53	7	19.72	8.12	1.61	1.67	0	101.21	179.36	33.65
28/08/2025	18.25	160.89	11.56	12.55	0.06	5.6	20.63	618.68	40.57	17.58	14.14	18.99	3.51	1.6	1.67	0	112.33	186.41	38.06
29/08/2025	18.88	233.2	5.35	15.79	10.09	9.68	20.57	657.58	39.3	17.55	14.24	19.34	11.58	1.62	1.68	0	120.58	193.13	37.06
30/08/2025	18.64	257.54	5.73	15.39	11.21	10.71	20.58	661.25	36.92	17.58	2.33	19.62	10.46	1.61	1.7	0	122.96	186.78	36.77
31/08/2025	17.44	218.14	6.67	14.48	3.18	7.2	20.49	652.35	37.13	17.5	2.54	20.49	12.4	1.62	1.77	0	135.42	200.01	37.09

Day Average Report of Continuous Emission Monitoring System for the Month of September 2025

(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
01/09/2025	17.26	166.24	5.58	14.21	0.05	0	19.68	704.88	35.68	16.67	13.42	20.73	15.59	1.62	1.67	0	151.15	196.21	35.81
02/09/2025	17.43	201.14	6.93	13.65	10.57	9.39	20.46	647.8	38.84	17.47	9.44	19.65	10.6	1.62	1.67	0	140.21	185.79	36.74
03/09/2025	17.17	236.38	7.67	13.89	4.21	9.65	20.57	527.38	39.58	17.56	0.02	14.22	11.63	1.62	1.67	0	134.27	189.91	37.05
04/09/2025	19.23	163.75	5.91	10.56	4.88	10.86	20.49	489.41	41.25	17.5	0.02	16.82	0.48	1.55	8.62	0	82.21	113.63	36.43
05/09/2025	19.46	143.23	2.89	13.3	5.97	8.46	20.54	605.3	31.46	17.53	6.39	19.86	3.21	1.52	1.6	0	124.03	232.46	36.8
06/09/2025	19.42	170.25	2.31	13.23	4.42	8.93	20.56	433.93	28.69	17.52	14.33	18.91	9.26	1.62	1.7	0	135.77	279.07	38.45
07/09/2025	20.73	200.85	1.93	14.2	11.4	10.78	20.51	477.48	40.19	17.54	14.36	18.78	0.23	1.62	1.7	0	136.89	285.69	36.49
08/09/2025	18.97	214.13	2.3	13.68	17.36	8.6	20.55	669.09	44.17	17.52	6.03	20.85	10.09	1.62	1.72	0	146.39	285.39	38.43
09/09/2025	18.17	196.86	2.96	14.73	14.09	9.11	20.51	602.2	51.28	17.49	5.08	17.9	7.91	1.62	1.73	0	140.13	234.33	37.42
10/09/2025	17.27	254.86	3.53	16.62	0.05	8.82	20.57	637	51.21	17.57	13.96	19.55	11.03	1.62	1.74	0	151.65	230.47	37.86
11/09/2025	19	325.85	5.31	13.51	0.06	0	21.96	612.48	76.91	18.95	0.02	21.17	0.21	1.62	1.77	0	172.58	241.89	38.26
12/09/2025	18.03	499.22	6.48	16.5	0.06	9.46	20.61	551.18	42.51	17.62	9.79	19.98	10.07	1.62	1.73	0	163.22	228.6	36.7
13/09/2025	18.21	660.29	25.44	16.43	12.29	10.65	20.51	520.46	32.44	17.51	14.23	18.19	14.87	3.21	3.94	0	119.69	237	37.12
14/09/2025	18.11	619.1	42.99	16.5	16.7	8.69	20.52	628.3	2.42	17.52	4.66	19.66	14.15	1.62	1.75	0	70.87	241.64	36.7
15/09/2025	17.64	550.75	46.92	17.04	17.28	8.86	20.56	607.41	17.28	17.54	0.02	20.67	7.55	1.62	1.77	0	67.96	236.45	36.07
16/09/2025	17.73	483.93	46.54	17.86	17.1	7.68	20.57	594.85	28.38	17.52	0.02	20.17	12.66	1.62	1.77	0	74.77	240.12	36.68
17/09/2025	17.66	590.87	44.44	16.42	9.12	9.1	20.57	557.53	16.2	17.57	0.02	20	6.81	1.62	1.77	0	69.89	234.35	35.68
18/09/2025	17.53	557.41	44.82	16.75	7.72	8.37	20.59	635.84	7.3	17.57	0.02	20.37	8.8	1.62	1.77	0	61.43	239.63	34.35
19/09/2025	17.63	579.14	44.4	16.2	16.82	9.65	20.51	603.21	16.76	17.5	0.02	18.96	15.78	1.62	1.76	0	60.67	247.63	36.78
20/09/2025	19.98	601.81	42.1	14.58	17.41	8.52	20.53	593.8	26.32	17.55	0.02	19.64	15.19	1.62	1.77	0	80.71	255.62	36.91
21/09/2025	18.26	598.69	42.59	13.25	0.06	1.05	22.69	507.16	27.94	19.67	0.02	22.1	15.9	1.62	1.77	0	92.78	282.96	36.42
22/09/2025	17.53	608.21	44.29	15.71	12.52	8.66	20.52	562.84	29.46	17.52	0.02	18.78	12.59	1.62	1.77	0	86	264.38	34.92
23/09/2025	17.36	593.95	44.06	16.8	15.85	10.33	20.54	565.28	29.32	17.52	9.61	18.55	12.19	1.62	1.77	0	90.15	286.11	36.61
24/09/2025	17.55	619.1	45.41	16.4	17.22	10.09	20.59	588.95	28.97	17.61	14.22	20.42	15.39	1.62	1.75	0	86.8	288.01	36.58
25/09/2025	17.98	648.31	46.58	16.05	14.74	11.63	20.51	601.68	29.62	17.5	10	20.3	15.71	1.62	1.72	0	82.4	296.24	36.48
26/09/2025	18.16	661.9	41.76	16.13	15.94	8.77	20.58	632.1	29.54	17.52	11.38	20.86	11.34	1.62	1.72	0	86.68	267.26	36.92
27/09/2025	18.1	680.6	41.04	15.61	17.37	8.92	20.55	645.58	30.37	17.53	14.35	19.06	13.94	2.37	3.28	0	104.77	253.88	37.71
28/09/2025	18.99	683.21	42.71	15.38	16.77	10.72	20.58	618.67	31.4	17.57	14.19	19.79	13.03	1.62	1.77	0	105.76	240.24	36.77
29/09/2025	20.34	674.23	42.42	16.64	17.13	4.28	20.54	635.99	34.12	17.51	14.24	13.75	16.13	1.62	1.77	0	112.21	215.01	37.39
30/09/2025	20.6	656.81	34.93	16.92	12.88	9.93	20.4	318.87	42.68	16.05	14.25	12.07	15.7	1.62	1.77	0	110.82	223.65	37.35

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/Nm³)			
						Norms	April -25 to June - 25	July - 25 to Sept -25	Avg.
1	Kiln Main Stack	Hybrid Bag house	145	4	PM	30	13.00	19.60	16.30
					SO2	100	65.00	4.95	34.98
					NOx	800	475.23	256.50	365.87
2	Clinker Cooler Stack	ESP	35	3.3	PM	30	23.60	19.40	21.50
3	Cement mill Stack	Bag house	30	1.2	PM	30	17.60	17.70	17.65
4	Vertical Coal mill stack	Bag house	53	1.30	PM	30	14.00	14.90	14.45

Unit-II

Stack No.	Details of Stack	Stack Attached with	Height (M)	Dia (M)	CEMS Installation Status	Concentration of Emission (mg/Nm³)			
						Norms	April -25 to June - 25	July - 25 to Sept -25	Avg.
1	Kiln Main Stack	Hybrid Bag house	100	3.2	PM	30	13.30	20.80	17.05
					SO2	100	69.10	38.80	53.95
					NOx	800	495.00	665.20	580.10
2	Clinker Cooler Stack	ESP	35	3.3	PM	30	20.50	17.95	19.23
3	Cement mill Stack	Bag house	30	0.9	PM	30	16.00	14.60	15.30
4	Coal mill stack	Bag house	60	1.35	PM	30	17.10	20.60	18.85

Unit-III

Stack No.	Details of Stack	Stack Attached with	Height (M)	Dia (M)	CEMS Installation Status	Concentration of Emission (mg/Nm³)			
						Norms	April -25 to June - 25	July - 25 to Sept -25	Avg.
1	Cement Mill Stack	Bag House	45	0.66	PM	30	14.50	15.80	15.15

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 -25 to June - 25	July - 25 to Sept -25	Avg.
1	Main Stack Power plant - I	ESP	77	2.5	PM	50	45.10	NR	45.10
					SO2	600	122.00	NR	122.00
					NOx	450	50.20	NR	50.20
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 -25 to June - 25	July - 25 to Sept -25	Avg.
1	Main Stack Power plant - II	ESP	77	2.5	PM	50	39.80	37.85	38.825
					SO2	600	325.25	228.20	276.725
					NOx	450	237.50	142.30	189.9

Annexure-I (B)

Mangalam Cement Ltd. (Morak)

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

S No	Location/ Parameters ↓	Norms	Near Railway Gate			Near Security Gate			Near Rack Loading Area			Near Workshop		
			April -25 to June-25	July-25 to Sept-25	Avg.	April -25 to June-25	July-25 to Sept-25	Avg.	April -25 to June-25	July-25 to Sept-25	Avg.	April -25 to June-25	July-25 to Sept-25	Avg.
1	PM10	100	60.00	38.00	49.00	72.00	46.00	59.00	52.00	42.00	47.00	78.00	40.00	59.00
2	PM2.5	60	27.00	21.00	24.00	38.00	20.00	29.00	25.00	25.00	25.00	43.00	19.00	31.00
3	SO_2	80	8.72	6.92	7.82	9.54	7.48	8.51	7.27	5.38	6.33	8.67	6.74	7.71
4	NOx	80	13.42	9.52	11.47	14.24	11.76	13.00	12.76	7.74	10.25	12.71	8.95	10.83
5	CO	4000	390.00	330.00	360.00	410.00	320.00	365.00	340.00	280.00	310.00	370.00	300.00	335.00

Annexure-I (C)

Mangalam Cement Ltd. (Morak)

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

Sr. No.	Location	April - 25 to June - 25		July - 25 to September - 25		Day Avg.	Night Avg.
		Day	Night	Day	Night		
1	Near Security Gate	60.4	51.2	55.5	47.4	60.4	51.2
2	Near Railway Gate	62.7	50.9	54.8	44.3	62.7	50.9
3	Near Rack Loading Area	62	45.3	56.7	43.8	62	45.3
4	Near Work Shop	61.7	51.4	60	43.9	61.7	51.4

Annexure-I (D)

Mangalam Cement Ltd. (Morak)

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

S. No.	Location	April -25 to June-25	July – 25 to Sept-25	Avg.
Common Location				
1	Raw Material Storage Area-I & II	276	360	318.00
2	Near Coal Storage area- I & II	396	410	403.00
3	Near Additive Storage I & II	362	295	328.50
4	Near Packing Plant-I & II	232	290	261.00
5	Near Time Office	190	168	179.00
Unit-I				
6	Near Crusher-I	250	142	196.00
7	Near Cement Mill & Fly Ash Silo - I	210	200	205.00
8	Stacker & Reclaimer - I	239	155	197.00
Unit-II				
9	Near Crusher-II	242	140	191.00
10	Near Cement Mill & Fly Ash Silo - II	200	210	205.00
11	Stacker & Reclaimer – II	225	136	180.50
12	Near Clinker Stock Pile (CSP)-II	310	322	316.00
Unit-III				
13	Near Packing Plant-III	188	280	234.00
14	Near Cement Mill-III	180	302	241.00
CPP-I & II				
15	Near Coal Storage (CPP-I & II)	337	380	358.50

Annexure – II

VIBRANT TECHNO LAB PVT. LTD.

ISO 9001, 14001 & 45001 Certified Company
EPA Recognized Laboratory | NABET Accredited EIA Consultant Organisation

TC-16019

VIBRANT

TEST REPORT

VTL/AA/01

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

Report No. : VTL/A/2506300005/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 05/06/2025
Period of Analysis : 30/05/2025-05/06/2025
Receipt Date : 30/05/2025

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Nr. Darrah National Park Boundary Approach Road of Kukara Kala Village
Sample Collected By	:	VTL Team
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	24°47'34" & 75°51'37"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	26/05/2025 To 27/05/2025
Time of Monitoring	:	10:40 TO 10:40 Hrs
Ambient Temperature (°C)	:	Min. 32°C Max. 43°C
Surrounding Activity	:	Human, Vehicular & Plant Act.
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs
Parameter Required	:	As Per Work Order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1	Particulate Matter (as PM10)	IS:5182 (Part- 23)-2006 RA 2022	49.74	µg/m³	100
2	Particulate Matter (as PM2.5)	IS 5182(Part- 24): 2019	22.39	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2022	12.41	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS 5182 (Part 2): Sec 1 2023	8.67	µg/m³	80
5	Carbon Monoxide (as CO)	IS:5182 (P- 10)-1999, RA. 2019 (NDIR)	0.35	mg/m³	4
6	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
7	Ammonia (as NH3)	IS 5182 (Part-25)-2018	*BLQ (**LOQ 10.0)	µg/m³	400
8	Ozone (as O3)	IS 5182 (Part-9):1974 RA 2019	*BLQ (**LOQ 4.0)	µg/m³	180
9	Lead (as Pb)	IS 5182 (P-22) : 2004, RA 2019	*BLQ (**LOQ 0.02)	µg/m³	1
10	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ (**LOQ 0.5)	ng/m³	6
11	Nickel (as Ni)	IS 5182 (Part 26): 2020	*BLQ (**LOQ 5.0)	ng/m³	20
12	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ (**LOQ 0.2)	ng/m³	1

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

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
www.vibranttechnolab.com

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VIBRANT

TC-16019

TEST REPORT

Sample Identification : VTL/AA/02

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

Report No. : VTL/A/2505300007/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 06/06/2025
Period of Analysis : 30/05/2025-05/06/2025
Receipt Date : 30/05/2025

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	: Nr. Avalimeri Mahal Darrah Village
Sample Collected By	: VTL Team
Instrument Code	: VTL/RDS/FPS/02
Coordinates	: --
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 25/05/2025 To 26/05/2025
Time of Monitoring	: 09:03 TO 09:03 Hrs.
Ambient Temperature (°C)	: Min. 32°C Max. 42°C
Surrounding Activity	: Human, Vehicular & Plant Act
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs
Parameter Required	: As Per Work Order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009 (Limits)
1	Particulate Matter (as PM10)	IS:5182 (Part- 23)-2006 RA 2022	56.39	µg/m³	100
2	Particulate Matter (as PM2.5)	IS 5182(Part- 24): 2019	24.18	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA 2022	13.72	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS 5182 (Part 2): Sec 1 : 2023	7.93	µg/m³	80
5	Carbon Monoxide (as CO)	IS:5182 (P- 10)-1999, RA 2019 (NDIR)	0.34	mg/m³	4
6	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA 2017	*BLQ (**LOQ 1.0)	µg/m³	5
7	Ammonia (as NH3)	IS 5182 (Part-25)-2018	*BLQ (**LOQ 10.0)	µg/m³	400
8	Ozone (as O3)	IS 5182 (Part-9):1974 RA 2019	*BLQ (**LOQ 4.0)	µg/m³	180
9	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
10	Arsenic (as As)	VTL/STP/02/STP/09	*BLQ (**LOQ 0.5)	ng/m³	6
11	Nickel (as Ni)	IS 5182 (Part 26): 2020	*BLQ (**LOQ 5.0)	ng/m³	20
12	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ (**LOQ 0.2)	ng/m³	1

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

End of Report

Checked by

VIBRANT TECHNO LAB PVT. LTD. JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
0141-2954638 bd@vibranttechnolab.com
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EPA Recognized Laboratory | NABET Accredited EIA Consultant Organisation

TC-16019

TEST REPORT

Sample Number:	VTL/AA/01-03	Report No.:	VTL/A/2509020005-06/A
Name & Address of the Party	M/s Mangalam Cement Ltd. P.O Aditya Nagar -Morak Kota Rajasthan	Format No.:	7.8 F 02
		Party Reference No.:	NIL
		Report Date:	05/09/2025
Sample Description :	Ambient Air Quality Monitoring	Period of Analysis:	02-05/09/2025
		Receipt Date	02/09/2025

General Information:-

Sample collected by	: VTL Team
Instrument Calibration Status	: Calibrated
Meteorological condition during monitoring	: Clear sky
Ambient Temperature (°C)	: Min. 26°C, Max. 32 °C
Surrounding Activity	: Human , Vehicular & Plant Activities
Scope of Monitoring	: Regulatory Requirement
Sampling & Analysis Protocol	: IS-5182 & CPCB Guidelines
Sampling Duration	: 24 hrs. (Co, Ozone monitoring time is 1hr.)
Parameter Required	: As Per Work Order

Sr.	Parameter	NAAQS 2009	Unit	Location & Lat. Long		Protocol
				Near Avalimeri Mahal Darrah Village	Near Darrah National Park Boundary Approach Road Of Kukara Kala Village	
				75°59'6.28"E 24°48'54.41"N	75°51'37"E 24°47'34"N	
Date & Time				27/28-08-2025 08:30-08:30	27/28-08-2025 09:30-09:30	
1.	Particulate Matter (PM10)	100	µg/m³	32.84	30.94	IS: 5182 (P-23), 2006, RA 2022
2.	Particulate Matter (PM2.5)	60	µg/m³	18.67	16.94	IS 5182 (P-24) -2019
3.	Sulphur Dioxide (SO2)	80	µg/m³	6.48	6.25	IS: 5182 (P-2):Sec 1 2023
4.	Nitrogen Dioxide (NO2)	80	µg/m³	9.92	8.62	IS: 5182 (P-6), 2006 RA 2022
5.	Carbon Monoxide (as CO)	4	mg/m³	0.26	0.29	IS:5182 (P-10) -1999, RA2019 (NDIR)
6.	Benzene (as C6H6)	5	µg/m³	*BLQ(**LOQ1.0)	*BLQ(**LOQ1.0)	IS: 5182 (P-11)-2006, RA.2022
7.	Ammonia (as NH3)	400	µg/m³	*BLQ(**LOQ10.0)	*BLQ(**LOQ10.0)	IS 5182 (P-25) -2018
8.	Ozone (as O3)	180	µg/m³	*BLQ(**LOQ4.0)	*BLQ(**LOQ4.0)	IS:5182 (P-9):1974, RA.2019
9.	Lead (as Pb)	1	µg/m³	*BLQ(**LOQ0.02)	*BLQ(**LOQ0.02)	IS:5182 (P-22):2004, RA.2019
10.	Arsenic (as As)	6	ng/m³	*BLQ(**LOQ0.5)	*BLQ(**LOQ0.5)	VTL/STP/02/SOP/09
11.	Nickel (as Ni)	20	ng/m³	*BLQ(**LOQ5.0)	*BLQ(**LOQ5.0)	IS 5182 (P-26) -2020
12.	Benzo (a) Pyrene	1	ng/m³	*BLQ(**LOQ0.2)	*BLQ(**LOQ0.2)	IS:5182 (P-12):2004, RA.2019

----------End of the Report----------

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

Checked By

RK Yadav
Lab Incharge
Authorized Signatory

Corporate & Registered Office:
Plot No. Q-39, Shringarpura, Narayan Vihar Q, Bhankrota, Jaipur 302026 (Raj.)
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Annexure - III

BK BIRLA GROUP OF COMPANIES

MANGALAM CEMENT LTD.

MANGALAM CEMENT LTD.

Redg. A/D

MCL / Haz./E-11(II)/2025-2026/ 1738 19.05.2025

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 2024-2025 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 Apr il 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 2024-2025** Clinker : 1344437.00 MT Cement : 821512.07 MT

Part A. To be filled by hazardous waste generators

1	Total quantity of waste generated category wise	:	**Quantity generated during FY 2024-2025** Used Oil : 4800 Ltr. (Sch.-I, Category 5.1) Oil Soaked Cotton: 710 kg (Sch-I, Category 5.2) Waste/ Residue Containing Oil: NIL (Sch-I, Category 5.2)
2	Quantity dispatched	:	
(i)	to disposal facility	:	Oil Soaked Cotton disposal in our Cement Kiln
(ii)	to recycler or co-processors or pre-processor	:	**4800 Ltr. (Sold to Authorized Recycler)** **M/S Poddar Hydrocarbons** **G1-125, RIICO Industrial Area, Bagru (Ext.) Tehsil – Sanganer, district – Jaipur (Rajasthan)**

Hazardous Waste Type	Quantity of Hazardous Waste (Ltr)	Date of Manifest	Mode of Disposal
Used Oil Cat: 5.1	4800	25.11.2024	Sold to Authorized Recycler i.e. M/s Poddar Hydrocarbons, Jaipur

			Oil-Soaked Cotton disposal quantity 710 KG in our MCL Cement Kiln

(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: 130 KG (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: liquid 4221.64 MT & solid 1450.53 MT total – 5672.17 (Common for Unit-I & II) Agro Waste: 8699.26 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)
(i)	domestic sources	:	Plastic Waste: 130 KG (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: liquid 4221.64 MT & solid 1450.53 MT total – 5672.17 Agro Waste: 8699.26 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 Agro Waste: 414.05 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: Liquid – 3808.19 MT, Solid – 1006.51 MT Total – 4814.70 MT (Unit-I) Agro Waste: NIL (Unit-I) & 9113.15 MT (CPP-I & II) Iron Sludge: NIL (Unit-I)
4	Quantity of products dispatched	:	N.A.

	(wherever applicable)		
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: Liquid – 413.45 MT Solid – 444.02 MT Total – 857.47 MT Agro Waste: 0.16 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II)

Date: **17.05.2024**
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)/2025-2026/ 1740 19.05.2025

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 2024-2025 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
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
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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 2024-2025** Clinker : 1139463 MT Cement: 964228.09 MT
Part A. To be filled by hazardous waste generators			
1	Total quantity of waste generated category wise	:	**Quantity Generated during FY 2024-2025** Used Oil: 6200 Ltr. (Sch.-I, Category 5.1) Oil Soaked Cotton: 180 KG (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	:	**6200 Ltr. (Sold to Authorized Recycler)** **M/S Poddar Hydrocarbons** **G1-125, RIICO Industrial Area, Bagru (Ext.) Tehsil – Sanganer, district – Jaipur (Rajasthan)**

Hazardous Waste Type	Quantity of Hazardous Waste (Ltr)	Date of Manifest	Mode of Disposal
Used Oil Cat: 5.1	6200	25.12.2024	Sold to Authorized Recycler i.e. M/s Poddar Hydrocarbons, Jaipur

			Oil-Soaked Cotton disposal quantity 180 KG in our MCL Cement Kiln

(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: 130 KG (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: liquid - NIL & solid – 1519.16 MT Agro Waste: 8699.26 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment: 166.42 MT
(i)	domestic sources	:	Plastic Waste: 130 KG (Common for Unit-I & II) Chemical Gypsum : NIL (Common for Unit-I, II & III) Waste Mix Liquid & Solid: liquid - NIL & solid – 1519.16 MT Agro Waste: 8699.26 MT (Common for Unit-I, II and CPP-I & II) Iron Sludge: NIL (Common for Unit-I & II) Chemical Sludge from waste water treatment: 166.42 MT
(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 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

3	Quantity recycled or co-processed or used	:	Plastic Waste:- 130 KG (Unit-II) Chemical Gypsum: NIL (Unit-II) Waste Mix Liquid & Solid:- solid – 1493.62 MT (Unit-I I) Agro Waste: NIL (Unit-II) Iron Sludge: NIL (Unit-II) Chemical Sludge from waste water treatment : 166.42 MT
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: liquid - NIL & solid – 25.54 MT Agro Waste: 0.16 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: **18.05.2025**
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/ 1739 19.05.2025

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 2024-2025 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
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Jaipur Office : 2nd Floor, Geejgarh Tower, Hawa-Sarak, Jaipur - 302 006 (Rajasthan)
Tel. : 0141 - 2218933, 2218931, E-mail : jaipur.marketing@mangalamcement.com

FORM 4

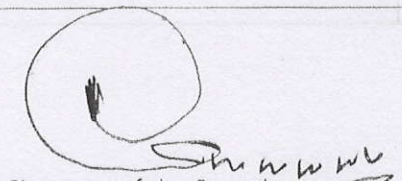
[See rules 6(5), 13(8), 16(6) and 20 (2)]

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 2024-2025** Cement: 1162519.94 MT
Part A. To be filled by hazardous waste generators			
1	Total quantity of waste generated category wise	:	**Quantity generated during FY 2024-2025** 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: **17.05.2025**
Place: **Morak**

Signature of the Occupier or
Operator of the disposal facility

Plantation Details -

We having 167 Ha. total plant area out of which 58.92 Ha. green area covered and 134672 nos. of plants planted with 70.24% survival rate along with 35.28% green area till Sep-2025.In FY 2025-26 for the period from Apr-25 to Sep-25, total 1243 nos. of plants planted and 1195 nos. of plants survived with 96.14% survival rate. We have planted different type of species for dense plantation like as Amaltas, Arjun, Gulmohar, Casia Samiya, Karanj, Palas, Sheesham, Amrood, Amla, Banyan, Imli, Kachnar, Kadam, Pipal, Peltroforam, Sahjan, Semal, Sheesham, Nimbu, Rudraksh, Neem, Kanjee, Kaner etc.

PLANTATION DETAILS - M/s MANGALAM CEMENT LTD. MORAK (TILL SEP-2025)				
Sr.	Details -MCL Bench Mark = 55.11 (33%)	Units	Details	Plants Species
1	Total Plant Area	(Ha.)	167.00	Amaltas, Arjun, Gulmohar, Casia Samiya,, Karanj, Palas, Sheesham, Amrood, Amla, Banyan, Imli, Kachnar, Kadam, Pipal, Peltroforam, Sahjan, Semal, Sheesham, Nimbu, Rudraksh etc.
2	Total Plantation till FY	Nos.	134672	
3	Total Survived Plants till FY	Nos.	94595	
4	Total Survived Rate till FY	%	70.24	
5	Total Green Area Covered	Ha.	58.92	
6	Total Green Area Covered	%	35.28	

Sr.	FY 2025-26 (APR-25 to SEP-25)	Units	Details	Plants Species
2	Plantation in FY	Nos.	1243	Neem, Sheesham, Peltofarum, Kanjee, Kaner etc.
3	Survived Plants in FY	Nos.	1195	
4	Survived Rate in FY	%	96.14	

Annexure-V

MANGALAM CEMENT LIMITED

CSR Expenditure for the period from April 2025 to September 2025		
S. No.	**Particulars of CSR Activities**	**AMOUNT (in Lakhs.)**
1.	Total CSR Expenditure	36.42

Annexure -VI

Medical Surveillance Report

Date:- 05/11/2025

Period from April 2025 to September 2025, 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 312 Staff & 330 workers & Pre- Employment Health check-up of new joinee staff 35 where done period from April 2025 to September 2025. 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

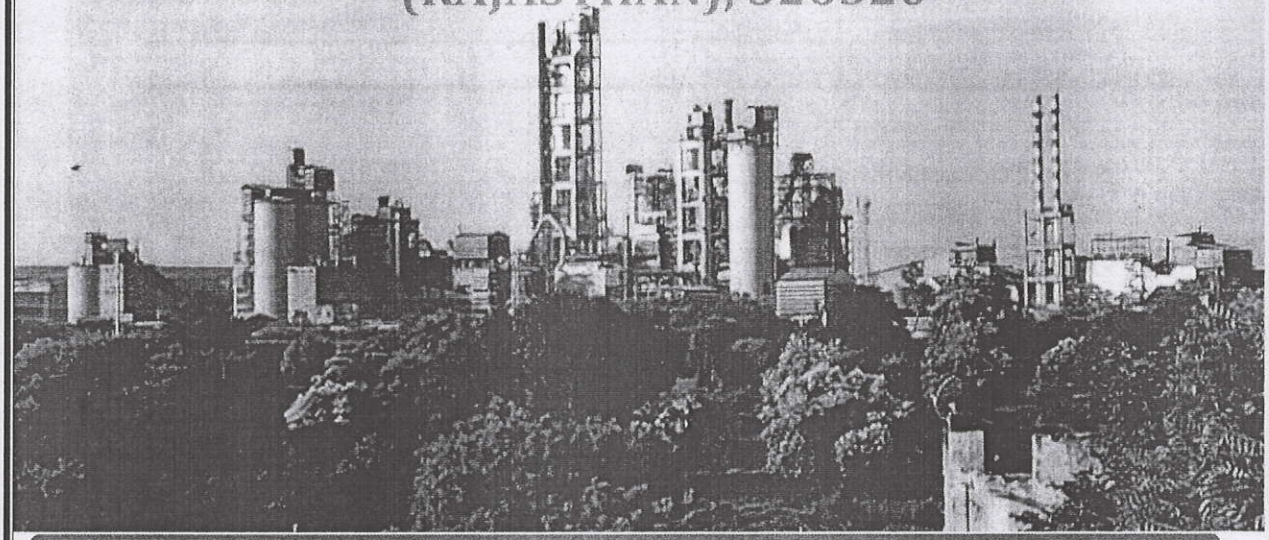
OHC

CARBON BUDGETING REPORT F.Y. 2024-2025

For

MANGALAM CEMENT LIMITED

P.O.- ADITYA NAGAR, VILLAGE -MORAK,
TEHSIL- RAMGANJMANDI, KOTA,
(RAJASTHAN), 326520



बिरला उत्तम सीमेंट

Birla Uttam CEMENT

VIBRANT

Prepared By
VIBRANT TECHNO LAB PVT. LTD.
(NABET/EIA/2225/IA 0104)
Q-39, Shringarpura, Narayan Vihar Q, Ajmer Road, Jaipur Rajasthan 302020
CONTACT NO.– 9929108691,9810205356

TABLE OF CONTENT

Sr. No.	Chapter Name	Page Number
CHAPTER-1	INTRODUCTION	04-18
CHAPTER-2	SCOPE OF CARBON EMISSION	19-21
CHAPTER-3	AIMS AND OBJECTIVES	22-22
CHAPTER-4	CALCULATION OF CARBON EMISSION	23-38
CHAPTER-5	MITIGATION MEASURES	39-44
CHAPTER-6	CONCLUSION	45-45

CHAPTER-1 INTRODUCTION 4-18

1.1. Prelude 4

1.2. Brief About Project 5

1.3. Environment Sensitivity 15

1.4. Climate Study of Kota 16

CHAPTER-2 SCOPE OF CARBON EMISSION 19-21

2.1. Concept of Carbon Foot Print 19

2.2. Scope of Carbon Foot Print 20

CHAPTER-3 AIMS AND OBJECTIVES 22

3.1. Objectives 22

3.2 Methodology 22

CHAPTER-4 CALCULATION OF CARBON EMISSION 23-38

4.1 Sources of Emission 23

4.2 Carbon Emission Monitoring 25

4.3 Emission from Mobile Sources 31

4.4 Emission from Stationary Sources 35

4.5 Emission from Stationary Sources 36

4.6 Emission from Paper Consumption 36

4.7 Emission from Waste Generation 37

4.8 Emission from Production Process 37

4.9 Emission from Power Consumption 37

4.10 Net Carbon Emission 38

CHAPTER-5 MITIGATION MEASURES 39-44

5.1 Carbon Sequestration 39

5.2 Air Pollution Control System 40

5.3 Carbon Sequestration Through Tree 40

5.4 Other Sustainable Measures to Reduce the Carbon Emission 43

CHAPTER-6 CONCLUSION 45

LIST OF TABLE

Table 1: Chronology of Events....6
Table 2: Detail of Land Breakup....14
Table 3: List of Various Units for Production of Cement....14
Table 4: List of Products & Its Capacity....15
Table 5: Environmental Sensitivity of the Site....15
Table 6: Kota - Average Temperatures (1991-2020)....16
Table 7: Kota-Average Precipitation....17
Table 8: Kota–Sun Shine Hours....17
Table 9: Scope of Emissions as per ISO14064....21
Table 10: Inventory for waste Analysis....24
Table 11: Ambient Air Quality Monitoring Results....25
Table 12: Ambient Air Quality Results External Agency....26
Table 13a: Stack Monitoring Results In-house....27
Table 13b: Stack Monitoring Results In-house (CPP)....28
Table 14a: Stack Monitoring Results External Agency....29
Table 14b: Stack Monitoring Results External Agency(CPP)....29
Table 15: Ambient Noise In-house....30
Table 16: Ambient Noise External Agency....30
Table 17: Raw material Transportation details....31
Table 18: Transportation of Finished Goods....32
Table 19: Diesel Consumption....35
Table 20: Carbon Footprint from Workforce Transportation within premises....35
Table 21: Carbon Foot print from Stationary Sources....36
Table 22: Carbon Footprint from Paper Consumption....36
Table 23: Carbon Footprint from Waste Generation....37
Table 24: Carbon emission from Cement production....37
Table 25: Carbon Emission from Power Consumption....37
Table 26: Net Carbon Emission....38
Table 27: Plantation Details till FY 24-25....40
Table 28: Carbon Sequestration by Green Belt....42
Table 29: WTG Installation....43
Table 30: GHG Reduction from Renewal Energy Sources....44

LIST OF FIGURES

Figure 1: Global CO2 Emission 5
Figure 2: Plant Photographs 6
Figure 3: Screenshots of Online Connective at RSPCB and CPCB 11
Figure 4: Location Map 12
Figure 5: Google Earth Imagery of Site 12
Figure 6: Process Flow Diagram (Cement Plants) 13
Figure 7: Study Area Map 13
Figure 8a: Climate zones in India 18
Figure 8b: Comfort zones 18
Figure 9: Photographs of Green vegetation developed 41
Figure 10: Wind Mill (WTG) 43
Figure 11: WHR 44

1 INTRODUCTION

1.1 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.

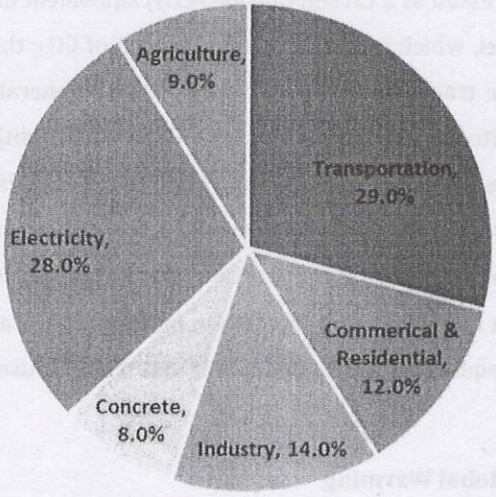


Figure1: Global CO_2 emission

1.2 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. The 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 FY2024-25 was **2948260.101 TPA** and clinker production was **2483900 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.

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 enhance 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.

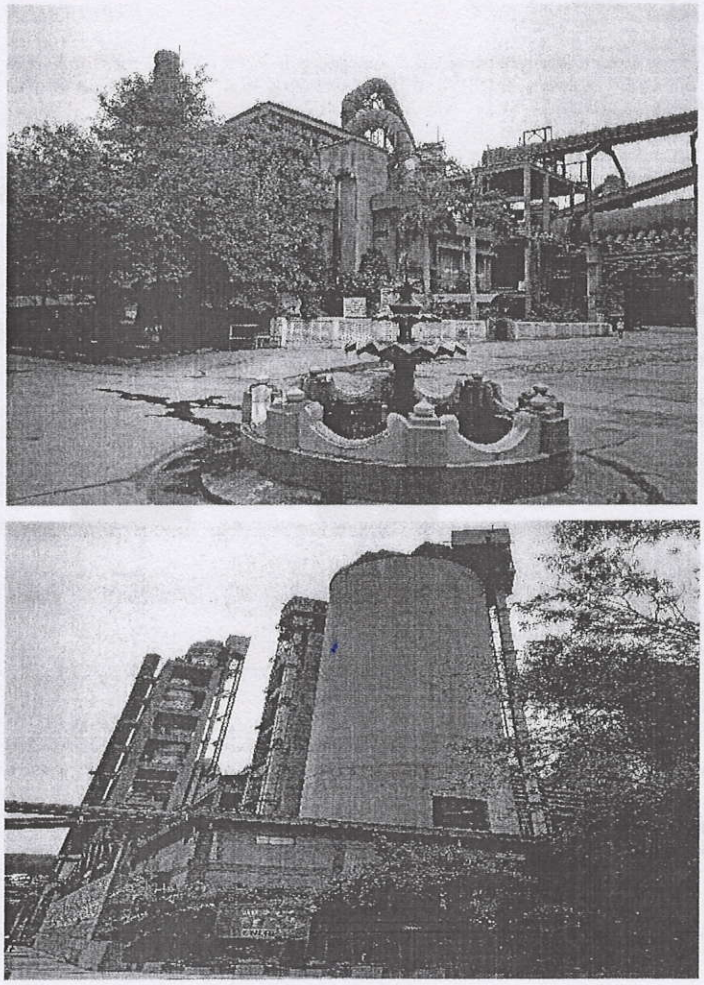
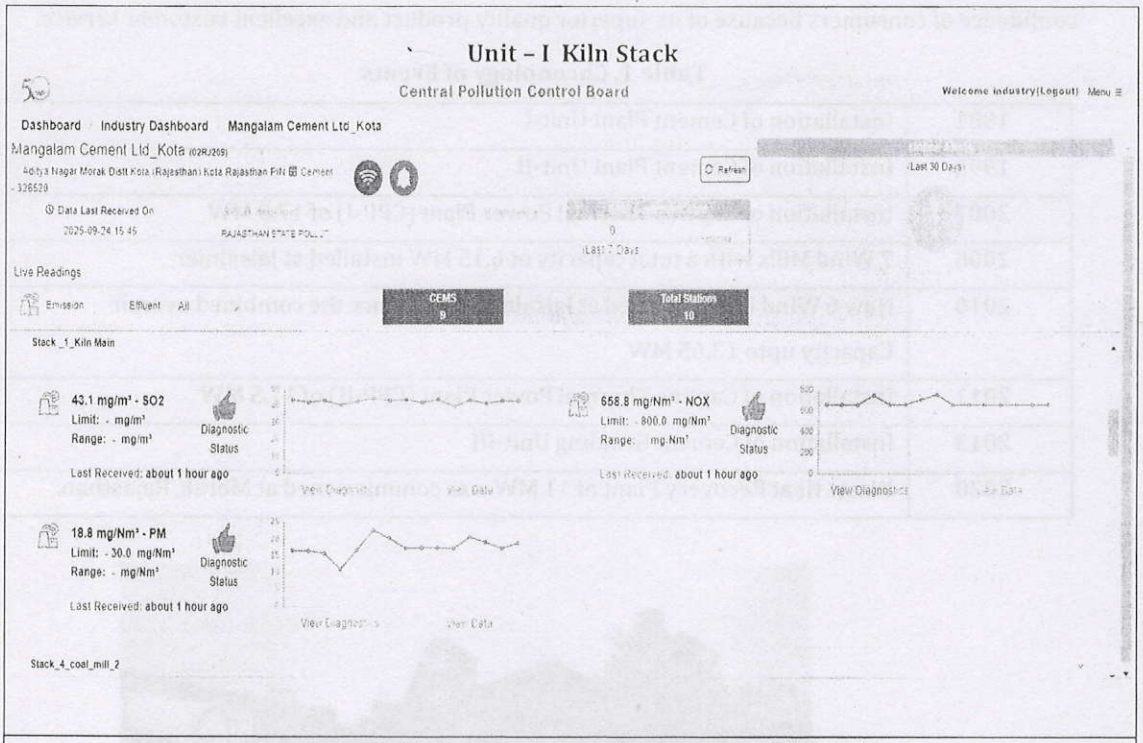
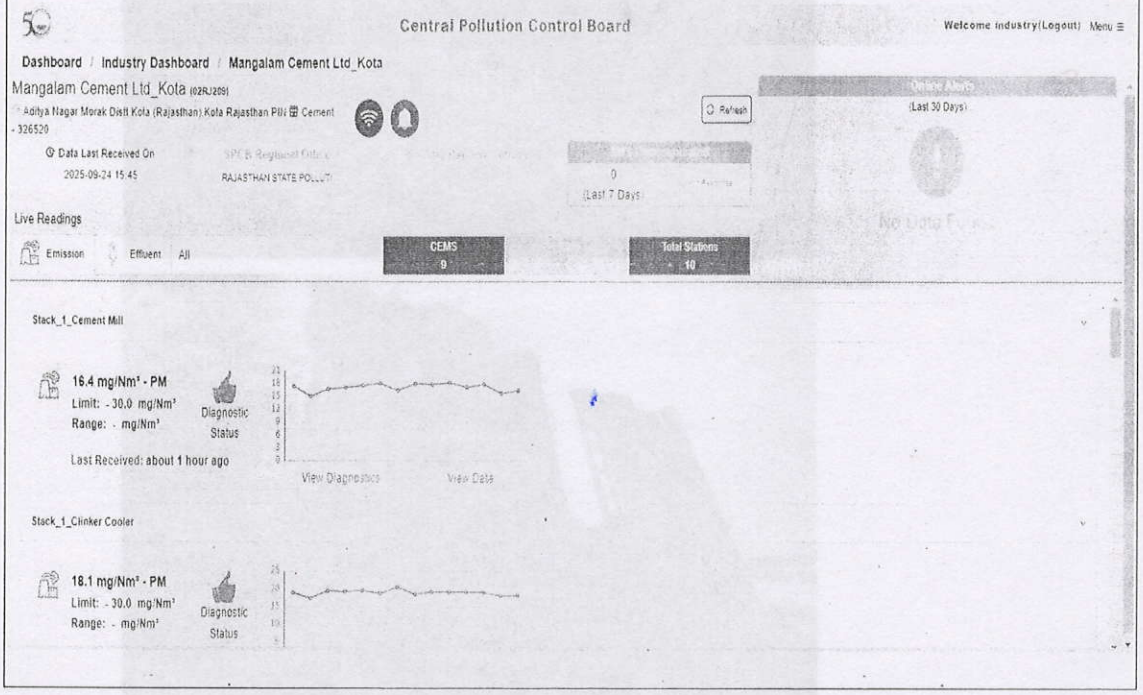


Figure 2. Plant Photographs

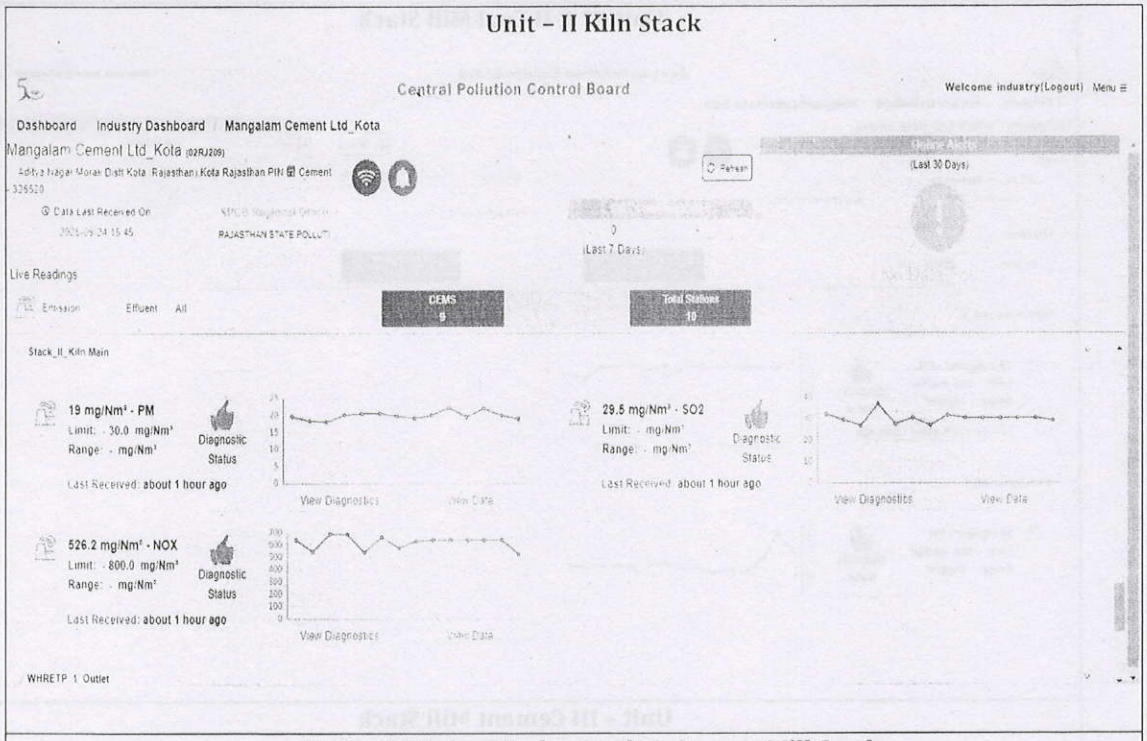
Unit – I Kiln Stack



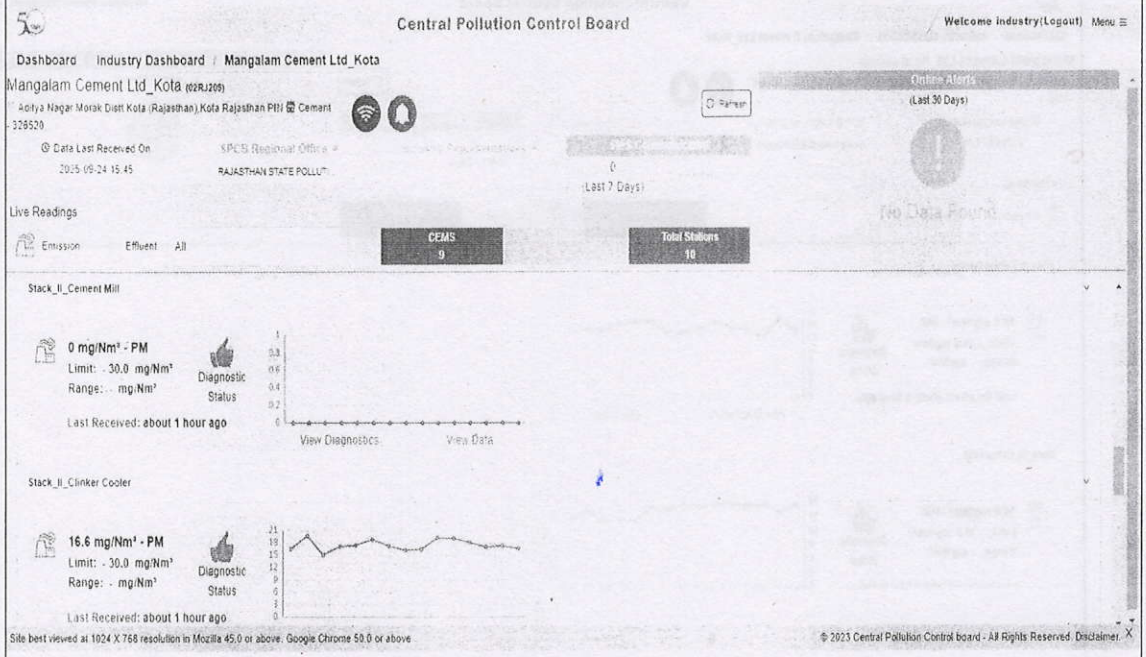
Unit – I Clinker Cooler Stack & Cement Mill Stack



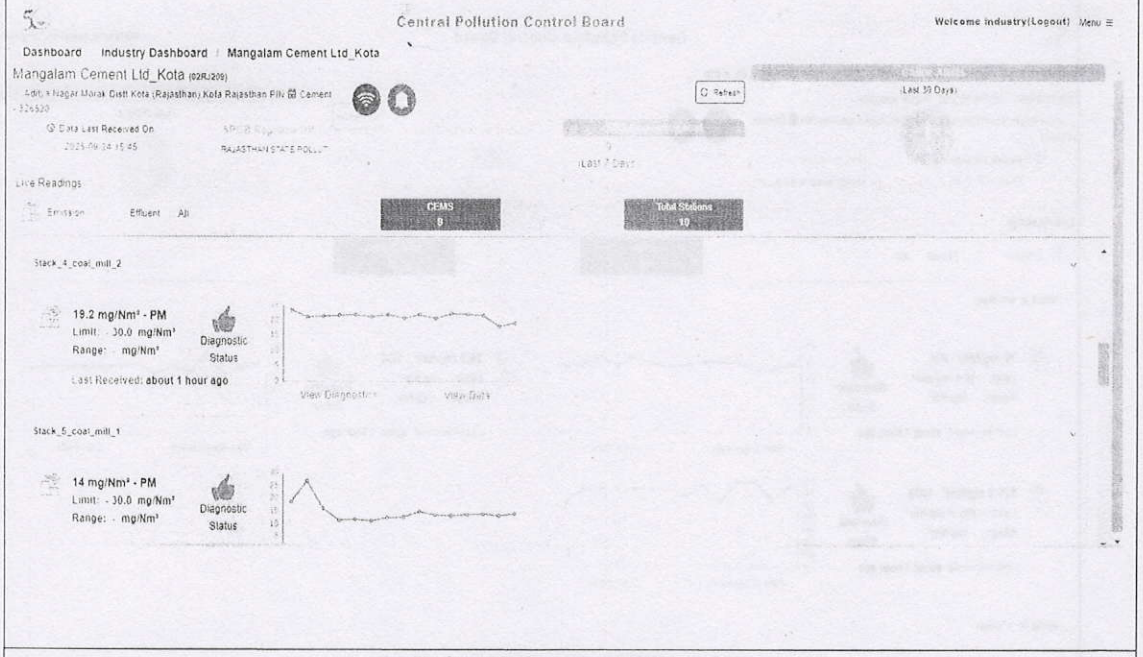
Unit – II Kiln Stack



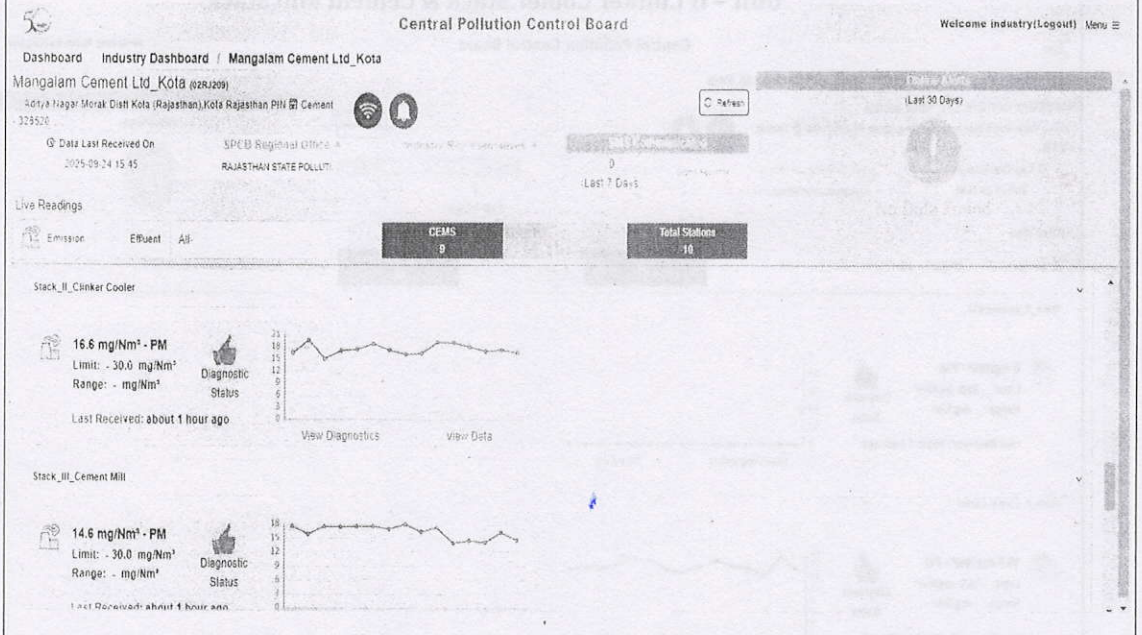
Unit – II Clinker Cooler Stack & Cement Mill Stack



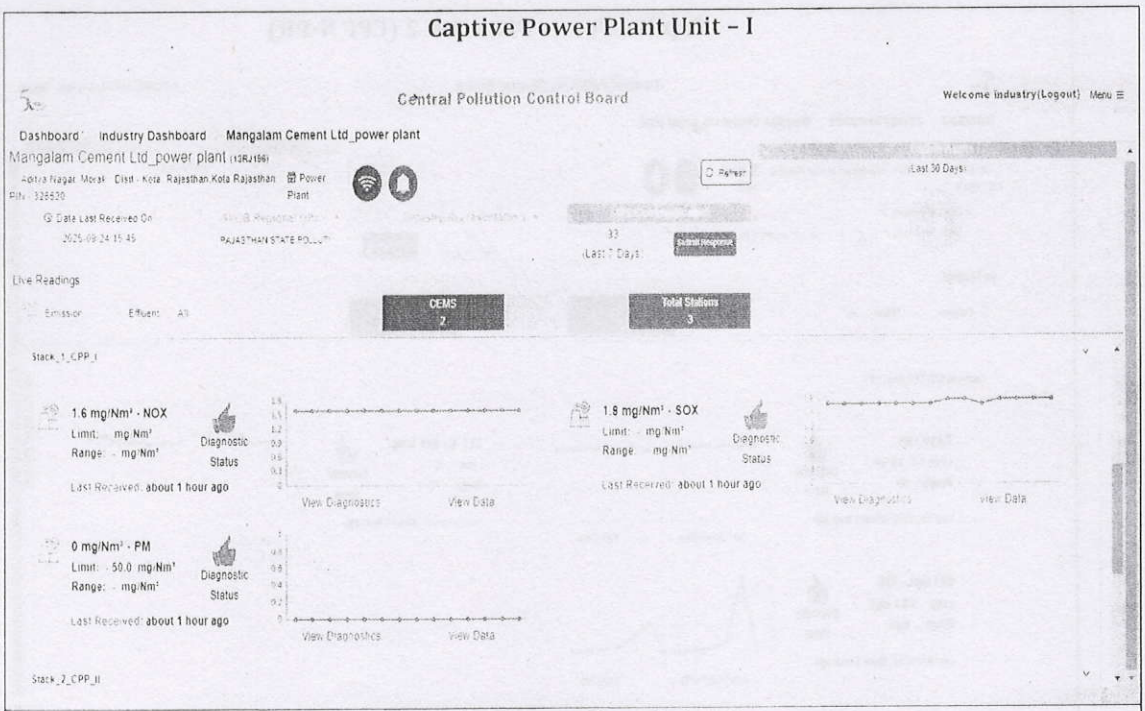
Unit – I & II Coal Mill Stack



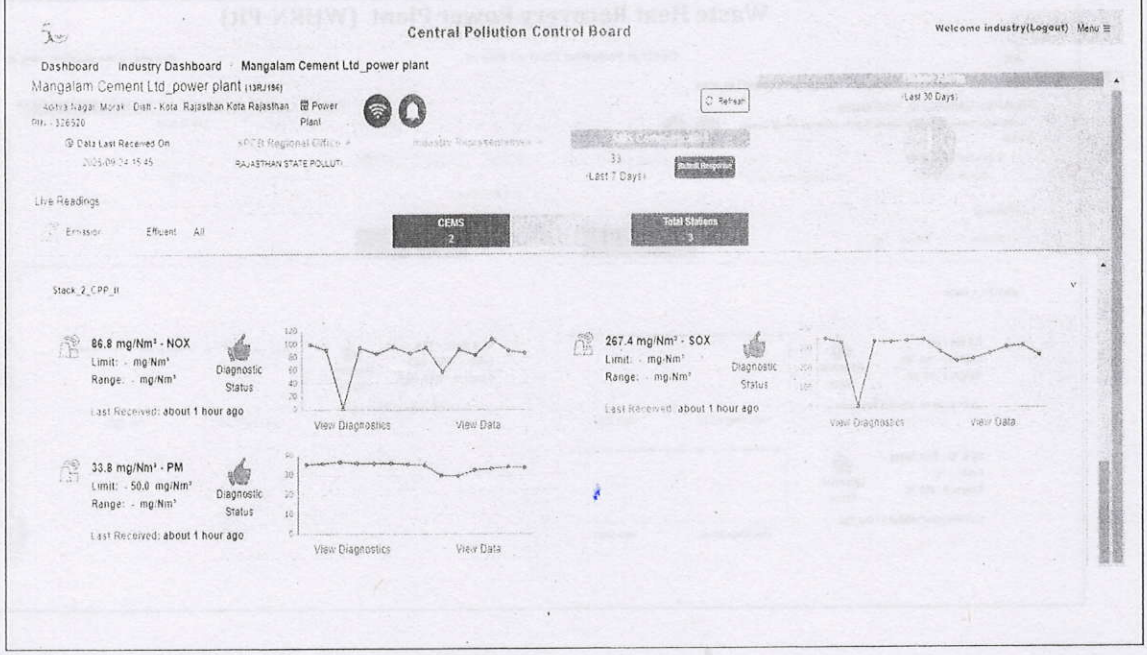
Unit – III Cement Mill Stack



Captive Power Plant Unit – I



Captive Power Plant Unit - II



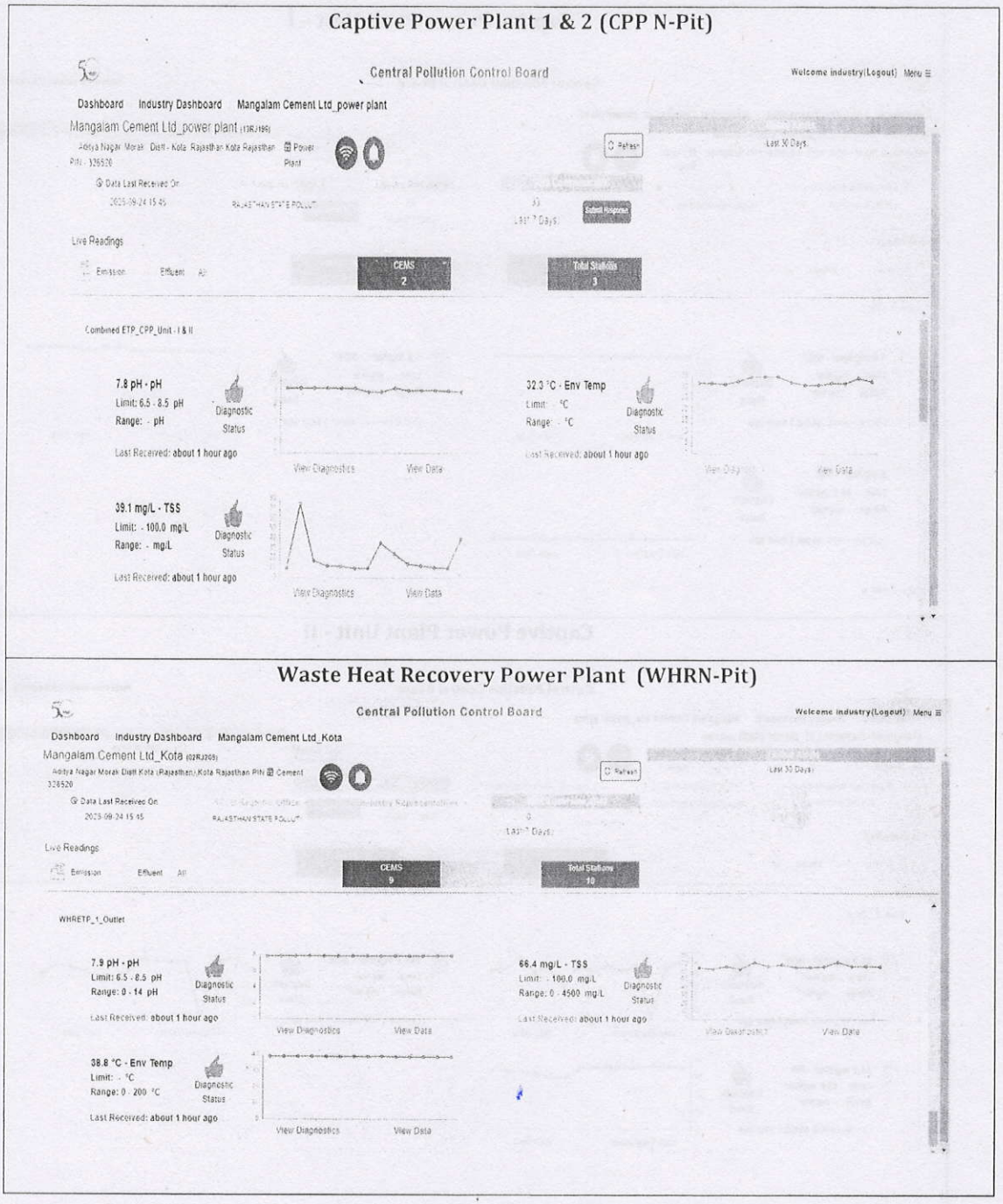


Figure 3. Screenshots of Online Continuous Emission Monitoring System (CEMS), Online Continuous Ambient Air Quality Monitoring System (CAAQMS) and Online Continuous Effluent Quality Monitoring System (CEQMS) data uploading on Rajasthan Pollution Control Board Server.

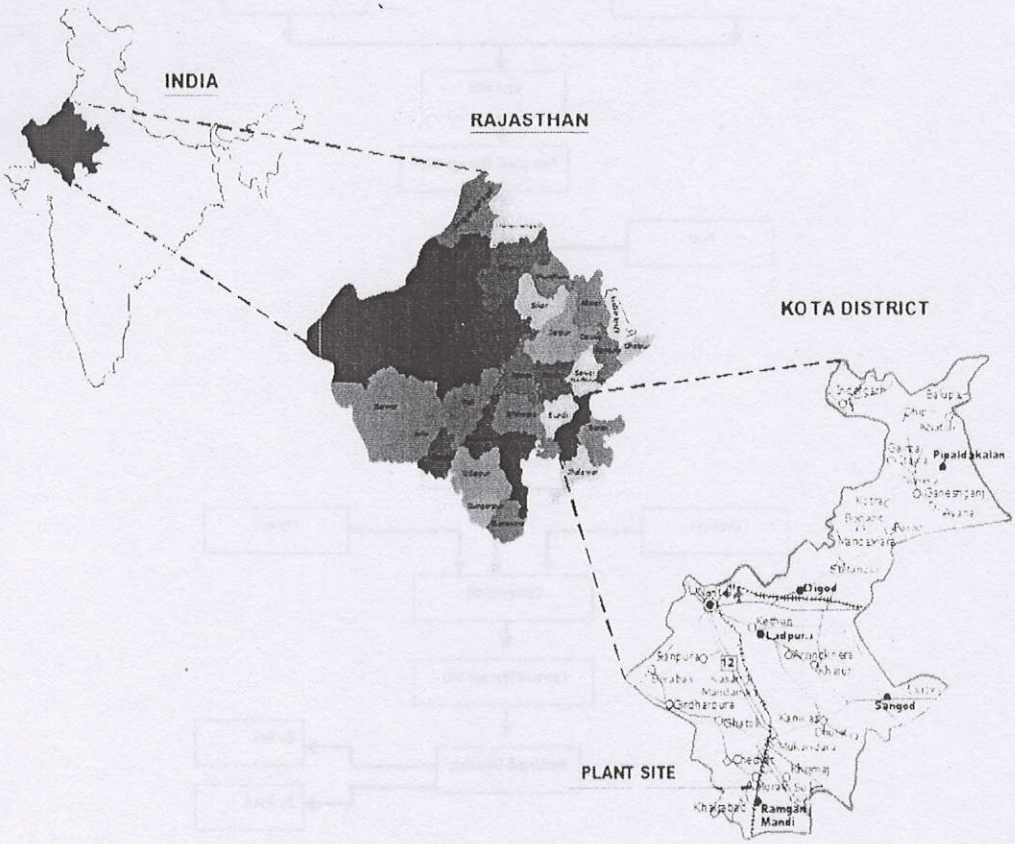


Figure 4. Location Map

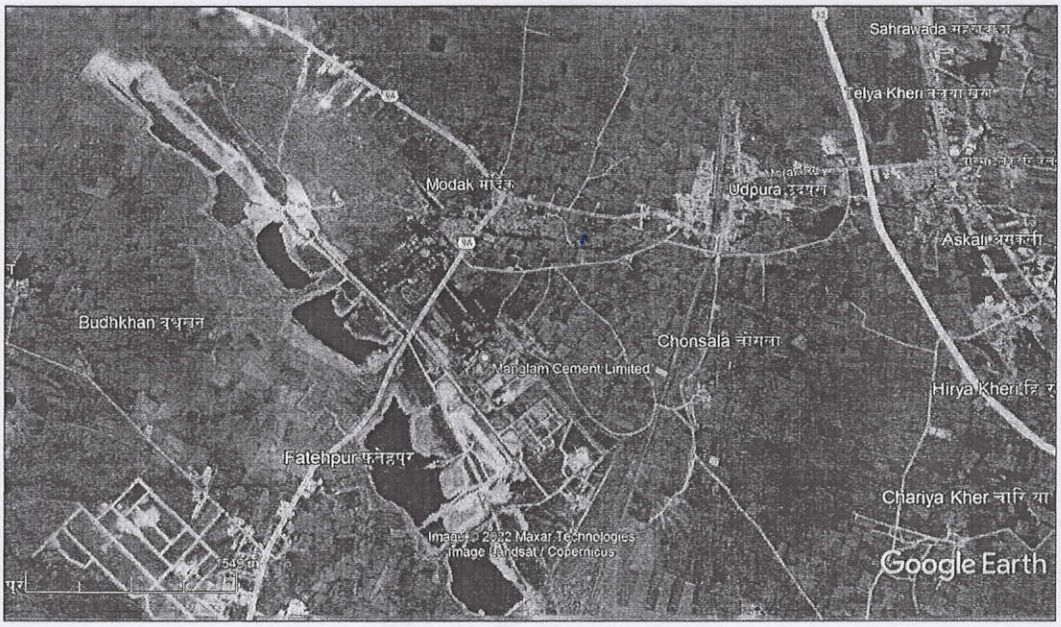


Figure 5. Google Earth Imagery of Site

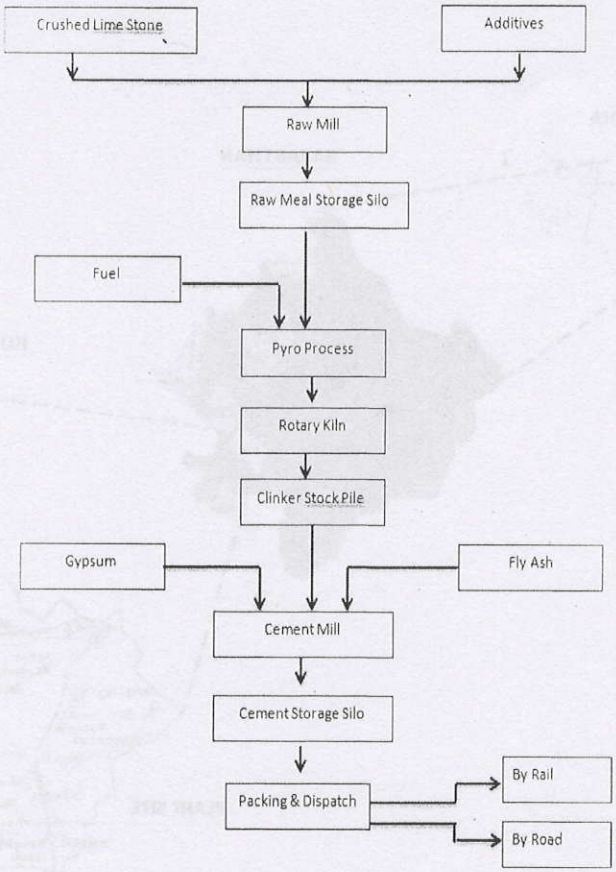


Figure 6. Process Flow Diagram (Cement Plants)

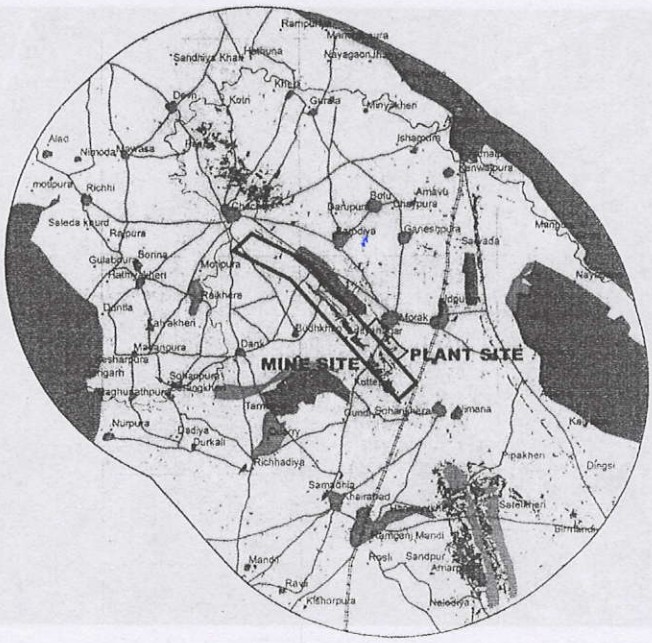


Figure 7. Study Area Map

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)
1.	Area for Int. Cement Plant (Unit I,II,III)	8.17
2.	Roads & Parking	10.61
3.	Railway Siding	10.36
4.	Other Facilities & Infrastructure	59.29
5.	Green Belt	57.40
6.	Open Area	21.17
Total Plot Area (Ha.)		**167.00**

S. No.	Area Name (Unit Wise)	Area (Ha)
1.	Unit – 1	36.00
2.	Unit-2	31.81
3.	Unit-3	37.00
4.	Basant Colony	47.98
5.	Sarvodaya Colony	14.21
Total Plot Area (167.0 Ha.)		**167.00**

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 (2 Nos)

1.3 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	878.58 mm
15.	List of surrounding Industries	None within 10 km radius

1.4 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 906.50 millimeters (35.69 inches) per year: so, it is at an intermediatelevel. It ranges from Nil (0 Inch) in the driest month (April- 24, January- 25, February-25) to 384.32 mm (15.13 Inch) in the wettest one (July-24). The average precipitation is listed below as-

Table 7. Kota-Average Precipitation

Kota- Average Precipitation FY-2024-25 (RAINFALL)			
Month	Inches	Millimeters	Rainfall Days
Apr-24	0.00	0.00	0
May-24	0.02	0.51	1
Jun-24	4.73	120.11	8
Jul-24	15.13	384.32	17
Aug-24	12.17	309.21	18
Sep-24	2.54	64.43	7
Oct-24	0.83	21.14	1
Nov-24	0.00	0.00	0
Dec-24	0.27	6.75	1
Jan-25	0.00	0.00	0
Feb-25	0.00	0.00	0
Mar-25	0.00	0.03	1
Total	35.69	906.50	54

In Kota, there are on average around 3103 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 Hours	No. of Day	Total Hours
January	9	31	279
February	9.5	28	266
March	9.5	31	295
April	10.5	30	315
May	10.5	31	326
June	7.5	30	225
July	5	31	155
August	5	31	155
September	7.5	30	225
October	9.5	31	295
November	9.5	30	285
December	9	31	279
Year	8.5	365	3103

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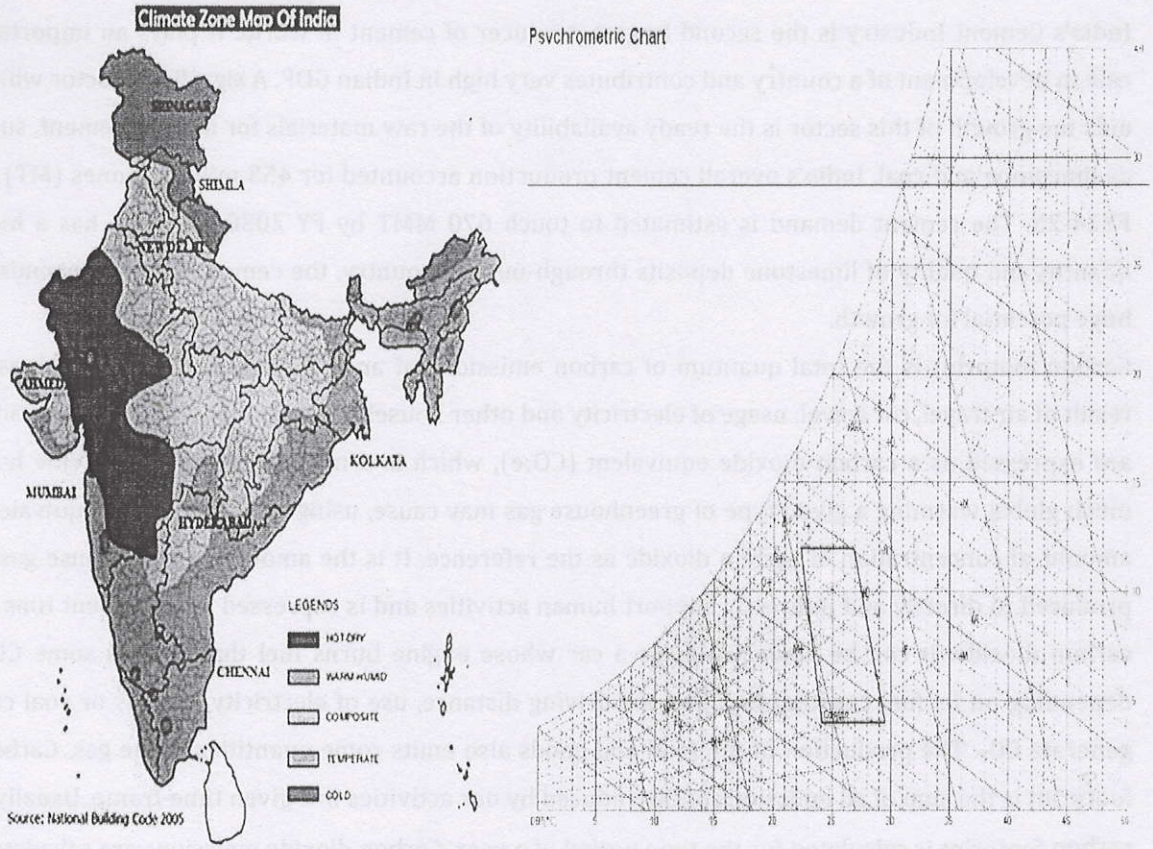

Figure 8.(a) Climate zones in India 8.(b) Comfort zones

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 453 million tonnes (MT) in FY24-25. The cement demand is estimated to touch 670 MMT by FY 2030. 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.

2.1 CONCEPT OF CARBON FOOTPRINT

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.

2.2 SCOPE OF CARBON FOOTPRINT

The cement industry has carbon emission from various process and at different stage like mining, fuel processing, clinkerization, 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 voluntary. 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

3.1 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

3.2 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 foot-printing 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 today 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:

$$\text{Kg } CO_2e = \text{Activity Data (unit)} \times \text{Emission Factor}$$

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

4 CALCULATION OF CARBON EMISSION

4.1 SOURCES OF EMISSION-SCOPE 1

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

- Emission of Carbon dioxide from Employees (Workforce Transportation) 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

Table 10. 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					100
8.	Boiler Ash	100										100
9.	Distillation Residue	100										100
10.	Off specification products	95	5									100
11.	Spent oil/waste/process/ residues containing oil etc.		100									100
12.	Carbon/ Hyflow	75	25									100
13.	Discarded containers, Barrels, used for HW chemicals					85	15					100
14.	Electronic Devices										100	100
15.	Medical Services									100		100
16.	Horticulture								100			100
17.	Debris							100				100
18.	Fuel*	30	20	50								100

4.2 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 µg/m³.

Table 11. Ambient Air Quality Monitoring (µg/m3) In-house FY 2024-25

Location	Near Railway Gate					Near Work Shop					Near Rack Loading Area					Near Security Gate				
Month	PM 10	PM 2.5	SO2	NOx	CO	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 µg/m3	100	60	80	80	4000	100	60	80	80	4000	100	60	80	80	4000	100	60	80	80	4000
Apr-24	64.2	33.6	5.3	10.3	364.2	69.5	36.7	8.3	13.3	386.1	57.4	32.3	8.4	13.7	368.9	68.4	41.0	10.6	15.8	400.1
May-24	60.1	28.3	4.6	10.0	361.2	67.7	32.7	5.8	13.5	603.0	58.1	29.4	4.4	11.8	359.9	69.2	34.7	8.0	13.8	371.0
Jun-24	58.5	28.8	4.2	9.9	390.4	64.9	35.5	6.3	12.7	373.7	59.3	32.7	6.6	11.5	366.8	69.5	40.5	9.1	15.5	402.9
Jul-24	59.5	30.2	4.4	9.4	354.3	59.7	33.6	4.3	10.8	423.8	51.5	30.8	5.4	10.3	416.8	60.0	38.2	6.6	10.9	444.6
Aug-24	49.3	29.1	5.0	11.0	328.2	53.9	32.1	4.6	11.0	359.5	48.7	28.3	5.5	10.9	372.0	55.9	35.9	6.1	11.3	328.2
Sep-24	63.1	27.8	4.4	11.2	359.5	67.2	30.3	4.8	11.5	382.9	56.0	26.9	5.0	11.0	390.8	70.5	34.8	6.1	12.1	382.9
Oct.- 24	65.5	28.9	5.4	11.8	340.4	69.8	32.2	5.7	12.6	354.3	63.0	30.1	6.1	11.6	354.3	75.0	38.1	7.8	13.2	361.2
Nov.- 24	66.7	30.5	5.3	11.9	347.3	71.9	31.5	5.9	13.6	340.4	65.1	29.9	5.4	11.7	382.1	75.1	35.5	7.7	14.8	368.2
Dec.- 24	65.4	31.5	6.0	12.8	399.0	71.2	33.5	5.9	16.6	334.8	68.4	31.8	6.7	16.5	391.8	76.8	37.5	12.2	23.0	361.2
Jan-25	63.9	32.7	5.3	11.9	337.6	70.1	34.6	7.1	14.8	343.2	66.6	35.1	5.9	13.6	354.3	76.7	40.4	14.3	21.0	377.9
Feb-25	61.4	32.5	5.9	11.8	343.9	69.3	36.2	5.3	14.9	336.1	62.9	30.7	6.0	12.5	357.9	75.3	41.1	14.4	17.8	336.1
Mar-25	62.2	33.2	5.0	12.7	333.5	72.6	36.9	7.7	14.5	355.7	64.5	32.4	8.0	15.3	358.5	79.3	43.8	17.6	23.3	382.1
Average	61.6	30.6	5.1	11.2	355.0	67.3	33.8	6.0	13.3	382.8	60.1	30.9	6.1	12.5	372.8	71.0	38.5	10.0	16.0	376.4
Minimum	49.3	27.8	4.2	9.4	328.2	53.9	30.3	4.3	10.8	334.8	48.7	26.9	4.4	10.3	354.3	55.9	34.7	6.1	10.9	328.2
Maximum	66.7	33.6	6.0	12.8	399.0	72.6	36.9	8.3	16.6	603.0	68.4	35.1	8.4	16.5	416.8	79.3	43.8	17.6	23.3	444.6

Table12. Ambient Air Quality (µg/m³) External Agency FY 2024-25

S. No	Location		Near Railway Gate				Near Security Gate				Near Rack Loading Area				Near Workshop			
	Parameters	Norms µg/m3	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	PM10	100	64.23	54.50	68.80	67.30	87.11	72.00	70.70	80.40	70.29	50.30	62.20	73.70	79.21	76.70	80.80	63.50
2	PM2.5	60	31.16	29.60	39.90	28.90	47.22	46.10	31.50	36.20	36.10	28.50	34.50	36.20	47.10	32.30	40.20	29.80
3	SO_2	80	13.37	10.13	10.60	11.02	15.19	10.28	12.30	10.85	11.34	9.88	9.87	10.21	12.24	8.99	13.40	9.72
4	NOx	80	19.84	15.96	17.30	16.85	23.18	16.15	19.70	17.02	17.89	14.80	17.30	15.64	20.64	13.40	23.70	14.47
5	CO	4000	600.0	380	780	400	610.0	410	890	430	590.0	400	720	410	640.0	410	920	430

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.

Table13a. Stack Monitoring Results (mg/Nm3) In-house(CEMS) FY 2024-25

S. No	Unit Name	Unit I						Unit II						Unit III
	Stack Name	Kiln-I			Cooler I	Coal Mill-I	Cement Mill-I	Kiln-II			Cooler II	Cement Mill-II	Coal Mill-II	Cement Mill-II
	Parameters	PM	SO2	NOx	PM	PM	PM	PM	SO2	NOx	PM	PM	PM	PM
	Standards (mg/Nm^3)	30	100	800	30	30	30	30	100	800	30	30	30	30
1.	Apr-24	16.20	22.20	670.00	15.40	13.10	19.10	17.20	27.00	680.00	19.30	15.60	20.00	23.00
2.	May-24	21.50	28.50	630.20	20.75	11.10	14.30	18.90	8.00	680.20	21.20	14.00	13.20	19.30
3.	Jun-24	21.80	20.40	700.20	18.30	12.30	13.80	19.90	11.80	690.20	17.20	14.50	21.50	23.00
4.	Jul-24	20.70	33.30	695.60	23.50	12.40	14.00	19.20	7.45	640.20	17.25	13.60	20.40	24.10
5.	Aug-24	20.10	35.10	680.50	23.20	14.40	14.50	19.70	7.30	620.50	17.20	13.70	20.20	21.20
6.	Sep-24	20.30	3.10	665.20	21.60	18.50	14.10	18.95	12.20	668.56	17.60	14.20	20.90	22.90
7.	Oct.- 24	21.00	7.20	640.30	23.00	15.80	14.40	19.20	22.80	668.56	17.40	14.20	21.30	21.10
8.	Nov.- 24	21.50	8.00	740.20	23.80	17.10	9.80	20.20	45.90	620.20	27.80	20.10	10.50	16.40
9.	Dec.- 24	21.20	10.30	630.20	12.90	13.90	18.50	18.00	4.60	500.20	17.20	21.20	13.00	14.40
10.	Jan-25	16.30	8.70	670.20	15.70	13.80	18.20	17.60	4.10	365.20	17.00	15.00	11.00	17.20
11.	Feb-25	16.20	20.60	410.20	16.50	13.85	17.70	19.20	18.90	390.20	21.00	15.90	11.60	14.55
12.	Mar-25	18.30	20.20	620.60	18.00	19.20	17.10	18.00	45.20	353.20	19.10	15.60	13.30	15.30
13.	Average	16.93	16.50	567.00	16.73	15.62	17.67	18.27	22.73	369.53	19.03	15.50	17.89	15.68
14.	Minimum	16.20	8.70	410.20	15.70	13.80	17.10	17.60	4.10	353.20	17.00	15.00	10.50	14.55
15.	Maximum	18.30	20.60	670.20	18.00	19.20	18.20	19.20	45.20	390.20	21.00	15.90	21.30	17.20

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.

Table13b. Stack Monitoring Results (mg/Nm3) In-house(CEMS) FY 2024-25

S. No	Unit Name	CPP-I			CPP-II			Coal Bunker-II
	Parameters	PM	SO2	NOx	PM	SO2	NOx	PM
	Standards (mg/Nm^3)	50	600	450	50	600	450	50
1.	Apr-24	33.20	390.20	347.00	26.20	215.20	360.20	18.20
2.	May-24	31.00	348.50	290.20	NR	NR	NR	NR
3.	Jun-24	28.40	346.50	425.20	NR	NR	NR	NR
4.	Jul-24	NR	NR	NR	32.50	270.20	176.20	17.20
5.	Aug-24	NR	NR	NR	42.85	168.20	170.20	12.50
6.	Sep-24	NR	NR	NR	43.9	162.30	320.20	18.50
7.	Oct.- 24	32.00	121.2	233.2	42	169.20	328.50	16.50
8.	Nov.- 24	34.70	320.2	350.2	NR	NR	NR	NR
9.	Dec.- 24	34.55	360.2	268.5	NR	NR	NR	NR
10.	Jan-25	36.5	260.3	240.5	35.6	305.20	216.40	15.20
11.	Feb-25	NR	NR	NR	34.9	320.2	196	14
12.	Mar-25	NR	NR	NR	41.8	288.5	215	17.8
13.	Average	32.91	306.73	307.83	37.18	215.05	261.95	16.35
14.	Minimum	28.40	121.20	233.20	26.20	162.30	170.20	12.50
15.	Maximum	36.50	390.20	425.20	43.90	305.20	360.20	18.50

Table14a. Stack Monitoring Results (mg/Nm3) External Agency FY 2024-25

S. No	Unit Name	Unit I						Unit II						Unit III
	Stack Name	Kiln-I			Cooler I	Coal Mill-I	Cement Mill-I	Kiln-II			Cooler II	Coal Mill-II	Cement Mill-II	Cement Mill-III
	Parameters	PM	SO2	NOx	PM	PM	PM	PM	SO2	NOx	PM	PM	PM	PM
	Standards (mg/Nm³)	30	100	800	30	30	30	30	100	800	30	30	30	30
1.	Q1	19.12	16.98	617.25	8.75	14.92	10.55	19.05	21.51	653.92	20.03	13.48	19.82	13.76
2.	Q2	24.12	14.57	671.32	23.12	16.82	14.48	19.73	1.79	653.49	16.89	20.79	13.68	22.95
3.	Q3	17	8.3	660.2	16.2	12.6	17.8	17.6	16.3	425.2	17.2	15.69	22.9	12.2
4.	Q4	17.2	7.95	580.2	18.8	15.9	17.5	19.2	51.8	317.2	21.3	17.7	15.1	12.2

Table14b. Stack Monitoring Results (mg/Nm3) External Agency FY 2024-25

S. No	Stack Name	CPP-I			CPP-II		
	Parameters	PM	SO2	NOx	PM	SO2	NOx
	Standards (mg/Nm³)	50	600	450	50	600	450
1.	Q1	41.58	377.10	276.35	26.2	215.20	360.2
2.	Q2	NR	NR	NR	42.3	242.2	318.2
3.	Q3	37.5	430.5	285.5	NR	NR	NR
4.	Q4	NR	NR	NR	36.4	345.6	250.3

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 15. Ambient Noise In-house FY 2024-25

Month	Measured Noise Level (All values 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-24	64.2	33.6	33.6	10.3	57.4	32.3	68.4	41.0
May-24	60.1	28.3	28.3	10.0	58.1	29.4	69.2	34.7
Jun-24	58.5	28.8	28.8	9.9	59.3	32.7	69.5	40.5
Jul-24	59.5	30.2	59.5	30.2	51.5	30.8	60.0	38.2
Aug-24	49.3	29.1	49.3	29.1	48.7	28.3	55.9	35.9
Sep-24	63.1	27.8	63.1	27.8	56.0	26.9	70.5	34.8
Oct-24	65.5	28.9	65.5	28.9	63.0	30.1	75.0	38.1
Nov-24	66.7	30.5	66.7	30.5	65.1	29.9	75.1	35.5
Dec-24	65.4	31.5	65.4	31.5	68.4	31.8	76.8	37.5
Jan-25	62.6	53.2	65.5	54.4	65.6	55.6	67.2	56.7
Feb-25	64.3	53.9	65.3	54.5	65.2	54.8	66.7	56.1
Mar-25	63	52.7	65.4	55.1	65.9	55.1	68	56.7
Average	61.8	35.7	54.7	31.0	60.3	36.5	68.5	42.1
Minimum	49.3	27.8	28.3	9.9	48.7	26.9	55.9	34.7
Maximum	66.7	53.9	66.7	55.1	68.4	55.6	76.8	56.7

Table 16. Ambient Noise External Agency FY 2024-25

Ambient Noise Monitoring Report (All values in (dB)A)									
Sr. No.	Location	Q1		Q2		Q3		Q4	
		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**
1	Near Security Gate	60.14	52.96	65.1	53.2	64.3	54.3	61.8	51.4
2	Near Railway Gate	62.23	53.73	65.1	52.6	63.7	53.4	63.9	50.3
3	Near Rack Loading Area	73.76	66.80	65.3	48.3	66.8	49.6	63.7	47.5
4	Near Work Shop	61.32	53.13	64.3	54.3	65.3	53.9	62.2	52.9

4.3 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 17. Raw material Transportation details FY 2024-2025

Material	Source	Mode	Distance	MT (BY ROAD) per annum	tCO2 Generation
Bauxite	Katni,MP	Road	590	78,784.02	1859
Biomass	Morak	Road	40	8699.26	14
Coal open	Varanasi	Road	860	19317.66	665
SECLCOAL	Bilaspur, Chhatisgarh	Road	780	38660.39	1206
CPPCOALKRIS	Krishnashill	Road	1045	46457.31	1942
CPP COALBG9	Bina,UP	Road	1047	49587.85	2077
US COAL	Kandla Port	Road	845	65793.17	2224
Fly ash	Kawai	Road	111	544504.07	7906
	Chhabra, Bara	Road	147		
	Jhalawar	Road	35		
	Kota	Road	70		
GYPSUM	Bharuch	Road	538	104981.44	2259
LATERITE	Shamgarh, MP	Road	85	79851.77	271
REDMUD	Renukoot, UP	Rail	978	3822.31	40
Pet coke	Kandla Port	Rail	852	203333.2	1857
HGLS/Marble khanda	Jodhpur	Road	465	432095.28	33219
	Gagrana, Merta	Road	367		

	Borunda	Road	400		
	Mavli, Udaipur	Road	330		
	Makarana	Road	360		
Slurry waste	Ramganj mandi	Road	15	136912.64	82
Total t CO2e					**55,622**

Table 18. Transportation of Finished Goods in FY 2024-25

		RAIL			ROAD		
Ship-to party Region Desc	**Ship to City Code / District Desc**	**QTY**	**DISTANCE**	**tCO2 Generation**	**QTY**	**DISTANCE**	**tCO2 Generation**
Delhi	WEST DELHI	79,716	544	465	5,376	170	37
Gujarat	DAHOD	0	0	0	1,037	338	14
Gujarat	SURAT	0	0	0	168	604	4
Gujarat	VADODARA	0	0	0	10,778	452	195
Haryana	BALLABHGARH	0	0	0	245	115	1
Haryana	BHIWANI	0	0	0	5,940	599	142
Haryana	CHARKHI DADRI	0	0	0	405	550	9
Haryana	FARIDABAD	3,670	501	20	25,616	313	321
Haryana	GURGAON	0	0	0	1,124	563	25
Haryana	HISAR	0	0	0	5,985	650	156
Haryana	JHAJJAR	0	0	0	720	573	16
Haryana	MAHENDER GARH	0	0	0	1,440	512	29
Haryana	MEWAT	0	0	0	1,485	135	8
Haryana	PALWAL	0	0	0	160	100	1
Haryana	PANIPAT	0	0	0	5,805	676	157
Haryana	REWARI	0	0	0	45	510	1
Haryana	ROHTAK	0	0	0	3,146	600	76
Haryana	SOHANA	0	0	0	3,014	563	68
Haryana	SONEPAT	0	0	0	11,422	634	290
Madhya Pradesh	ALIRAJPUR	0	0	0	1,679	375	25
Madhya Pradesh	ASHOK NAGAR	0	0	0	13,507	248	134
Madhya Pradesh	BHOPAL	0	0	0	24,096	291	280
Madhya Pradesh	DEWAS	0	0	0	1,425	300	17
Madhya Pradesh	DHAR	0	0	0	9,165	309	113
Madhya Pradesh	GUNA	33,487	249	89	19,140	190	146
Madhya Pradesh	GWALIOR	0	0	0	622	350	9
Madhya Pradesh	HARDA	0	0	0	238	363	3
Madhya Pradesh	HOSHANGABAD	9,667	489	51	0	0	0
Madhya Pradesh	INDORE	65,906	296	209	10,410	264	110
Madhya Pradesh	JHABUA	0	0	0	930	312	12
Madhya Pradesh	KHANDWA	1,381	679	10	126	410	2
Madhya Pradesh	MANDSAUR	0	0	0	46,483	129	240

Madhya Pradesh	MORENA	0	0	0	405	369	6
Madhya Pradesh	NEEMUCH	0	0	0	11,120	157	70
Madhya Pradesh	RAISEN	0	0	0	2,586	365	38
Madhya Pradesh	RAJGARH	0	0	0	39,310	185	291
Madhya Pradesh	RATLAM	7,028	206	16	30,259	198	240
Madhya Pradesh	SAGAR	0	0	0	535	360	8
Madhya Pradesh	SEHORE	0	0	0	6,938	278	77
Madhya Pradesh	SHAJAPUR	0	0	0	28,761	176	202
Madhya Pradesh	SHEOPUR	0	0	0	32,255	207	267
Madhya Pradesh	SHIVPURI	3,746	351	14	17,682	237	167
Madhya Pradesh	UJJAIN	0	0	0	49,222	202	397
Madhya Pradesh	VIDISHA	0	0	0	23,928	287	275
Rajasthan	AJMER	0	0	0	36,306	257	374
Rajasthan	ALWAR	0	0	0	3,653	414	60
Rajasthan	BANSWARA	0	0	0	5,260	306	64
Rajasthan	BARAN	0	0	0	118,057	111	524
Rajasthan	BARMER	0	0	0	1,618	547	35
Rajasthan	BHARATPUR	39,505	355	150	1,051	393	17
Rajasthan	BHILWARA	0	0	0	27,954	222	248
Rajasthan	BIKANER	0	0	0	135	576	3
Rajasthan	BUNDI	0	0	0	59,768	120	287
Rajasthan	CHITTOR GARH	0	0	0	43,166	152	263
Rajasthan	CHURU	0	0	0	5,130	573	118
Rajasthan	DAUSA	0	0	0	2,222	310	28
Rajasthan	DHOLPUR	0	0	0	5,884	398	94
Rajasthan	DUNGARPUR	0	0	0	1,455	323	19
Rajasthan	HANUMANGARH	0	0	0	9,000	703	253
Rajasthan	JAIPUR	0	0	0	68,232	332	905
Rajasthan	JALORE	0	0	0	90	560	2
Rajasthan	JHALAWAR	0	0	0	90,167	79	284
Rajasthan	JHUNJHUNU	0	0	0	2,969	455	54
Rajasthan	JODHPUR	0	0	0	87	501	2
Rajasthan	KAROLI	0	0	0	18,927	320	242
Rajasthan	KOTA	0	0	0	197,995	65	516
Rajasthan	NAGAUR	0	0	0	15,432	403	249
Rajasthan	PALI	0	0	0	1,752	388	27
Rajasthan	PRATAPGARH	0	0	0	10,142	203	82
Rajasthan	RAJSAMAND	0	0	0	19,207	365	281
Rajasthan	SAWAI MADHOPUR	0	0	0	17,768	237	168
Rajasthan	SIKAR	0	0	0	37,128	423	629
Rajasthan	TONK	0	0	0	35,097	224	314
Rajasthan	UDAIPUR	0	0	0	19,026	334	254
Uttar Pradesh	AGRA	256,508	400	1,100	270	102	1
Uttar Pradesh	ALIGARH	183,495	498	980	87,400	20	71
Uttar Pradesh	AMROHA	0	0	0	16,375	128	84

Uttar Pradesh	AYODHYA	986	844	9	0	0	0
Uttar Pradesh	BADAUN	0	0	0	45,485	127	230
Uttar Pradesh	BAGHPAT	0	0	0	2,569	187	19
Uttar Pradesh	BAREILLY	18,740	598	120	26,067	227	237
Uttar Pradesh	BIJNOR	28,459	703	214	52,233	194	405
Uttar Pradesh	BULAND SHAHAR	0	0	0	35,483	83	118
Uttar Pradesh	ETAH	0	0	0	21,468	100	86
Uttar Pradesh	FIROZABAD	0	0	0	2,924	124	15
Uttar Pradesh	GAUTAM BUDDHA NAGAR	0	0	0	31,975	106	136
Uttar Pradesh	GHAZIABAD	199,120	545	1,163	17,809	149	106
Uttar Pradesh	HAPUR	0	0	0	9,137	121	44
Uttar Pradesh	HATHRAS	0	0	0	14,823	54	32
Uttar Pradesh	JHANSI	1,371	520	8	167	331	2
Uttar Pradesh	KANNAUJ	0	0	0	175	211	1
Uttar Pradesh	KANPUR	13,652	650	95	0	0	0
Uttar Pradesh	KASGANJ	0	0	0	14,532	91	53
Uttar Pradesh	LUCKNOW	124,230	725	966	0	0	0
Uttar Pradesh	MAINPURI	0	0	0	6,839	153	42
Uttar Pradesh	MATHURA	133,237	389	556	2,335	84	8
Uttar Pradesh	MEERUT	28,655	585	180	9,083	148	54
Uttar Pradesh	MORADABAD	42,020	641	289	11,501	157	72
Uttar Pradesh	MUZAFFAR NAGAR	96,436	648	670	2,760	217	24
Uttar Pradesh	PILIBHIT	0	0	0	4,520	280	51
Uttar Pradesh	RAMPUR	0	0	0	14,140	190	108
Uttar Pradesh	SAHARANPUR	0	0	0	6,766	283	76
Uttar Pradesh	SAMBHAL	54,486	597	349	32,526	95	123
Uttar Pradesh	SHAHJAHANPUR	10,701	671	77	25	230	0
Uttar Pradesh	SHAMLI	0	0	0	3,010	233	28
Uttar Pradesh	SITAPUR	11,920	792	101	0	0	0
Uttarakhand	CHAMPAWAT	0	0	0	3,526	286	40
Uttarakhand	DEHRADOON	0	0	0	10,325	309	128
Uttarakhand	HARDWAR	17,943	851	164	7,202	252	73
Uttarakhand	NAINITAL	0	0	0	8,021	230	74
Uttarakhand	PAURI GARHWAL	0	0	0	420	260	4
Uttarakhand	UDHAM SINGH NAGAR	0	0	0	11,126	208	93
tCO2		**8,063**			**13,713**		
Total tCO2		**21,776**					

Table 19. Diesel Consumption (FY 2024-25)

S.No.	Particulars	Diesel Issued	Diesel (KL)
1.	Diesel Consumption –Security Department (Hired Vehicles)	Outside	18.69
2.	Diesel Consumption –Commercial Department	Outside	4.49
3.	Diesel Consumption –Ambulance	Outside	4.16
6.	Laboratory	Outside	2.98
7.	Plant and Machinery, Mechanical, Civil & Horticulture	MCL Store	134.91
Total Consumption			**165.23**

Total Diesel (KL)		tCO2e
Diesel	165	436.00

4.4 EMISSION FROM 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 20. Carbon Footprint from Workforce Transportation within premises (FY 2024-25)

Mode of Transportation	Fuel	No. of Vehicles	Travelling Distance/ Day(km)	Travelling Distance/ Annum(km)	tCO2e
Two wheeler (Aprox.)	Petrol	600	2.0	36000	68.15
Four wheeler (Aprox.)	Petrol	25	2.0	15000	2.83
Four wheeler (Aprox.)	Diesel	35	2.0	21000	3.70
Total		**660**	-	**396000**	**74.69**

The carbon emission from transportation for raw material, finished goods, workforce and other transportation is **55622.0** tons; **21,776.0** tons, **74.69** tons and **436.0** tons respectively. Total Carbon emission from mobile sources is **77908.69** tCO2e for **FY 2024-25.**

4.5 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.

Table 21. Carbon Foot print from Stationary Sources (FY 2024-25)

S. No.	Type of Fuel	Quantity (TPA)	tCO_2e
1.	Coal	85056	153951.36
2.	Pet-coke	184397.376	584539.682
3.	Petrol	1.42 KL	3.22
Total			**738494.26**

4.6 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 **52,844.32** Kgs.

Table 22. Carbon Footprint from Paper Consumption (FY 2024-25)

S.No.	Category	Weight (kg)	Emissions (tCO_2e)
1	All Types of Papers	**52,844.32**	**73.98**
Total tCO_2e			**73.98**

4.7 EMISSION FROM WASTE GENERATION

Table 23. Carbon Footprint from Waste Generation (FY 2024-25)

S. No.	Source	Quantity (Per Annum)	Remarks
1	Biomedical waste	45.6 Kg	-
2	E-waste	3100 kg	-
3	Used oil	11000 Ltr	-
3	Agro-Waste	9113.150 MT	Emission reduction

4.8 EMISSION FROM CEMENT PRODUCTION

The cement production includes 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 24. Carbon emission from Cement production (FY 2024-25)

S. No.	Total Cement production (TPA)	Clinker to Cement Ratio (%)	Ton of Raw Material per Ton of Clinker	CaCO3 Equivalent Raw Material Ratio (%)	CO2 to CaCO3 Stoichiometric Ratio	Annual tCO2e
1	2948260.1	0.73	1.48	0.77	0.44	1079180

4.9 EMISSION FROM POWER CONSUMPTION (SCOPE 2)

Table 25. Carbon Emission from Power Consumption (FY 2024-25)

S. No.	Source	Quantity (Gross KWH)	tCO_2e
1.	Ele. Board	34108780	27969.1996
2.	Wind PP	11660162	Emission reduction
3.	CPP	136048000	Included in scope 1
4.	WHR	66336493	Emission reduction
5.	D.G	291	Included in scope 1
Total			27969.20

4.10 NET CARBON EMISSION

Table 26. Net Carbon Emission of FY 2024-25

Emission Area	tCO2e23-24	tCO2e24-25
Scope 1		
Stationary Sources	780647.4	738494.26
Paper Consumption	84320	73.98
Production Process	1135982.33	1079180
Total Scope 1	**2000949.73**	**1817748.24**
Scope 2		
Electricity Purchased	37388.9069	27969.2
Total Scope 2	**37388.9069**	**27969.2**
Scope 3		
Mobile Sources	212.75735	77908.69
Total Scope 3	**212.75735**	**77908.69**
Total Scope 1+2+3	**2038551.394**	**1923626.13**
Emission reduction		
WHRB	59153.2543	54395.92
Wind (WTG)	11988.60977	9561.33
Plantation (KG)	4155927.32	4700235
Plantation (Ton)	4155.92732	4700.235
Total emission reduction (Kg)	**4227069.184**	**4764192.25**
Total emission reduction (Ton)	**75297.79139**	**68657.485**
Net Emission (Kg CO2e)	**-2188518**	**-2840566**
Net Emission (Ton CO2e)	**1963254**	**1854969**

5 MITIGATION MEASURES

5.1 CARBON SEQUESTRATION FOR MITIGATION MEASURE TO REDUCE CARBON EMISSION.

It is a natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form. Industries are following the mitigation measure to reduce the carbon emission. 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 (CO2) 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.

5.2 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.

5.3 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 **4700.24** tCO_2e.

Green Belt Development - Total plant area is 167 Hectare out of which 57.85 Hectare Green area covered and **133429** nos. of plants planted with 70% survival rate along with 34.64% green area till FY 2024-25. We have planted different type of species for dense plantation like as Amaltas, Arjun, Gulmohar, Casia Samiya, Karanj, Palas, Sheesham, Amrood, Amla, Banyan, Imli, Kachnar, Kadam, Pipal, Peltroforam, Sahjan, Semal, Sheesham, Nimbu, Rudraksh, Neem, Kanjee, Kaner etc.

Green Belt Development Outside Plant Area- Under the "Mission Haryalo Rajasthan," green belt development was carried out outside the plant area. During FY 2022–23, 10,000 saplings were planted, and in FY 2023–24, an additional 20,000 saplings were planted to enhance environmental sustainability. We have planted different type of species for dense plantation like as Amaltas, Arjun, Gulmohar, Casia Samiya, Karanj, Palas, Sheesham, Banyan, Kachnar, Kadam, Pipal, Sahjan, Semal, Sheesham, Neem, Kanjee, Kaner etc.

Table 27. Plantation Details till (FY 2024-25)

PLANTATION DETAILS – TILL FY 2024-25 (UPTO 31.03.2025)				
Sr.	**Details - Bench Mark = 55.11 (33%)**	**Units**	**Details**	**Plants Species**
1	Total Plant Area	(Ha.)	167.00	Amaltas, Arjun, Gulmohar, Casia Samiya, Karanj, Palas, Sheesham, Amrood, Amla, Banyan, Imli, Kachnar, Kadam, Pipal, Peltroforam, Sahjan, Semal, Sheesham, Nimbu, Rudraksh etc.
2	Total Plantation till FY	Nos.	**133429**	
3	Total Survived Plants till FY	**Nos.**	**93400**	
4	Total Survived Rate till FY	%	70.00	
5	Total Green Area Covered	**Ha.**	**57.85**	
6	Total Green Area Covered	%	**34.64**	

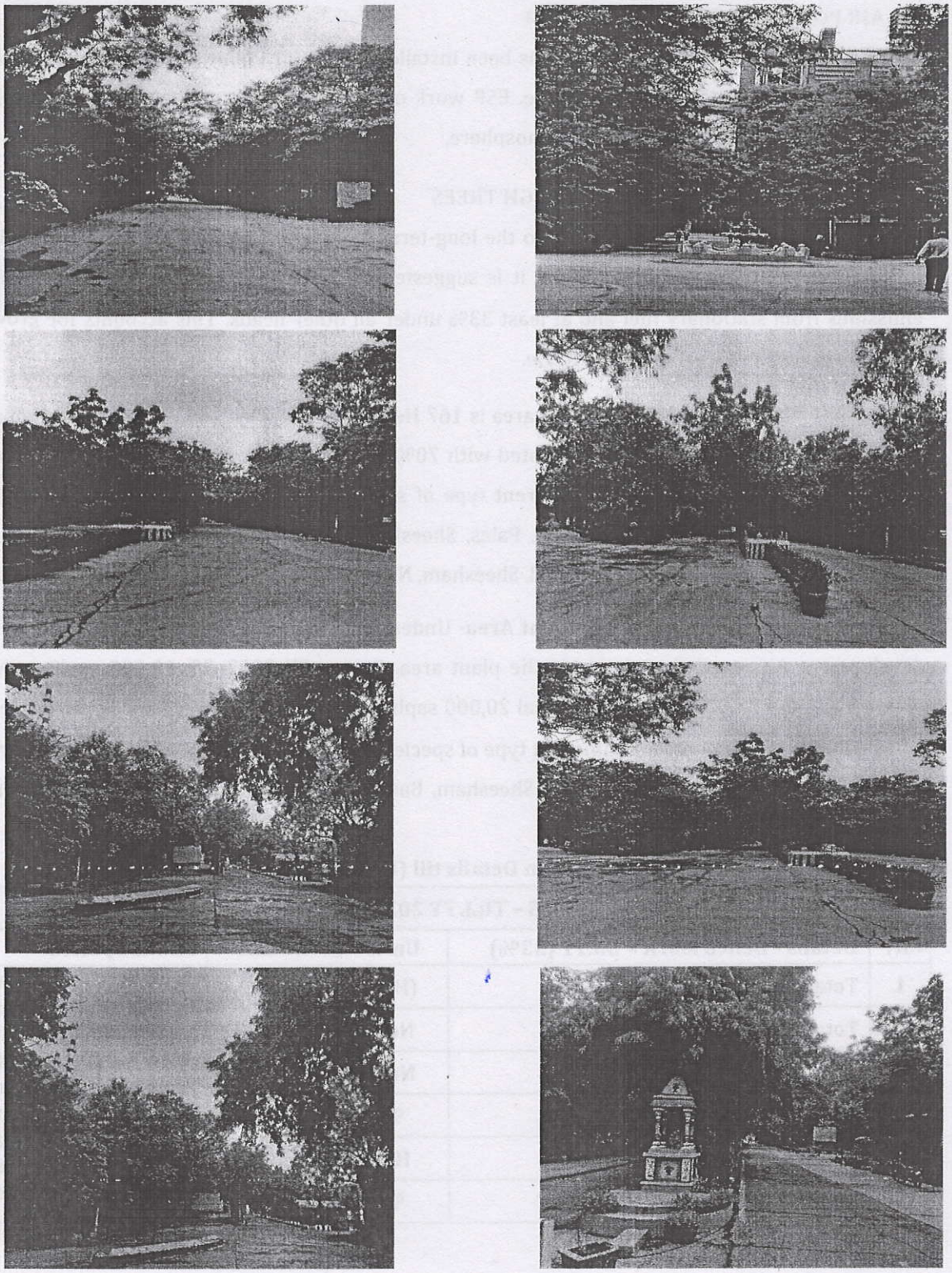

Figure 9. Photographs of Green vegetation developed by M/s Mangalam Cement Ltd

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 28. Carbon Sequestration by Green Belt (FY 2024-25)

S. No.	Year of Plantation	No. of tree/plants	Average Age (Years)	Carbon Sequestration (Kg CO2e)/Annum	Carbon Sequestration (t CO2e)/Annum
1	2008-2009	20000	16	800000.00	800.00
2	2009-2010	22000	15	880000.00	880.00
3	2010-2011	16000	14	640000.00	640.00
4	2011-2012	18000	13	720000.00	720.00
5	2012-2013	10700	12	428000.00	428.00
6	2013-2014	16607	11	498210.00	498.21
7	2014-2015	10238	10	307140.00	307.14
8	2015-2016	3788	9	94700.00	94.70
9	2016-2017	4044	8	101100.00	101.10
10	2017-2018	3923	7	98075.00	98.08
11	2018-2019	2231	6	44620.00	44.62
12	2019-2020	3153	5	63060.00	63.06
13	2020-2021	470	4	7050.00	7.05
14	2021-2022	510	3	7650.00	7.65
15	2022-2023	496	2	4960.00	4.96
16	2023-2024	567	1	5670.00	5.67
17	2024-2025	702	0	0.00	0
Total		**133429**	**-**	**4700235**	**4700.24**

By following the green belt and existing tree at site, total **4700.24** tons of CO2e has been sequestered for the **FY 2024-25**. 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 Fly-ash/process dust collection at every point and should be used within premises to reduce the carbon footprint.

5.4 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 itswind turbines, Waste Heat Recovery (WHR) based power plant.

Wind Energy

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

Table 29. WTG (Wind Turbine Generator) Installation by M/s Mangalam Cement Ltd.

S. No.	Location	WTG Nos. & Capacity (MW)			Year of Commissioning
		Nos.	(KW)	(MW)	
1	Village- Chicha & Sirwa, Jaisalmer	6 X 1250 KW	7500	7.50 MW	2010
2	Village - Sadiya, Jaisalmer	1 X 600 KW	600	0.60 MW	2007
	Village - Sadiya, Jaisalmer	3 X 600 KW	1800	1.80 MW	2007
3	Village - Gorera, Jaisalmer	3 X 1250 KW	3750	3.75 MW	2008
Total		**13 Nos.**	**13650 KW**	**13.65 MW**	--

Mangalam Cement Limited operates wind turbines of an aggregate capacity of 13.65 MW at Jaisalmer, Rajasthan; reducing an equivalent of **9561.33** of tCO2e emissions during the FY **2024-25** by replacing fossil fuel-based grid power with renewable wind energy based green power.

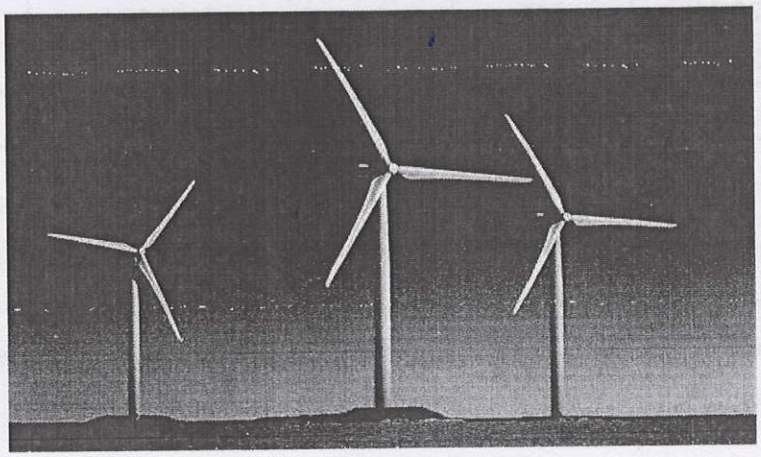

Figure10.Wind Mill (WTG)

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.

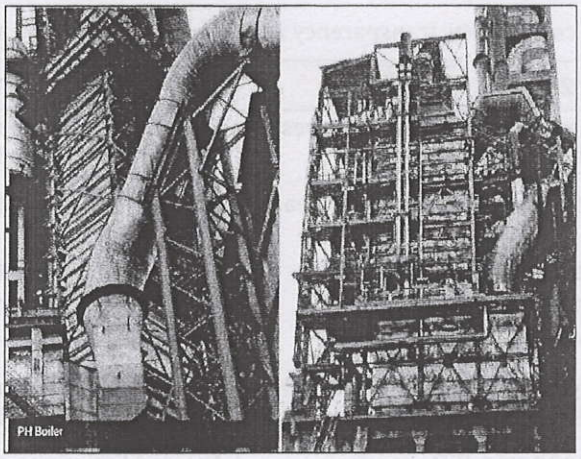

Figure11. WHR at Mangalam Cement Ltd.

Table 30.GHG Reduction from Renewal Energy Sources

Particular	Net Generation	Unit	tCO2e Reduction
Wind Mills	11660162	kWh	9561.33
Waste Heat Recovery	66336493	kWh	54395.92
Carbon Sequestration through Greenbelt	-	-	4700.24
		Total	**68657.485**

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.

FY 2023-24	FY 2024-25
Total Emission at Mangalam Cement by all scopes for FY 2024-25= **2038551.394 tCO_2e**	Total Emission at Mangalam Cement by all scopes for FY 2024-25= **1923626.13 tCO_2e**
Avoided Emission= **4227069.184 $KgCO_2$** per year.	Avoided Emission= **4764192.25 $KgCO_2$** per year.
Net Emission (FY2023-24) = -2188517.789 $KgCO_{2e}$	**Net Emission (FY2024-25) = -2840566.12 $KgCO_{2e}$**
Total Emission at Mangalam Cement by all scopes for FY 2024-25= **2038551.394 tCO_2e**	Total Emission at Mangalam Cement by all scopes for FY 2024-25= **1923626.13 tCO_2e**
Avoided Emission= **75297.791 tCO_2** per year.	Avoided Emission= **68657.485 tCO_2** per year.
Net Emission (FY2024-25) = 1963253.602 tCO_{2e}	**Net Emission (FY2024-25) = 1854968.645 tCO_{2e}**

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.

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