தமிழ்நாடு சிமெண்ட் கழகம்

(தமிழ்நாடு அரசு நிறுவனம்)

TAMILNADU CEMENTS CORPORATION LIMITED

(A Government of Tamilnadu Undertaking)

அரியலூர் சிமெண்ட் ஆலை, அரியலூர் - 621 729 , அரியலூர் மாவட்டம், தமிழ்நாடு.

Ariyalur Cement Factory, Ariyalur - 621 729, Ariyalur District, Tamilnadu

E-mail : tanaridgmoffice@gmail.com **website :** www.tancem.com **GSTIN :** 33AABCT1819J1ZH

Ref:TANCEM/ACW/1MTPA Cement Expansion Plant/Half Yearly Compliance Report/2023-2024

Date: 25.05.2023

The Additional Principal Chief Conservator of Forests,
The Ministry of Environment and Forests,
Regional office (Southern Zone),
No.34, Cathedral Garden road,
Nungambakkam,
Chennai-600 034.

Sir,

Sub: Tamilnadu Cements Corporation Limited, Ariyalur - 1MTPA Cement Expansion Plant - Environmental clearance - Submission of half yearly Compliance report during the period from October-2022 to March -2023 - Reg.

Ref: Environmental Clearance - Cement Plant- 0.5 MTPA to 1.63 MTPA Cement Plant and 0.475 MTPA to 1.475 MTPA clinker – F.no.J-11011/83/2014-1A II (I), Dated: 08.09.2016.

We herewith submitting half yearly compliance report for the period from October-2022 to March -2023 related to Environmental Clearance letter issued to our cement plant.

Thanking you,

Yours faithfully,
For Tamilnadu Cements Corp. Ltd.,
Ariyalur Cement works

R. [signature] 25.05.2023

Unit Head

Encl:

1. MoEF conditions & Compliance report
2. Enterprise social commitment work with status.
3. Copy of Disaster management plan.
4. Copy of Environmental statement.
5. MoEF&CC O&M of standard EC conditions compliance report.
6. Copy of Stack emission and Air quality monitoring report.
7. Copy of Consent to Operate.

CC: CPCB/SPCB Zonal office.

Corporate Office : 5 th Floor, Aavin Illam, No.3 A Pasumpon Muthuramalinga Thevar Road, Nandanam, Chennai - 600 035

Phone : 044 - 2852 5461, 044 28525471 Toll Free No. 1800 599 7635

E-mail : csco.tancem@tn.gov.in **Fax :** 044 - 28523991 **Website :** www.tancem.com

CIN : U40200TN1976SGC007081 **GSTIN :** 33AABCT1819J1ZH

COMPLIANCE REPORT

Sub: Expansion of Cement Plant by a new production line of 1 MTPA clinker and 1.13 MTPA cement production TPD at TANCEM, Ariyalur Cement Works, Ariyalur –Reg

Ref: MoEF . CL. Lt. F.No.J-11011/83/2014-1A II (I)

A. SPECIFIC CONDITION

SL.NO	Conditions	Compliance
A	The present status of the project.	The plant was commissioned on 01.11.2019. The commercial production started on 21.03.2020.
i.	The project proponent should install 24x7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to Ministry and its Regional Office.	1. The unit has installed air monitoring devices to monitor air emission in the New Plant was designed and installed. 2. These stack emission data's were connected to TNPCB and also CPCB portal. The CPCB Connectivity has done on 12.04.2021.
ii.	The Standards issued by the Ministry vide G.S.R. No. 612 (E) dated 25th August, 2014 and subsequent amendment dated 9thMay, 2016 and 10thMay, 2016 regarding cement plants with respect to particulate matter, SO_2 and NO_x shall be followed.	The Unit is operating and maintaining the air pollution control equipments efficiently and continuously to achieve emission (Particulate matter, SO_2, NO_x) standards prescribed by the Ministry.
iii.	Continuous stack monitoring facilities to monitor gaseous emissions from the process stacks shall be provided. After expansion, limit of PM shall be controlled to meet prescribed standards by installing adequate air pollution control viz Electrostatic precipitators to clinker cooler, bag house to raw mill/kiln and bag filters to coal mill and cement mill. Low NO_x burners shall be provided to control NO_x emissions. Regular calibration of the instruments must be ensured.	In the Expansion plant, limit of PM is controlling as per prescribed standards by installed adequate air pollution control equipments viz Electrostatic precipitators for clinker cooler, bag filters for raw mill/kiln and bag filters for coal mill and cement mill, low NOx burners to control NOx emissions in kiln. Regular calibrations are being followed in stack monitoring instruments.
iv.	Efforts shall be made to achieve power consumption of 70 units/tone for Portland Pozzolona Cement (PPC) and 95 units/tone for Ordinary Portland Cement (OPC) production and thermal energy consumption of 670 Kcal/Kg of clinker.	We have achieved power consumption of 63.58 units/tone for Cement production and thermal energy consumption of 738 Kcal/Kg of clinker.
v.	The National Ambient Air Quality Standards issued by the Ministry vide G. S.R. No. 826(E) dated 16" November, 2009 shall be followed.	The National Ambient Air Quality Standards issued by the Ministry is following by us.

vi.	AAQ Modeling shall be carried out based on the specific mitigate measures taken in the existing project and proposed for the expansion project to keep the emissions well below prescribed standards.	We are maintaining emission below within the CPCB/TNPCB norms. For the new plant, outlet dust emission level is designed for 25 mg/Nm^3.
vii.	Secondary fugitive emissions shall be controlled and shall be within the prescribed limits and regularly monitored. Guidelines/Code of Practice issued by the CPCB in this regard shall be followed.	The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to conduct fugitive emission monitoring. The lab was conducted fugitive emission monitoring and the emission level is within the norms. We herewith submit the report for fugitive emission in **Annexure – I.**
viii.	A statement on carbon budgeting including the quantum of equivalent CO_2 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 CO_2 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.	For the new plant, Green belt area is preparing based on the quantum of equivalent CO_2 that will be emitted proposed expansion and the data will be submitted to the Ministry. This will be prepared and will be implemented by Tancem.
ix.	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°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 protective equipments, garments and gears 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.	1. The condition indicated by the Ministry is following by us. 2. Employees working in those areas are provided with PPE & sufficient drinking water.
x.	Arsenic and Mercury shall be monitored in emissions, ambient air and water.	The unit is continuously monitoring Arsenic and Mercury in emissions and ambient air through M/s. R&C Environment Lab. The monitoring report meets the emission standards prescribed by the Board.
xi.	The coal yard shall be lined and covered.	The Coal yard lining and covering work is under progress.
xii.	The project proponent shall prepare a report on impact of project on surrounding reserve forests within six months and will get it approved from the State Forest Department. A copy of the same should be submitted to the Ministry and its Regional Office.	Not applicable.

xiii.	The project proponent shall take all precautionary measures for conservation and protection of wild fauna spotted in the study area. A Wildlife Conservation Plan specific to this project site shall be prepared in consultation with the State Forest and Wildlife Department. A copy of the Conservation plan shall be submitted to the Ministry and its Regional Office.	Not applicable.
xiv.	The project proponent will also provide the latest status of the environmental compliances in respect of its existing plant.	Provided in the enclosed **Annexure – II.**
xv.	Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land by the use of conveyors/rail mode of transport wherever feasible. The company shall have separate truck parking area. Vehicular emissions shall be regularly monitored.	1. The Unit has taken measures to reduce impact of the transport of the raw materials and end products on the surrounding environment. 2. The Unit is using conveyors/rail mode for raw materials and end products transport. 3. The Unit has provided separate Truck parking area. 4. The Unit is regularly monitoring vehicular emissions.
xvi.	Efforts shall be made to further reduce water consumption by using air cooled condensers. All the treated wastewater shall be recycled and reused in the process and/or for dust suppression and green belt development and other plant related activities etc. No process wastewater shall be discharged outside the factory premises and 'zero' discharge shall be adopted.	1. The Unit has taken measures to reduce water consumption by using air cooled condensers. 2. The Unit has provided water treatment plant for recycling the waste water. The surplus water is using for Dust suppression, green belt development and other plant related activities. 3. Zero water discharge was adopted in the new Plant.
xvii.	Efforts shall be made to make use of rain water harvested. If needed, capacity of the reservoir shall be enhanced to meet the maximum water requirement. Only balance water requirement shall be met from other sources.	1. Rain water harvesting work is under process for all the buildings in the New Plant. 2. The capacity of the old reservoir in the TANCEM Colony was enhanced to store more water.
xviii.	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 the Environment (Protection) Act, 1986 whichever are more stringent. Leachate study for the effluent generated and analysis shall also be regularly carried out and report submitted to the Ministry's Regional Office, SPCB and CPCB.	We are regularly monitoring of influent and effluent surface, sub-surface and ground water, treated waste water prescribed by State Pollution Control Board and the Report is submitting periodically. The report is enclosed in **Annexure – III**.

x	All the bag filter dust, raw mill dust, coal dust, clinker dust and cement dust from pollution control devices shall be recycled and reused in the process and used for cement manufacturing. Spent oil and batteries shall be sold to authorized recyclers / re-processors only.	1. The dust from all the pollution control equipments are recycling and reusing in the cement manufacturing. 2. Spent oil and batteries will be disposed to the TNPCB/ CPCB's authorized recyclers/re-processors only.
x	The kiln shall be provided with a flexible fuel feeding system to enable use of hazardous wastes and other wastes including biomass, etc.	The new kiln is provided with a flexible fuel feeding system.
x	The proponent shall examine and prepare a plan for utilization of high calorific wastes such as chemical wastes, distillation residues, refuse derived fuels, etc as alternate fuels based on availability and composition. For this, the proponent shall identify suitable industries with such wastes and enter into an MOU for long-term utilization of such wastes as per the Environment (Protection) Rules, 1986 and with necessary approvals.	TANCEM will prepare a plan for utilization of high calorific wastes such as chemical wastes, distillation residues, refuse derived fuels, etc as alternate fuels based on availability and composition.
xx	Efforts shall be made to use the high calorific hazardous waste in the cement kiln and necessary provision shall be made accordingly. The PP shall enter into an MOU with units with potential for generating hazardous waste and in accordance with Hazardous Waste Regulations and prior approval of the TNPCB.	The Unit has taken efforts to make use of the high calorific hazardous waste in the cement kiln and necessary provision will be made accordingly.
xxi	Green belt over 33% of the total project area shall be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area and along road sides etc. by planting native and broad leaved species in consultation with local DFO, local community and as per the CPCB guidelines.	1) The unit has been developed in the Existing plant and Colony nearly consisting of 10,000 trees, for Expansion plant along the periphery of the plant 3,000 saplings are planted and maintaining. The total 9 hectares of area was Green Belt developed. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. 2) Green belt area developing work is under progress as per the CPCB guidelines.
xx	The project proponent shall provide for solar light system for all common areas, street lights, villages, parking around project area and maintain the same regularly.	Solar light system has been provided in our TANCEM Hospital and school areas and solar light system for all common areas, street lights, villages, parking around project area work is under progress.
xx	The project proponent shall provide for LED lights in their offices and residential areas.	The LED lights are provided in the Expansion plant and Existing plant premises. The LED lights installation works in residential areas are under progress.

xxvi.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Cement plants shall be implemented.	The Unit has completed all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP).
xvii.	At least 2.5% of the total cost of the 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 Panchayat and District Administration. Action taken report in this regard shall be submitted to the Ministry's Regional Office.	The Unit has prepared the Enterprise social commitment plan (ESC) for an amount of RS. 13.52 crores nearly all the works are completed and the remaining pending works will be completed soon. Enterprise social commitment plan of Rs.13.5 crores work is under the supervision of collectorate officials, Ariyalur. **The detailed execution of woks is enclosed for your kind reference (Annexure-IV).**
xviii.	In addition to the above provision of ESC, the proponent shall prepare a detailed CSR Plan for the next 5 years including annual physical and financial targets for the existing-cum-expansion project, which includes village-wise, sector-wise (Health, Education, Sanitation, Skill Development and infrastructure etc) activities in consultation with the loca1 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 provides 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 and the annual capital and 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 also be uploaded on the company website and shall also be provided in the Annual Report of the company.	The implementation of Corporate social responsibility (CSR) plan for next five years will prepare and implement as per the direction of MOEF&CC.
xxix.	A Risk Assessment Study and Disaster Preparedness and Management Plan along with the mitigation measures shall be prepared with a focus of Disaster Prevention and a copy submitted to the Ministry's Regional Office, SPCB and CPCB Within 3 months of issue of environment clearance letter.	Plan prepared. **(Annexure-V)**
xxx.	To educate the workers, all the work places where dust may cause a hazard shall be clearly indicated as a dust exposure area through the use of display signs which identifies the hazard and the associated health effects.	The Unit has providing regular classes to educate the workers. The hazards places are provided display signboards.

xxxi.	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, 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.	1. The Unit has provided housing of construction labor and all necessary infrastructure facilities for the construction labor. 2. The project was completed and we removed the temporary structures for labor colony and toilets.

B. GENERAL CONDITIONS		
i.	The project authorities must strictly adhere to the stipulations made by the Tamil Nadu Pollution Control Board and the State Government.	The Unit has strictly adhere to the stipulations made by the Tamil Nadu Pollution Control Board and the State Government.
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).	The Unit will not carry out any expansion or modifications without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
iii.	At least four ambient air quality monitoring stations should be established in the downward direction as well as where maximum ground level concentration of PM_{10} $PM_{2.5}$, SO_2 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 Chennai and the SPCB/CPCB once in six months.	1. The Unit has installed 2 locations of ambient air quality monitoring stations. The Ambient air quality and stack emissions are regularly submit to this Ministry including its Regional Office at Chennai and the SPCB/CPCB once in six months. 2. As per the direction of TNPCB/ CPCB, The Unit has analyzed the feasibility to provide Continuous Ambient Air Quality Monitoring Stations (CAAQMS) with respect to ground level concentration around 10/25 km radius. In this location Cement factories are located in cluster. The ground level dust concentration may affect proposed CAAQMS by nearby cement factories. Even though the unit has taken survey for installation of CAAQMS within 10/25 km radius. Each proposed CAAQMS identified locations are falling by Minimum Six industries. The detailed feasibility report for installation of CAAQMS was sent to TNPCB and requested directions and suggestions for installation of proposed CAAQMS. 3. The unit has taken measures to find GLCs in the receptors and identify the locations of proposed AAQMS station with the help of M/s. Glens Innovation Labs Pvt Ltd., Chennai. The work order was issued to M/s. Glens Innovation Labs Pvt Ltd., Chennai**.** M/s. Glens Innovation Labs Pvt Ltd., Chennai has conducted GLCs study in the receptors from 05.07.2022 to 09.07.2022**.** M/s. Glens Innovation Labs Pvt Ltd. was submitted the report. The unit will take necessary arrangements against report.

iv.	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 form time to time. The treated wastewater shall be utilized for plantation purpose.	We have provided STP for water treatment and it is being used for Green Belt Development. Every month TNPCB taking sewage samples which meets the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time.
v.	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).	1. Noise control measuring including acoustic hoods, silencers, enclosures etc, are provided in all the required areas. 2. The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to conduct ambient noise level monitoring. The lab was conducted ambient noise level monitoring and the noise level is within the norms. The report is enclosed in **Annexure – VI.** 3. The Unit has maintaining the noise level within the standards.
vi.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories act.	Surveillance of the workers is regularly done and records maintained as per the factories act.
vii.	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.	Rain water harvesting structure works are under progress including recharging of ground water tables.
viii.	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.	Necessary actions have been taken to comply with EIA/EMP recommendations. 1. For Air environment, We have installed bag houses in Raw mill, Kiln, Coal mill, cement mill and ESP in Cooler. Continuous monitoring Equipments, Sheds & Silos for raw material storage. 2. For Noise environment, the major noise generating sources are coal mill, Kiln, Raw mill, packers of cement plant and compressors. These sources are located far off from each other and all major machinery/equipment noise not exceed as per OSHA limit and enclosures provided in noise generating sources, noise attenuating devices are provided for workers, building's roof are constructed by reinforced concrete, compressor station vent valves equipped with mufflers/silencers. 3. For Wastewater management, We have installed Sewage Treatment Plant (STP) to treat wastewater and use for Plantation purpose.

		4. For Greenbelt development, We have planting saplings in Plant and Colony. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. 5. Rain water harvesting work is under process for all the buildings in the new Plant. The capacity of the old reservoir in the TANCEM Colony was enhanced to store more water. 6. For Social welfare measures, The Unit has earmarked 2.5% of the total project cost i.e Rs.13.5 crores towards the Enterprise Social Commitment. 7. For EMP, The Unit has allotted an amount of Rs. 50 crores for pollution control equipment for Expansion Plant and Recurring expenditure of Rs 4.72 crores has spent.
ix.	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 (MoEF&CC) 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 Chennai. The funds so provided shall not be diverted for any other purpose.	Requisite fund was earmarked towards Capital and recurring cost/annum for environment pollution control measures to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change (MoEF&CC) as well as the State Government.
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.	The Unit has submitted copy of clearance letter to local panchayat. The clearance letter was also uploaded in TANCEM's website.
xi.	The project proponent shall upload the status of compliance of the 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 Chennai. The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, SO_2, NO_X (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.	1. The unit is uploaded the status of compliance of the stipulated environment clearance conditions, including results of monitored data in our TANCEM website and updating the same periodically. The compliance report is periodically send to MOEF&CC, SPCB and CPCB. 2. LED display board commissioned and displayed in front of our main gate for the existing plant and expansion plant.

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 MOEFCC, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Chennai / CPCB / SPCB shall monitor the stipulated conditions.	1. The Unit has submitting six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data to the Regional Office of MOEFCC, the respective Zonal Office of CPCB and the SPCB. 2. Every year we have conducting Ambient air quality, Ambient noise level, Stack monitoring and Ground water quality survey through M/s.R&C Environment Lab, Chennai. The Report of the survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016. The Report is enclosed in **Annexure – III, Annexure – VI & Annexure – VII.** 3. The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to conduct fugitive emission monitoring. The lab was conducted fugitive emission monitoring and the emission level is within the norms. We herewith submit the report for fugitive emission in **Annexure – I.**
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 Chennai by e-mail.	The Unit has submitting Environmental statement for each financial year ending 31st March in Form-V and compliance of Environmental conditions to the TNPCB and regional office of MOEF&CC Chennai. The environmental statement is enclosed in **Annexure - VIII.**
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 seen at Website of the Ministry of Environment, Forests 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 Chennai.	Project clearance had been advertised in the local two newspapers.
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 the date of commencing the land development work.	The plant commercial production started on 21.03.2020. The land development work is under progress.

Annexure - I

Richardson & Cruddas (1972) Ltd.

(A Government of India undertaking)

रिचर्डसन एण्ड क्रुडास (१९७२) लिमिटेड

(भारत सरकार का उपक्रम)

स्थापना १८५८
ESTD 1858
ISO 9001 Co.,
इंजिनियर्स

CERT No. TC-7742
ENGINEERS

आर एंड सी परयावरण परयोगशाला,
पर्यावरण इंजीनियरिंग प्रयोगशाला प्रभाग,
१/६१, कुलकरई स्ट्रीट, वीओसी नगर मुख्य सड़क,
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An ISO 9001-2015 Certified Company
Certificate No. BE - 15 QMS 5840

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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board/MoEF/Accredited By NABL)

TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010938F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0212-0216	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
1	Expansion Coal Mill Feeding area	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	404.6	mg/Nm³	500
2	Expansion Coal Mill Weight Feeder area		392.4		
3	Near Expansion Coal Conveyor Belt		362.6		
4	Expansion Kiln Inlet – Preheater Outlet		304.8		
5	Expansion Kiln Outlet – Clinker Cooler Inlet		316.2		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

**** End of the Report ****

R&C/EEL/LQMS/QM/46

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स्थापना १८५८
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CERT No. TC-7742
ENGINEERS

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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board/MoEF/Accredited By NABL)

TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010939F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0217-0221	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
6	Expansion Cooler Outlet – Breaker point	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	340.6	mg/Nm³	500
7	Expansion Clinker Silo Inlet		362.8		
8	Expansion Clinker Silo Outlet		340.4		
9	Expansion Gypsum Stacker – Unloading Point		406.8		
10	Expansion Packing House Truck Loading - 1		382.2		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

R & C ENVIRONMENT LAB Chennai 600 095

**** End of the Report

Note: This report relates only to the particular sample submitted for test. Any correction not attested shall invalidate this report. This report shall not be reproduced except in full without our written approval. Sample are not drawn by us unless otherwise stated. Retention period of tested samples 15 days only unless otherwise specified.

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010940F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0222-0226	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
11	Expansion Packing House Truck Loading - 2	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	392.6	mg/Nm³	500
12	Expansion Packing House Truck Loading - 3		378.2		
13	Expansion Packing House Truck Loading - 4		384.4		
14	Expansion Cement Mill Outlet		392.6		
15	Expansion Cement Mill Inlet		404.8		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

R & R ENVIRONMENT LAB Chennai 600 095

**** End of the Report

Note: This report relates only to the particular sample submitted for test. Any correction not attested shall invalidate this report. This report shall not be reproduced except in full without our written approval. Sample are not drawn by us unless otherwise stated. Retention period of tested samples 15 days only unless otherwise specified.

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स्थापना १८५८
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TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010941F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0227-0231	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
16	Expansion Cement Mill Weigh Feeder	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	374.6	mg/Nm³	500
17	Expansion Coal Crusher Feeding Point		382.4		
18	Expansion Coal Crusher		440.8		
19	Expansion Coal Mill Feeding Belt		432.4		
20	Expansion Packing House Roto Packer - 1		402.6		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

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**** End of the Report ****

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TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010942F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0232-0236	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
21	Expansion Packing House Roto Packer - 2	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	412.4	mg/Nm³	500
22	Expansion Lime Stone Crusher Hopper		392.8		
23	Expansion Lime Stone Stacker		354.6		
24	Expansion Flue Dust Stacker		406.2		
25	Expansion Raw Mill Weigh Feeder		392.4		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

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**** End of the Report ****

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TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010943F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0237-0241	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
26	Expansion Raw Mill Additive Material Feeder	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	374.2	mg/Nm³	500
27	Expansion Raw Mill Vertical Roller Mill(VRM)		386.4		
28	Existing Packing House Truck Loading – 1,2&3		368.8		
29	Existing Packing House Roto Packer		396.2		
30	Imported Coal Shed		366.4		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

R&C ENVIRONMENT LAB Chennai 600 095

**** End of the Report

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R&C/EEL/LQMS/QM/46

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Richardson & Cruddas (1972) Ltd.

(A Government of India undertaking)

रिचर्डसन एण्ड क्रुडास (१९७२) लिमिटेड

(भारत सरकार का उपक्रम)

स्थापना १८५८
ESTD 1858
ISO 9001 Co.,

CERT No. TC-7742

ENGINEERS

इंजिनियर्स

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An ISO 9001-2015 Certified Company
Certificate No. BE - 15 QMS 5840

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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board/MoEF/Accredited By NABL)

TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010944F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0242-0246	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
31	Indian Coal Shed	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	354.2	mg/Nm³	500
32	Existing Plant Clinker Yard		344.6		
33	Existing Plant Clinker Unloading area		406.8		
34	Existing Plant Clinker D-Bucket Conveyor		382.6		
35	Existing Plant Cement Mill Inlet		406.4		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

R&C ENVIRONMENT LAB Chennai 600 095

**** End of the Report ****

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R&C/EEL/LQMS/QM/46

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF FUGITIVE DUST EMISSION

Report Number	**TC774222010945F**	**Report Date**	**06.01.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/2967
Sample Collection date	24.12.2022	**Sample Received on**	26.12.2022
Sampling Consumable	Filter Paper & Dust Collector - EELAB/0247-0251	**Test Commenced on**	26.12.2022
Sample Description	**Fugitive Dust Emission - Particulate Matter Concentration**	**Test Completed on**	04.01.2023
Sampling Method	IS 5182 : Part 4: 1999(RA 2019)	**Vol. of Air Sampled - 1 lpm**	

RESULTS

S. No.	Location Name	TEST METHOD	RESULT Particulate Matter	UNIT	Limits as per EPA
36	Existing Cement Mill Outlet	IS 5182 : Part 4 : 1999 - Reaffirmed 2019	392.4	mg/Nm³	500
37	Existing Cement Mill - Clinker Weigh Feeder		412.2		
38	Existing Cement Mill - Gypsum Weigh Feeder		398.4		
39	Existing Plant Clinker Transfer Point		422.6		
40	Existing Cement Mill Despatch Belt		414.4		

Remarks :
The sample was collected and analysed as per IS methods. The values are found to be well within the stipulated limits for which the norms are mentioned in the report.

Note: mg/ Nm³ - Milligram Per Normal cubic metre

Authorized Signatory
Er.Arunkumar.V - Technical Manager

**** End of the Report ****

R&C ENVIRONMENT LAB Chennai 600 095

R&C/EEL/LQMS/QM/46

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Annexure – II

COMPLIANCE STATUS REPORT FOR AIR ACT AS PER RENEWAL OF CONSENT CONDITIONS OF 2022-24

Special Additional Conditions:

Sl.no	Conditions	Compliance
i.	The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.	The Unit has not met power failure problem since we have installed dedicated 110 KV sub-station power supply for our plant. The DG sets are in standby only not for continuous operation. Even though we have taken measures to install approved retrofit emission control devices.
ii.	The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.	Not applicable.

Additional Conditions:

S.No	CONDITIONS	COMPLIANCE
1.	The unit shall operate and maintain the air pollution control measures efficiency and continuously so as to achieve the Ambient Air quality/ Emission standards prescribed by the Board & MoEF &CC.	1. The Unit is operating and maintaining the air pollution control equipments efficiently and continuously to achieve the ambient air quality / emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016. 2. Every year we have conducting Ambient air quality and Stack monitoring survey through TNPCB and M/s.R&C Environment Lab, Chennai. The ROA of the both survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016.
2.	The unit shall comply with the new emission standards prescribed by MoEF&CC vide notification dated 25.08.2014 &10.05.2016.	The unit is complying with the new emission standards prescribed by MoEF&CC vide notification dated 25.08.2014 &10.05.2016.

3.	The unit shall ensure that the noise generated by the unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	1. Noise control measuring including acoustic hoods, silencers, enclosures etc, are provided in all the required areas. 2. The Unit has maintaining the noise level standards prescribed by the Board.
4.	The industry shall ensure that all the dust accumulated in the premises (in old line and new line areas) are cleared immediately.	TANCEM has cleared all accumulated dust in the premises (in old line and new line areas) to keep dust free environment. The unit has issued work order for cleaning of accumulated dust in the old plant areas.
5.	The unit shall not run existing plant until further orders from the Government, as committed.	Agreed.
6.	The unit shall maintain the online stack monitoring system and the continuous AAQ monitoring system efficiently so as to send good quality data to Care Air Centre.	The Unit has maintaining all the online monitors continuously and efficiently. The datas are continuously sending to Care Air Centre, TNPCB, Chennai and CPCB, Delhi.
7.	The unit shall comply with the fugitive emission guidelines prescribed by CPCB vide PROBES/118/2007 dated: 06.07.2007.	The Unit is abiding and adheres to the CPCB guidelines on fugitive emission control as mentioned in notification. The following areas are concentrated to avoid fugitive emission as per CPCB guidelines. 1. Unloading section (limestone, coal and other relevant materials). 2. Material Handling Section(Including transfer Points). 3. Coal Storage Section. 4. Clinker cooler section. 5. Clinker stock piles section. 6.Storage of limestone, gypsum, fly ash and other additives. 7. Cement packing section. 8. Silo section and 9. Roads.
8.	The storage of coal, clinker, lime stone, Gypsum, fly ash and other additives should be done under covered shed.	1. As per the direction of TNPCB, TANCEM is storing the raw materials in closed sheds only. a) Coal is storing in the 3 closed sheds and proposal has sent to Corporate office for construction new coal shed with capacity of **5000 MT** at cost of **Rs.1.1 Crores**. As per Corporate office approval, the unit is constructing the Fourth and Fifth coal sheds. b) Limestone is storing in the 2 stockpiles c) Gypsum is storing in the 2 closed sheds d) Raw meal is storing in the 3 silos e) Wet Fly ash is storing in the 2 closed sheds f) Clinker is storing in the silo in Expansion plant and stockpile in Existing plant g) Dry fly ash is storing in the 3 metal hoppers.

		2. TANCEM has issued work order to provide side cladding in the Coal unloading shed (work is completed), Coal crusher shed (Work is completed), Flue dust shed (Work is completed) and Gypsum shed (Work is completed). 3. The Raw materials stored in the yard is covered with tarpaulin.
9.	The unit shall carry out cleaning of spilled materials such as Gypsum, Fly ash, and Coal dust inside the working area periodically to avoid carryover of dust to the surrounding.	1. TANCEM has cleared old spilled materials like Gypsum, Fly ash, and Coal dust inside the working areas. 2. Further, TANCEM has providing One JCB and tipper separately to clean the spilled materials like Gypsum, Fly ash, and Coal dust inside the working areas regularly.
10.	The unit shall pave all the areas where vehicle movement takes place.	The unit will identify the unpaved vehicle movement areas and will initiate the proposal to get approval from corporate office. The work will be completed within two years.
11.	The unit shall conduct the ground level concentration study due to various emission sources through a laboratory approved by CPCB within a month and install the CAAQM stations as already instructed by Board within 3 months.	1. As per the direction of TNPCB/ CPCB, The Unit has analyzed the feasibility to provide Continuous Ambient Air Quality Monitoring Stations (CAAQMS) with respect to ground level concentration around 25 km radius. In Ariyalur location Cement factories are located in cluster. The ground level dust concentration may affect proposed CAAQMS by nearby cement factories. Even though the unit has taken survey for installation of CAAQMS within 25 km radius. Each proposed CAAQMS identified locations are falling by Minimum Six industries. The detailed feasibility report for installation of CAAQMS was sent to TNPCB and requested directions and suggestions for installation of proposed CAAQMS. 2. The unit has taken measures to find GLCs in the receptors and identify the locations of proposed CAAQMS station with the help of M/s. Glens Innovation Labs Pvt Ltd., Chennai. The work order was issued to M/s. Glens Innovation Labs Pvt Ltd., Chennai**.** M/s. Glens Innovation Labs Pvt Ltd., Chennai has conducted GLCs study in the receptors from 05.07.2022 to 09.07.2022**.** M/s. Glens Innovation Labs Pvt Ltd. was submitted the report. The unit will take necessary arrangements against report.
12.	The performance efficiency of the APC devices shall be conducted through a laboratory approved by CPCB and report shall be submitted to TNPCB.	1. The Unit is operating and maintaining the air pollution control equipments efficiently and continuously to achieve the ambient air quality / emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016. 2. Every year we have conducting Ambient air quality and Stack monitoring survey through M/s.R&C Environment Lab, Chennai. The ROA of the survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016.

13.	Fugitive emission monitoring shall be conducted at cement mill, coal mill and Raw material handling area through a laboratory approved by CPCB and the report shall be submitted to TNPCB.	The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to conduct fugitive emission monitoring. The lab was conducted fugitive emission monitoring and the emission level is within the norms. We herewith submit the report for fugitive emission in **Annexure – I.**
14.	All continuous emission monitoring systems should be operated as per CPCB CEMs guidelines and the data shall be transmitted as per guidelines. Further the unit shall comply the following:	
a.	Kiln Stack Gaseous Analyzer:	
i.	Sampling flow rate shall be maintained at 60 TPH.	The unit is maintaining the sampling flow rate at 60 TPH.
ii.	NOX value shall be normalized and transmitted as NO2 instead of transmitting as NO.	NOX value is normalized and transmitted as NO2.
iii.	O2 correction shall be given for the NOX values.	O2 correction is given for NOX values.
iv.	Zero check shall be conducted daily and span check shall be conducted once in fortnight.	We have conducting the zero check is on daily basis and we have checked span and we will check in a fort night.
v.	Proper record for drift observations shall be maintained.	We have checking the drift periodically and we will maintain the observation record.
vi.	Analyzer values shall be directly transmitted to the TNPCB/ CPCB server without having any intermediate server or PC.	The Analyser values are directly transmitted to the TNPCB/CPCB server without having any intermediate server or PC.
b.	Kiln stack PM Analyser:	
i.	Reference sampling port hole shall be provided for calibration/ manual iso kinetic sampling.	The unit is provided sampling port for calibration and manual Iso - kinetic sampling.
ii.	The unit shall ensure that the purge blower filter are not choked for adequate purge air supply to the analyzer.	We are regularly inspecting the purge blower filters and the purge air supply is normal.
iii.	The data shall be normalized and transmitted as mg/ Nm3 instead of mg/ m3.	The Datas are transmitted as mg/Nm3.

iv.	Dust factor check shall be done every month.	The unit has periodically check the dust factor every month.
v.	The unit shall ensure that the analyzer should be TUV/ MCERTS certified analyser.	The Unit is utilizing the stack and gaseous analyzers are certified analyzers.
vi.	Analyzer installed for coal mill, cement mill and raw mill shall be serviced and recalibrated since constant values were showing.	The unit was conducted performance calibration of online continuous emission monitoring system.
c.	CAAQMS	
i.	CAAQMS gaseous analyzers shall be serviced and recalibrated since they are not working properly.	The unit was conducted performance calibration of online continuous emission monitoring system.
ii.	The unit shall rectify the filter tapes for PM10 and PM2.5 and ensure that they are working properly.	We have identified and changed the filter tapes in PM10, PM2.5 and it is running normally.
iii.	Calibrator shall be made available at the unit and inhouse calibration shall be done as per the guidelines.	We have calibrating the analyzer periodically and we will maintain the calibration record.
iv.	The performance calibration of all the online analyzers shall be conducted once in a year through a laboratory approved by CPCB and report shall be submitted to TNPCB.	The unit will conduct the performance calibration by CPCB approved laboratory and the report will submit to TNPCB.
15.	The unit shall conduct a comprehensive Environmental audit through a laboratory approved by CPCB/MoEF once in a year which includes water audit, ETP/STP adequacy & efficacy, APCD performance efficiency etc, and shall furnish report to TNPCB.	1. For the APCD performance, Every year we have conducting Ambient air quality and Stack monitoring survey through M/s.R&C Environment Lab, Chennai. The ROA of the survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016. 2. For the STP, Water audit report will be submitted at the earliest.
16.	The unit shall continue to develop more green belt in and around the unit premises.	The unit has been developed in the Existing plant and Colony nearly consisting of 10,000 trees, for Expansion plant along the periphery of the plant 3,000 saplings are planted and maintaining. The total 9 hectares of area was Green Belt developed. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. We will continue the same.

17.	The industry shall operate and maintain the water sprinklers and street sweepers provided by the industry at all times.	1. The unit has installed permanent water sprinkler system water sprinklers 32 No's in Coal yard & Clinker yard areas, 11 No's in Limestone crusher (LS-1) area, 7 No's in Existing plant CCR, 8 No's in Existing plant Cement mill, 6 No's in new plant Gypsum shed road and 13 No's in Packing house road. a) The Portable water sprinkler has provided 2 No's in Existing plant Raw mill and cement mill areas b) 1 No in Existing plant Packing house c) 1 No Expansion plant cement mill d) 2 No's in Coal yard & Clinker yard areas. 2. The unit has utilizing the water tanker lorry to spraying the water in the vehicle movement roads. 3. The unit has utilizing contract street sweepers for housekeeping the entire premises. The unit has purchased 1 no of Skid loader with Road sweeping attachment for effective housekeeping. 4. The unit is operating water sprinklers and engaging street sweepers at all times.
18.	The industry shall improve the house keeping in the entire premises.	1. The Unit has continuously cleaning all internal roads by road sweepers. After road sweeping, water tanker lorry spray the water on roads to control fugitive emissions. 2. We have 1 no. skid loader with road sweeping attachment which one utilized for effective road sweeping purpose.
19.	The industry shall calibrate and maintain the online continuous emission monitoring system provided for the Kilns, Clinker coolers, cement mill & coal mills and also the continuous AAQMS so as to send quality data to the CAC, TNPCB, Chennai.	1. TANCEM is calibrating and maintaining the online continuous emission monitoring system (CEMS) provided in Kiln, Clinker cooler, cement mills & coal mill and CAAQMS periodically. The datas are transmitting continuously to CAC, TNPCB, Chennai and CPCB, Delhi.
20.	The unit shall ensure that calibration is done at frequent intervals to keep the analyzer intact.	The unit is calibrating the analyzer periodically and maintaining the calibration record.
21.	The unit shall maintain all the online monitors continuously and efficiently and should ensure the online connectivity with Care Air Centre of TNPCB, Chennai to provide proper quality data at all times.	The Unit has maintaining all the online monitors continuously and efficiently. The quality datas are continuously sending to Care Air Centre, TNPCB, Chennai and CPCB, Delhi.
22.	The unit shall continuously operate and maintain the online analyzer and online display board installed in the entrance of the unit efficiently.	The Unit has maintaining all the online monitors continuously and efficiently. The LED online display board is installed in the plant entrance and it is functioning efficiently.

23.	The unit shall ensure that the emission meets the emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016 and shall comply with the condition stipulated in the MoEF&CC,O&M,F.No22-34/2018-1A dated 09.08.2018.	1. The Unit is operating and maintaining the air pollution control equipments efficiently and continuously to achieve emission standards prescribed by the board. 2. The Unit has complying with the condition stipulated in the MoEF&CC,O&M,F.No22-34/2018-1A dated:09.08.2018 is enclosed **Annexure–A**.
24.	All internal roads shall be cleaned with road sweeper then and there and the house keeping should be done all the time effectively and water sprinkling shall be done frequently so as to arrest the dust spreading due to vehicular movement.	1. The Unit has cleaned all internal roads by road sweepers. After road sweeping, water tanker lorry spray the water on roads to control fugitive emissions. 2. We have 1 no. skid loader with road sweeping attachment which one utilized for effective road sweeping purpose.
25.	The unit shall increase the consumption of ETP sludge with immediate effect.	1. As directed by TNPCB, 41 MTs of ETP sludge has been procured from M/s. Arunachalaa Enterprises during the month of November 2020. We have made an agreement with M/s. Arunachalaa Enterprises for supply of ETP Sludge from Dec'21. The sludge is started consuming in our Plant from Dec'21. 2. The unit has consumed 43.66 MT's of ETP sludge in December 2021, 395.145 MT's of ETP sludge in January 2022, 665.54 MT's of ETP sludge in February 2022, 604.465MT's of ETP sludge in March 2022 and 113.38 MT's of ETP sludge in April 2022. In further course, the unit will consume the ETP sludge.
26.	The industry shall utilise /enhance the usage of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Cement Kiln so as to improve the Thermal Substitution Ratio (TSR). Also the unit shall provide necessary infrastructure facilities such as feeding system, conveyor systems, etc., for co processing to achieve the TSR of 10% during 2022-23 within 3 months and report to the Board.	1. Our existing cement plant was installed during the year 1979(40 years old). The plant equipments are very old and the technology also. We do not have provision for co- processing of hazardous waste and plastic waste. We are having suspension pre-heaters for kilns and there is no secondary firing in pre-heater system. In this system kiln inlet temperature is very low comparing with pre-calciner kiln. At present the Existing plant was stopped from January -2021. 2. The Expansion plant was started for commercial production on 21.03.2020, we have proposed to utilization of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Expansion kiln. 3. To implementation of AFR in Expansion plant, the Unit has given work order to M/s. Development Consultants Private Limited, Kolkata to submitting **Detailed Project Report (DPR)** for implementation of infrastructure facilities for co-processing and co-incineration such as storage, processing, feeding system, conveyor systems, etc. The work order value is Rs.10 Lakhs dated 01.11.2021. 4. The Consultant M/s. Development Consultants Private Limited, Kolkata has given Project report at the cost of **Rs.30 Crores**. Our corporate office has initiated work to get approval from government and initiate the tender procedure.

		5.After completion of erection and commissioning the infrastructure facilities for AFR, the unit will give the monthly wise target statement and time schedule for achieving TSR 10 %. 6. In mean time, we have given manual feeding of AFR was utilized in the Expansion kiln at the rate of 0.34%, 0.65% during the month of October-2021, November-2021. We have achieved TSR 0.06 % in the Financial year 2021-2022. In this Financial year, we have utilized 0.4 % of AFR for the month of April-2022, 1.26 % of AFR for the month of May-2022, 5.64 % of AFR for the month of June-2022, 8.74 % of AFR for the month of July-2022, 9.36 % of AFR for the month of August-2022, 7.32 % of AFR for the month of September-2022, 3.8 % of AFR for the month of October-2022, 1.76 % of AFR for the month of November-2022, 6.05 % of AFR for the month of December-2022, 5.63 % of AFR for the month of January-2023, 6.07 % of AFR for the month of February-2023, 11.31 % of AFR for the month of March-2023 and 8.33 % of AFR for the month of April-2023.
27.	The unit shall immediately take necessary action for providing infrastructure facilities to achieve the TSR as 10% and shall complete the same within 3 months to achieve 10%.	1. Our existing cement plant was installed during the year 1979(40 years old). The plant equipments are very old and the technology also. We do not have provision for co- processing of hazardous waste and plastic waste. We are having suspension pre-heaters for kilns and there is no secondary firing in pre-heater system. In this system kiln inlet temperature is very low comparing with pre-calciner kiln. At present the Existing plant was stopped from January -2021. 2. The Expansion plant was started for commercial production on 21.03.2020, we have proposed to utilization of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Expansion kiln. 3. To implementation of AFR in Expansion plant, the Unit has given work order to M/s. Development Consultants Private Limited, Kolkata to submitting **Detailed Project Report (DPR)** for implementation of infrastructure facilities for co-processing and co-incineration such as storage, processing, feeding system, conveyor systems, etc. The work order value is Rs.10 Lakhs dated 01.11.2021. 4. The Consultant M/s. Development Consultants Private Limited, Kolkata has given Project report at the cost of **Rs. 30 Crores**. Our corporate office has initiated work to get approval from government and initiate the tender procedure. 5. After completion of erection and commissioning the infrastructure facilities for AFR, the unit will give the monthly wise target statement and time schedule for achieving TSR 10 %.

		6. In mean time, we have given manual feeding of AFR was utilized in the Expansion kiln at the rate of 0.34%, 0.65% during the month of October-2021, November-2021. We have achieved TSR 0.06 % in the Financial year 2021-2022. In this Financial year, we have utilized 0.4 % of AFR for the month of April-2022, 1.26 % of AFR for the month of May-2022, 5.64 % of AFR for the month of June-2022, 8.74 % of AFR for the month of July-2022, 9.36 % of AFR for the month of August-2022, 7.32 % of AFR for the month of September-2022, 3.8 % of AFR for the month of October-2022, 1.76 % of AFR for the month of November-2022, 6.05 % of AFR for the month of December-2022, 5.63 % of AFR for the month of January-2023, 6.07 % of AFR for the month of February-2023, 11.31 % of AFR for the month of March-2023 and 8.33 % of AFR for the month of April-2023.
28.	The industry shall develop more green belt in the premises by planting more number of tree saplings.	The unit has been developed in the Existing plant and Colony nearly consisting of 10,000 trees, for Expansion plant along the periphery of the plant 3,000 saplings are planted and maintaining. The total 9 hectares of area was Green Belt developed. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. We will continue the same.
29.	The unit shall operate the plant without attracting complaints from the nearby Public.	1. The unit is continuously cleaning the roads by Road sweeping machine. 2. The unit has utilizing the water tanker lorry to spraying the water in the vehicle movement roads. 3. The unit has installed permanent water sprinkler system water sprinklers 32 No's in Coal yard & Clinker yard areas, 11 No's in Limestone crusher (LS-1) area, 7 No's in Existing plant CCR, 8 No's in Existing plant Cement mill, 6 No's in new plant Gypsum shed road and 13 No's in Packing house road. a) The Portable water sprinkler has provided 2 No's in Existing plant Raw mill and cement mill areas b) 1 No in Existing plant Packing house c) 1 No Expansion plant cement mill d) 2 No's in Coal yard & Clinker yard areas. We assure that this kind of lapse will not occur in future.
30.	This consent order does not absolve from obtaining necessary permission / clearance from other Authority or under other Statute as applicable.	The Unit has obtained Permission/Clearance from the Concerned Authorities and Other Statutory.

Special Additional Conditions:

Sl.no	Conditions	Compliance
1.	The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board / National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.	Not applicable.

Additional Conditions:

S.No	CONDITIONS	COMPLIANCE
1.	The Unit shall manufacture only the products for which consent is obtained and shall ensure that the production is within the consented quantity.	The unit is manufacturing only the products which the consent is obtained and the production is within the consented quantity.
2.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously to achieve the Standards prescribed by the Board at all times and the treated sewage shall be utilized for gardening within the premises as reported after meeting standards prescribed by the Board.	As per the Board prescribed standards, We have been operating and maintaining the sewage treatment plant efficiently and continuously. TNPCB has testing sewage water analysis monthly which meets standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016.
3.	The industry shall ensure that the sewage either treated or untreated is not discharged outside the premises.	The unit is utilizing the STP treated water for gardening and green belt development. The treated or untreated sewage water is not discharged outside the premises.
4.	The unit shall ensure that no trade effluent generated from the process.	The unit does not produce any trade effluent in the cement manufacturing process.
5.	The unit shall increase the consumption of ETP sludge with immediate effect.	1. As directed by TNPCB, 41 MTs of ETP sludge has been procured from M/s. Arunachalaa Enterprises during the month of November 2020. We have made an agreement with M/s. Arunachalaa Enterprises for supply of ETP Sludge from Dec'21. The sludge is started consuming in our Plant from Dec'21. 2. The unit has consumed 43.66 MT's of ETP sludge in December 2021, 395.145 MT's of ETP sludge in January 2022, 665.54 MT's of ETP sludge in February 2022, 604.465MT's of ETP sludge in March 2022 and 113.38 MT's of ETP sludge in April 2022. In further course, the unit will consume the ETP sludge.

6.	The industry shall utilise /enhance the usage of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Cement Kiln so as to improve the Thermal Substitution Ratio (TSR). Also the unit shall provide necessary infrastructure facilities such as feeding system, conveyor systems, etc., for co processing to achieve the TSR of 10% during 2022-23 within 3 months and report to the Board.	1. Our existing cement plant was installed during the year 1979(40 years old). The plant equipments are very old and the technology also. We do not have provision for co- processing of hazardous waste and plastic waste. We are having suspension pre-heaters for kilns and there is no secondary firing in pre-heater system. In this system kiln inlet temperature is very low comparing with pre-calciner kiln. At present the Existing plant was stopped from January -2021. 2. The Expansion plant was started for commercial production on 21.03.2020, we have proposed to utilization of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Expansion kiln. 3. To implementation of AFR in Expansion plant, the Unit has given work order to M/s. Development Consultants Private Limited, Kolkata to submitting **Detailed Project Report (DPR)** for implementation of infrastructure facilities for co-processing and co-incineration such as storage, processing, feeding system, conveyor systems, etc. The work order value is Rs.10 Lakhs dated 01.11.2021. 4. The Consultant M/s. Development Consultants Private Limited, Kolkata has given Project report at the cost of **Rs. 30 Crores**. Our corporate office has initiated work to get approval from government and initiate the tender procedure. 5. After completion of erection and commissioning the infrastructure facilities for AFR, the unit will give the monthly wise target statement and time schedule for achieving TSR 10 %. 6. In mean time, we have given manual feeding of AFR was utilized in the Expansion kiln at the rate of 0.34%, 0.65% during the month of October-2021, November-2021. We have achieved TSR 0.06 % in the Financial year 2021-2022. In this Financial year, we have utilized 0.4 % of AFR for the month of April-2022, 1.26 % of AFR for the month of May-2022, 5.64 % of AFR for the month of June-2022, 8.74 % of AFR for the month of July-2022, 9.36 % of AFR for the month of August-2022, 7.32 % of AFR for the month of September-2022, 3.8 % of AFR for the month of October-2022, 1.76 % of AFR for the month of November-2022, 6.05 % of AFR for the month of December-2022, 5.63 % of AFR for the month of January-2023, 6.07 % of AFR for the month of February-2023, 11.31 % of AFR for the month of March-2023 and 8.33 % of AFR for the month of April-2023.

7.	The unit shall immediately take necessary action for providing infrastructure facilities to achieve the TSR as 10% and shall complete the same within 3 months to achieve 10%.	1. Our existing cement plant was installed during the year 1979(40 years old). The plant equipments are very old and the technology also. We do not have provision for co- processing of hazardous waste and plastic waste. We are having suspension pre-heaters for kilns and there is no secondary firing in pre-heater system. In this system kiln inlet temperature is very low comparing with pre-calciner kiln. At present the Existing plant was stopped from January -2021. 2. The Expansion plant was started for commercial production on 21.03.2020, we have proposed to utilization of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co-processing/Co-incineration in Expansion kiln. 3. To implementation of AFR in Expansion plant, the Unit has given work order to M/s. Development Consultants Private Limited, Kolkata to submitting **Detailed Project Report (DPR)** for implementation of infrastructure facilities for co-processing and co-incineration such as storage, processing, feeding system, conveyor systems, etc. 4. The Consultant M/s. Development Consultants Private Limited, Kolkata has given Project report at the cost of **Rs. 30 Crores**. Our corporate office has initiated work to get approval from government and initiate the tender procedure. 5. After completion of erection and commissioning the infrastructure facilities for AFR, the unit will give the monthly wise target statement and time schedule for achieving TSR 10 %. 6. In mean time, we have given manual feeding of AFR was utilized in the Expansion kiln at the rate of 0.34%, 0.65% during the month of October-2021, November-2021. We have achieved TSR 0.06 % in the Financial year 2021-2022. In this Financial year, we have utilized 0.4 % of AFR for the month of April-2022, 1.26 % of AFR for the month of May-2022, 5.64 % of AFR for the month of June-2022, 8.74 % of AFR for the month of July-2022, 9.36 % of AFR for the month of August-2022, 7.32 % of AFR for the month of September-2022, 3.8 % of AFR for the month of October-2022, 1.76 % of AFR for the month of November-2022, 6.05 % of AFR for the month of December-2022, 5.63 % of AFR for the month of January-2023, 6.07 % of AFR for the month of February-2023, 11.31 % of AFR for the month of March-2023 and 8.33 % of AFR for the month of April-2023.

8.	The unit shall always possess valid NOC for water drawl from the competent Authority.	The unit has obtained NOC for water drawl from the concerned Authority.
9.	The unit shall continue to develop green belt with native species of trees to attenuate the Air/Noise pollution.	The unit has been developed in the Existing plant and Colony nearly consisting of 10,000 trees, for Expansion plant along the periphery of the plant 3,000 saplings are planted and maintaining. The total 9 hectares of area was Green Belt developed. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. We will continue the same.
10.	The unit shall not use "Use and throw away Plastics" such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness within the industry premises. Instead it shall encourage use of eco friendly alternatives such as banana leaf, areca nut palm plate, stainless steel glass, porcelain plates cups, cloth bag, jute bags etc.	1. The unit is not using 'use and throw plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bags and plastic flags irrespective of thickness, within the industry premises. 2. The unit is using eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.,
11.	The unit shall operate the plant without attracting complaints from the nearby Public.	1. The unit is continuously cleaning the roads by newly purchased Road sweeping machine. 2. The unit has utilizing the water tanker lorry to spraying the water in the vehicle movement roads. 3. The unit has installed permanent water sprinkler system water sprinklers 32 No's in Coal yard & Clinker yard areas, 11 No's in Limestone crusher (LS-1) area, 7 No's in Existing plant CCR, 8 No's in Existing plant Cement mill, 6 No's in new plant Gypsum shed road and 13 No's in Packing house road. a) The Portable water sprinkler has provided 2 No's in Existing plant Raw mill and cement mill areas b) 1 No in Existing plant Packing house c) 1 No Expansion plant cement mill d) 2 No's in Coal yard & Clinker yard areas. We assure that this kind of lapse will not occur in future.
12.	This consent order does not absolve from obtaining necessary permission / clearance from other Authority or under other Statute as applicable.	The Unit has obtained Permission/Clearance from the Concerned Authorities and Other Statutory.

Annexure – A

Compliance Report - MoEF&CC standard EC Conditions for Cement Grinding Units without Captive Power Plants

(Ref: MoEF&CC,O&M,F.No.22-34/2018-1A dated: 09.08.2018)

Sl.no	Conditions	Compliance
I.	**Statutory compliance**	
i.	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.	Not applicable.
ii.	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.	Not applicable.
iii.	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan /Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)	Not applicable.
iv.	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/Committee.	The unit is periodically obtaining the Consent to Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board.

v.	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.	The unit has obtained No Objection Certificate from State Ground &Surface Water Resources Data Centre.
vi.	The Project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.	The unit is regularly obtaining authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.
II.	**Air quality monitoring and preservation**	
i.	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R. No. 612 (E) dated 25th August, 2014 (Cement) and subsequent amendment dated 9th May, 2016 (Cement) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories.	1. The unit has installed 24x7 continuous emission monitoring system at process stacks viz. Existing plant stacks (Coal mill, Cooler I&II, Kiln I&II, Cement mill) and Expansion plant stacks (Coal mill, Kiln, Cooler, Cement mill) to monitor stack emissions. The above Existing and Expansion plant stacks data are connected to SPCB online server on 06.04.2016 (Existing plant), 18.10.2019 (Expansion plant) and CPCB online server on 25.01.2017 (Existing plant), 12.04.2021(Expansion plant). Under the instrumentation department, the above system periodically calibrated by NABL accredited laboratories. 2. Every year we have conducting Ambient air quality and Stack monitoring survey through both TNPCB and M/s.R&C Environment Lab, Chennai. The ROA of the both survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016.
ii.	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986.	1. The unit is monitoring fugitive emissions in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986. 2. The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to conduct fugitive emission monitoring. The lab was conducted fugitive emission monitoring and the emission level is within the norms. We herewith submit the report for fugitive emission in **Annexure – I.**

iii.	The project proponent shall install system carryout to Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g PM_{10} and $PM_{2.5}$ in reference to PM emission, and SO_2 and NOx in reference to SO_2 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120º each), covering upwind and downwind directions. (case to case basis small plants :Manual; Large plants: Continuous)	1. The unit has installed 2 nos of Ambient Air Quality monitoring stations for certain criterion parameters relevant to the main pollutants such as PM10, PM2.5, SO2, Nox, CO. The above 2 nos of AAQMS covering upwind and Downwind directions at within the plant area. 2. As per the direction of TNPCB/ CPCB, The Unit has analyzed the feasibility to provide Continuous Ambient Air Quality Monitoring Stations (CAAQMS) with respect to ground level concentration around 10/25 km radius. In this location Cement factories are located in cluster. The ground level dust concentration may affect proposed CAAQMS by nearby cement factories. Even though the unit has taken survey for installation of CAAQMS within 10/25 km radius. Each proposed CAAQMS identified locations are falling by Minimum Six industries. The detailed feasibility report for installation of CAAQMS was sent to TNPCB and requested directions and suggestions for installation of proposed CAAQMS. 3. The unit has taken measures to find GLCs in the receptors and identify the locations of proposed CAAQMS station with the help of M/s. Glens Innovation Labs Pvt Ltd., Chennai. The work order was issued to M/s. Glens Innovation Labs Pvt Ltd., Chennai**.** M/s. Glens Innovation Labs Pvt Ltd., Chennai has conducted GLCs study in the receptors from 05.07.2022 to 09.07.2022**.** M/s. Glens Innovation Labs Pvt Ltd. was submitted the report. The unit will take necessary arrangements against report.

iv.	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality / fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report.	The unit herewith submit monthly summary report of continuous stack emission and air quality monitoring to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six monthly monitoring report. The report is enclosed in **Annexure - IX.**
v.	Appropriate Air Pollution Control (APC) system shallbe provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.	The unit has provided Air Pollution Control (APC) measures such as Bagfilters and ESP's to control stack emission and fugitive emission. a) The unit has provided 4 Nos. of ESP b) The unit has provided 45 Nos. of Bag filter c) The unit has provided 2 Nos. of RABH d) The unit has provided 2 Nos. of Cyclone separator for controlling stack and fugitive emission.
vi.	The project proponent shall provide leakage detection and mechanised bag cleaning facilities for better maintenance of bags.	The unit has provided leakage detection and mechanised bag cleaning facilities for better maintenance of bags.
vii.	Pollution control system in the cement plant shallbe provided as per the CREP Guidelines of CPCB.	The unit has complied all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) Guidelines of CPCB.
viii.	Sufficient number of mobile or stationery vacuum cleaners shall be provided to clean plant roads, shop floors, roofs, regularly.	1. The unit has utilizing 1 No. of mobile vacuum cleaners to clean plant shop floors, roofs, regularly. 2. The unit has utilizing 1 no. of Skid loader with road sweeping attachment to clean plant roads regularly.
ix.	Ensure covered transportation and conveying of raw material to prevent spillage and dust generation; Use closed bulkers for carrying fly ash.	The unit has provided covered transportation and conveying of raw material to prevent spillage and used to carry fly-ash in closed bulkers while transportation.
x.	Provide wind shelter fence and chemical spraying onthe raw material stock piles; and	The unit will provide wind shelter fence and chemical spraying onthe raw material stock piles.
xi.	Have separate truck parking area and monitorvehicular emissions at regular interval.	1. The unit has provided separate Truck parking area. 2. The unit is regularly monitoring vehicular emissions.

xii.	Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land by the use of covered conveyor belts/railways as a mode of transport.	1. The unit has taken measures to reduce impact of the transport of the raw materials and end products on the surrounding environment. 2. The unit is using conveyors/rail mode for raw materials and end products transport.
xiii.	Ventilation system shall be designed for adequate air changes as per ACGIH document for all tunnels, motor houses, cement bagging plants.	In Existing plant clinker tunnel is provided with forced air circulation by using cyclone separator and fan. Presently, the unit is operating as natural ventilation system. Even though we have taken measures to provide mechanical ventilation system as per design of ACGIH document in all tunnels, motor houses, cement bagging plants.
III	**Water quality monitoring and preservation**	
i.	The project proponent shall install effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 vide G.S.R No.612 (E) dated 25th August, 2014 (Cement) and subsequent amendment dated 9th May, 2016 (Cement) and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. (case to case basis small plants: Manual; Large plants: continuous)	The unit does not produce any effluent in the cement manufacturing process.
ii.	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories.	The unit is monitoring ground water quality regularly. The report is enclosed in **Annexure – III.**

iii.	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.	1. The unit does not produce any effluent in the cement manufacturing process. 2. The unit has engaged NABL accredited and CPCB empanelled laboratory M/s. R&C Environment Lab, Chennai to monitor the ground water quality. The report is enclosed in Annexure – VII.
iv.	Adhere to 'Zero Liquid Discharge'.	The unit has installed Sewage Treatment Plant which treats the sewage water. The treated sewage water is using for green belt development.
v.	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.	As per the Board prescribed standards, the unit has been operating and maintaining the sewage treatment plant efficiently and continuously.
vi.	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface runoff.	The unit will provide Garland drains and collection pits for eachstock pile to arrest the run-off in the event of heavy rains.
vii.	The project proponent shall practice rainwater harvesting to maximum possible extent.	1. Rain water harvesting work is under process for all thebuildings in the new Plant. 2. The capacity of the old reservoir in the TANCEM Colony wasenhanced to store more water.
viii.	Water meters shall be provided at the inlet to all unit processes in the cement plant.	1. The unit has provided water meters at the inlet of the plant. 2. The unit has taken measures to provide water meters in all unit processes in the cement plant.
ix.	The project proponent shall make efforts to minimize water consumption in the cement plantcomplex by segregation of used water, practicing cascade use and by recycling treated water.	The unit has taken measures to minimize water consumption in the cement plant complex by segregation of used water, practicing cascade use and by recycling treated water.

IV	**Noise monitoring and prevention**	
i.	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.	The unit has conducting the Noise level survey every year through TNPCB laboratory and M/s.R&C Environment Lab, Chennai.
ii.	The ambient noise levels should conform to the standards under E(P)A Rules, 1986 viz. 75 dB(A) during night time.	1. Noise control measuring including acoustic hoods, silencers, enclosures etc, are provided in all the required areas. 2. The Unit has maintain the ambient noise level within the Standards prescribed by the Board.
V	**Energy Conservation measures**	
i.	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.	Solar light system has been provided in our TANCEM Hospital and school areas. The solar light system for all common areas, street lights, villages, parking around project area work is under progress.
ii.	Provide the project proponent for LED lights in their offices and residential areas.	The LED lights are provided in the Expansion plant and Existing plant premises. The LED lights installation works in residential areas is under progress.
iii.	Maximize utilization of fly ash, slag and sweetener in cement blend as per BIS standards.	The unit is utilizing the wet fly ash and dry fly ash in cement blend as per BIS standards.
VI	**Waste management**	
i.	The waste oil, grease and other hazardous shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules,2016.	The unit is disposing Hazardous waste as per the Hazardous & Other waste (Management & Transboundary Movement) Rules,2016.
ii.	Kitchen waste shall be composed or converted to biogas for further use. (to be decided on case to case basis depending on type and size of plant)	The unit has taken measures to utilize Kitchen waste and converted to biogas for further use.

VII	**Green Belt**	
i.	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The green belt shall inter alia cover the entire periphery of the plant.	The unit has been developed in the Existing plant and Colony nearly consisting of 10,000 trees, for Expansion plant along the periphery of the plant 3,000 saplings are planted and maintaining. The total 9 hectares of area was Green Belt developed. As per TNPCB Kurunkadugal scheme, we have planted 1095 saplings inside the plant premises. We will continue the same.
ii.	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.	The unit has taken measures to prepare GHG emissions inventory for the plant.
VIII	**Public hearing and Human health issues**	
i.	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.	The unit has implemented Disaster Management Plan. **(Annexure-V)**
ii.	The PP shall provide Personal Protection Equipment (PPE) as per the norms of Factory Act.	The unit has provided Personal Protective Equipment(PPE).
iii.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure 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.	1. The Unit has provided housing of construction labor and all necessary infrastructure facilities for the construction labor. 2. The project was completed and we removed the temporary structures for labor colony and toilets.
iv.	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Surveillance of the workers is regularly done andrecords maintained as per the factories act.

IX	**Corporate Environment Responsibility**	
i.	The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-1A.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.	The unit is complying the Corporate Environment Responsibility.
ii.	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental /forest /wildlife norms / conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental /forest /wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.	The unit has prepared an Environmental Policy with standard operating procedures.
iii.	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.	The unit will take necessary action to provide separate Environment Cell both at the unit and company head quarter level.

a.	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/ Regional Office along with the Six Monthly Compliance Report.	For EMP, The Unit has allotted an amount of Rs.50 crores for pollution control equipment for Expansion Plant and Recurring expenditure of Rs 4.72 crores has spent.
iv.	Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.	1. The unit has conducting environmental audit every year. 2. Every year the unit has conducting Ambient air quality, Stack monitoring and Ground water quality survey through M/s.R&C Environment Lab, Chennai. The Report of the survey meets emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016.
v.	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the cement plants shall be implemented.	The unit has completed all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP).
x	**Miscellaneous**	
i.	The project proponent shall make public the environmental clearance granted for their project along with the Environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.	Project clearance had been advertised in the local two newspapers. The clearance letter was also uploaded in TANCEM's website.

ii.	The copies of the environmental clearance shall be submitted by the project proponents to the heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 daysfrom the date of receipt.	The Unit has submitted copy of clearance letter to local panchayat.
iii.	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.	The unit is uploaded the status of compliance of the stipulated environment clearance conditions, including results of monitored data in our TANCEM website and updating the same periodically.
iv.	The project proponent shall monitor the criteria pollutants level namely: PM_{10}, SO_2, NO_x (Ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.	LED display board commissioned and displayed in front of our main gate for the existing plant and expansion plant.
v.	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of environment, Forest and Climate change at environment clearance portal.	The unit has submitting six monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of environment, Forest and Climate change at environment clearance portal.
vi.	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned state pollution control board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.	The Unit has submitting Environmental statement for each financial year ending 31st March in Form-V and compliance of Environmental conditions to the TNPCB and regional office of MOEF&CC Chennai. The environmental statement is enclosed in **Annexure - VIII.**

vii.	The project proponent 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, commencing the land development work and start of production operationby the project.	The plant commercial production started on 21.03.2020. The land development work is under progress.
a.	The project authorities must strictly adhere to the stipulations made by the state Pollution Control Board and the State Government.	The Unit has strictly adhere to the stipulations made by the TamilNadu Pollution Control Board and the State Government.
b.	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	The unit is abiding all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
viii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF & CC).	The Unit will not carry out any expansion or modifications without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
ix.	Concealing factual data or submission of false/fabricated data may result in revocations ofthis environmental clearance and attract action under the provisions of Environment (Protection)Act, 1986.	The unit will not submit the false/fabricated data to the Ministry of Environment, Forests and Climate Change (MoEF&CC).
x.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Agreed.

xi.	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.	Agreed. The unit will implement the Ministry additional conditions in time bound manner.
xii.	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.	Agreed.
xiii.	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules,2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.	The unit will follow.
xiv.	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Agreed.

R & C
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स्थापना १८५८
ESTD 1858
ISO 9001 Co.,

Richardson & Cruddas (1972) Ltd.
(A Government of India undertaking)
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CERT No. TC-7742
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ENVIRONMENTAL ENGINEERING LABORATORY
(Recognized by Central Pollution Control Board / MoEF/Accredited by NABL)

TEST REPORT

Issued to	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	Acknowledgement Receipt number : **3099**	**Report Number**	**TC774223011343F**
Sample Description	**Kallar Bore well water sample (5 Ltrs)**	Sampling date	31.03.2023
Sample drawn By	R&C Environment Lab.		
Sampling Method	R&C/EEL/LQMS/SOP-041	Test commenced on	31.03.2023
Report date	13.04.2023	Test completed on	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
1.	pH	-	7.42	IS 3025 Part 11 (Reaff. 2022)	6.5 - 8.5	No relaxation
2.	Colour	Hazen	<5	IS 3025 Part 4 (Reaff. 2021)	5	25
3.	Odour	Agreeable	Un-Objectionable	IS 3025 Part 5 (Reaff. 2018)	Agreeable	Agreeable
4.	Temperature	°C	25.0	IS 3025 Part 9 (Reaff. 2022)	-	-
5.	Taste	Agreeable	Un-Objectionable	IS 3025 Part 7&8 (Reaff. 2022)	Agreeable	Agreeable
6.	Turbidity	NTU	1.8	IS 3025 Part 10 (Reaff. 2022)	1	5
7.	Conductivity	µmhos/cm	1339	IS 3025 Part 14 (Reaff. 2022)	-	-
8.	Total Dissolved Solids	mg/l	872	IS 3025 Part 16 (Reaff. 2023)	500	2000
9.	Aluminium (as Al)	mg/l	BDL (DL: 0.01)	IS 3025 Part 55 (Reaff. 2019)	0.03	0.2
10.	Ammonia (as total ammonia-N)	mg/l	0.18	IS 3025 Part 34 (Reaff. 2019)	0.5	No relaxation
11.	Anionic detergents (as MBAS)	mg/l	BDL (DL: 0.01)	Annex K of IS 13428	0.2	1.0
12.	Total Silica (as SiO_2)	mg/l	34.2	IS 3025 Part 35 (Reaff. 2019)	-	-

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R&C/EEL/LQMS/QM/46

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स्थापना १८५८
ESTD 1858
ISO 9001 Co.,
इंजिनियर्स

CERT No. TC-7742
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Reference : Acknowledgement Receipt number : **3099**				**Report Number**	**: TC774223011343F**	
13.	Barium (as Ba)	mg/l	BDL (DL: 0.01)	Annex F of IS 13428	0.7	No relaxation
14.	Boron (as B)	mg/l	BDL (DL: 0.01)	IS 3025 Part 57 (Reaff. 2019)	0.5	1.0
15.	Calcium (as Ca)	mg/l	58	IS 3025 Part 40 (Reaff. 2019)	75	200
16.	Chloramines (as NH_2Cl)	mg/l	5.2	IS 3025 Part 26 (Reaff. 2019)	4.0	No relaxation
17.	Chlorides (as Cl)	mg/l	182	IS 3025 Part 32 (Reaff. 2019)	250	1000
18.	Copper (as Cu)	mg/l	0.20	IS 3025 Part 42 (Reaff. 2019)	0.05	1.5
19.	Fluoride (as F)	mg/l	0.32	APHA 24th Edn. 4500 F B,D	1.0	1.5
20.	Free residual chlorine	mg/l	BDL (DL: 0.1)	IS 3025 Part 26 (Reaff. 2019)	0.2	1.0
21.	Iron (as Fe)	mg/l	0.36	APHA 24th Edn. 3111 B	0.3	No relaxation
22.	Magnesium (as Mg)	mg/l	20	IS 3025 Part 46 (Reaff. 2019)	30	100
23.	Manganese (as Mn)	mg/l	BDL (DL: 0.01)	IS 3025 Part 59 (Reaff. 2019)	0.1	0.3
24.	Mineral oil	mg/l	BDL (DL: 0.01)	Clause 6 of IS 3025 - (Part 39) Infrared	0.5	No relaxation
25.	Nitrate (as NO_3)	mg/l	8.12	IS 3025 Part 34 (Reaff. 2019)	45	No relaxation
26.	Phenolic compounds (as C_6H_5OH)	mg/l	BDL (DL: 0.01)	IS 3025 Part 43 (Reaff. 2019)	0.001	0.002
27.	Selenium (as Se)	mg/l	BDL (DL: 0.001)	IS 3025 Part 56 (Reaff. 2019)	0.01	No relaxation
28.	Strontium (as Sr)	mg/l	BDL (DL: 0.001)	APHA 24th Edn. 3500 Sr B	0.01	No relaxation
29.	Silver (as Ag), mg/l	mg/l	BDL (DL: 0.001)	Annex J of IS 13428	0.1	No relaxation
30.	Sulphate (as SO_4)	mg/l	134	APHA 24th Edn. 4500 SO_4 B	200	400
31.	Sulphide (as H_2S)	mg/l	BDL (DL: 0.001)	IS 3025 Part 29 (Reaff. 2019)	0.05	No relaxation
32.	Alkalinity to Phenolphthalein	mg/l	BDL (DL: 1.0)	IS 3025 Part 23 (Reaff. 2019)	-	-
33.	Alkalinity to Methyl Orange	mg/l	148	IS 3025 Part 23 (Reaff. 2019)	200	600
34.	Total Hardness (as $CaCO_3$)	mg/l	228	IS 3025 Part 21 (Reaff. 2019)	200	600

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ENVIRONMENTAL ENGINEERING LABORATORY

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Reference : Acknowledgement Receipt number : **3099** **Report Number : TC774223011343F**

35.	Zinc (as Zn)	mg/l	5.26	IS 3025 Part 49 (Reaff. 2019)	5	15
36.	Cadmium (as Cd)	mg/l	BDL (DL: 0.001)	IS 3025 Part 41 (Reaff. 2019)	0.003	No relaxation
37.	Cyanide (as CN)	mg/l	BDL (DL: 0.001)	IS 3025 Part 27 (Reaff. 2019)	0.05	No relaxation
38.	Lead (as Pb)	mg/l	BDL (DL: 0.001)	IS 3025 Part 47 (Reaff. 2019)	0.01	No relaxation
39.	Mercury (as Hg)	mg/l	BDL (DL: 0.001)	IS 3025 Part 48 (Reaff. 2019)	0.001	No relaxation
40.	Molybdenum (as Mo)	mg/l	BDL (DL: 0.001)	IS 3025 Part 2 (Reaff. 2017)	0.07	No relaxation
41.	Nickel (as Ni)	mg/l	BDL (DL: 0.01)	IS 3025 Part 54 (Reaff. 2019)	0.02	No relaxation
42.	Pesticides	µg/l	BDL (DL: 0.001)	USEPA 525.2, 8141 A	0.04	No relaxation
43.	Polychlorinated biphenyls	mg/l	BDL (DL: 0.001)	ASTM 5175	0.0005	No relaxation
44.	Polynuclear aromatic hydro-carbons (as PAH)	mg/l	BDL (DL: 0.0001)	APHA 24th Edn. 6440	0.0001	No relaxation
45.	Total arsenic (as As)	mg/l	BDL (DL: 0.001)	IS 3025 Part 37 (Reaff. 2019)	0.01	0.05
46.	Total chromium (as Cr)	mg/l	BDL (DL: 0.001)	IS 3025 Part 52 (Reaff. 2019)	0.05	No relaxation
47.	Trihalomethanes:					
a)	Bromoform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
b)	Dibromochloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
c)	Bromodichloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.06	No relaxation
d)	Chloroform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.2	No relaxation

Note: The above water sample analyzed few parameters values are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for domestic / potable usage. BDL - Below the Detectable Limit, DL - Detection Limit. Hyphen(-) denotes limits not provided by Bureau of Indian Standard as per IS 10500.

**** End of the Report ****

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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इंजिनियर्स

CERT No. TC-7742
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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board / MoEF/Accredited by NABL)

TEST REPORT

Issued to	:	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	:	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011343F**
Sample Description	:	**Kallar Bore well water sample (2 Ltrs)**	Sampling date :	31.03.2023
Sample drawn By	:	R&C Environment Lab.		
Sampling Method	:	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date	:	13.04.2023	Test completed on :	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
Bacteriological Parameters						
48.	Total Bacterial Count	MPN/100ml	-197-	APHA 23rd Edn. 9221	Absent	Absent
49.	Faecal Coliforms	MPN/100ml	-125-	APHA 23rd Edn. 9221,E	Absent	Absent
50.	Escherichia - Coli	MPN/100ml	-55-	APHA 23rd Edn. 9221,F	Absent	Absent

Note: The above water sample analyzed Bacteriological parameters results are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for Potable / Domestic purpose. NTU - Nephelometric Turbidity Unit, MPN - Most Probable Number.

**** End of the Report ****

R & C ENVIRONMENT LAB Chennai 600 095

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

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TEST REPORT

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Reference :	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011341F**
Sample Description :	**Colony Bore well water sample (5 Ltrs)**	Sampling date :	31.03.2023
Sample drawn By :	R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
1.	pH	-	7.48	IS 3025 Part 11 (Reaff. 2022)	6.5 - 8.5	No relaxation
2.	Colour	Hazen	<5	IS 3025 Part 4 (Reaff. 2021)	5	25
3.	Odour	Agreeable	Un-Objectionable	IS 3025 Part 5 (Reaff. 2018)	Agreeable	Agreeable
4.	Temperature	°C	25.0	IS 3025 Part 9 (Reaff. 2022)	-	-
5.	Taste	Agreeable	Un-Objectionable	IS 3025 Part 7&8 (Reaff. 2022)	Agreeable	Agreeable
6.	Turbidity	NTU	1.6	IS 3025 Part 10 (Reaff. 2022)	1	5
7.	Conductivity	µmhos/cm	1335	IS 3025 Part 14 (Reaff. 2022)	-	-
8.	Total Dissolved Solids	mg/l	886	IS 3025 Part 16 (Reaff. 2023)	500	2000
9.	Aluminium (as Al)	mg/l	BDL (DL: 0.01)	IS 3025 Part 55 (Reaff. 2019)	0.03	0.2
10.	Ammonia (as total ammonia-N)	mg/l	0.16	IS 3025 Part 34 (Reaff. 2019)	0.5	No relaxation
11.	Anionic detergents (as MBAS)	mg/l	BDL (DL: 0.01)	Annex K of IS 13428	0.2	1.0
12.	Total Silica (as SiO_2)	mg/l	32.4	IS 3025 Part 35 (Reaff. 2019)	-	-

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ENVIRONMENT LAB Chennai 600 095

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Reference : Acknowledgement Receipt number : **3099**			**Report Number** : **TC774223011341F**			
13.	Barium (as Ba)	mg/l	BDL (DL: 0.01)	Annex F of IS 13428	0.7	No relaxation
14.	Boron (as B)	mg/l	BDL (DL: 0.01)	IS 3025 Part 57 (Reaff. 2019)	0.5	1.0
15.	Calcium (as Ca)	mg/l	54	IS 3025 Part 40 (Reaff. 2019)	75	200
16.	Chloramines (as NH_2Cl)	mg/l	4.2	IS 3025 Part 26 (Reaff. 2019)	4.0	No relaxation
17.	Chlorides (as Cl)	mg/l	168	IS 3025 Part 32 (Reaff. 2019)	250	1000
18.	Copper (as Cu)	mg/l	0.12	IS 3025 Part 42 (Reaff. 2019)	0.05	1.5
19.	Fluoride (as F)	mg/l	0.24	APHA 24th Edn. 4500 F B,D	1.0	1.5
20.	Free residual chlorine	mg/l	BDL (DL: 0.1)	IS 3025 Part 26 (Reaff. 2019)	0.2	1.0
21.	Iron (as Fe)	mg/l	0.32	APHA 24th Edn. 3111 B	0.3	No relaxation
22.	Magnesium (as Mg)	mg/l	18	IS 3025 Part 46 (Reaff. 2019)	30	100
23.	Manganese (as Mn)	mg/l	BDL (DL: 0.01)	IS 3025 Part 59 (Reaff. 2019)	0.1	0.3
24.	Mineral oil	mg/l	BDL (DL: 0.01)	Clause 6 of IS 3025 - (Part 39) Infrared	0.5	No relaxation
25.	Nitrate (as NO_3)	mg/l	6.72	IS 3025 Part 34 (Reaff. 2019)	45	No relaxation
26.	Phenolic compounds (as C_6H_5OH)	mg/l	BDL (DL: 0.01)	IS 3025 Part 43 (Reaff. 2019)	0.001	0.002
27.	Selenium (as Se)	mg/l	BDL (DL: 0.001)	IS 3025 Part 56 (Reaff. 2019)	0.01	No relaxation
28.	Strontium (as Sr)	mg/l	BDL (DL: 0.001)	APHA 24th Edn. 3500 Sr B	0.01	No relaxation
29.	Silver (as Ag), mg/l	mg/l	BDL (DL: 0.001)	Annex J of IS 13428	0.1	No relaxation
30.	Sulphate (as SO_4)	mg/l	124	APHA 24th Edn. 4500 SO_4 B	200	400
31.	Sulphide (as H_2S)	mg/l	BDL (DL: 0.001)	IS 3025 Part 29 (Reaff. 2019)	0.05	No relaxation
32.	Alkalinity to Phenolphthalein	mg/l	BDL (DL: 1.0)	IS 3025 Part 23 (Reaff. 2019)	-	-
33.	Alkalinity to Methyl Orange	mg/l	132	IS 3025 Part 23 (Reaff. 2019)	200	600
34.	Total Hardness (as $CaCO_3$)	mg/l	210	IS 3025 Part 21 (Reaff. 2019)	200	600

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35.	Zinc (as Zn)	mg/l	4.32	IS 3025 Part 49 (Reaff. 2019)	5	15
36.	Cadmium (as Cd)	mg/l	BDL (DL: 0.001)	IS 3025 Part 41 (Reaff. 2019)	0.003	No relaxation
37.	Cyanide (as CN)	mg/l	BDL (DL: 0.001)	IS 3025 Part 27 (Reaff. 2019)	0.05	No relaxation
38.	Lead (as Pb)	mg/l	BDL (DL: 0.001)	IS 3025 Part 47 (Reaff. 2019)	0.01	No relaxation
39.	Mercury (as Hg)	mg/l	BDL (DL: 0.001)	IS 3025 Part 48 (Reaff. 2019)	0.001	No relaxation
40.	Molybdenum (as Mo)	mg/l	BDL (DL: 0.001)	IS 3025 Part 2 (Reaff. 2017)	0.07	No relaxation
41.	Nickel (as Ni)	mg/l	BDL (DL: 0.01)	IS 3025 Part 54 (Reaff. 2019)	0.02	No relaxation
42.	Pesticides	µg/l	BDL (DL: 0.001)	USEPA 525.2, 8141 A	0.04	No relaxation
43.	Polychlorinated biphenyls	mg/l	BDL (DL: 0.001)	ASTM 5175	0.0005	No relaxation
44.	Polynuclear aromatic hydro-carbons (as PAH)	mg/l	BDL (DL: 0.0001)	APHA 24th Edn. 6440	0.0001	No relaxation
45.	Total arsenic (as As)	mg/l	BDL (DL: 0.001)	IS 3025 Part 37 (Reaff. 2019)	0.01	0.05
46.	Total chromium (as Cr)	mg/l	BDL (DL: 0.001)	IS 3025 Part 52 (Reaff. 2019)	0.05	No relaxation
47.	Trihalomethanes:					
a)	Bromoform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
b)	Dibromochloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
c)	Bromodichloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.06	No relaxation
d)	Chloroform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.2	No relaxation

Note: The above water sample analyzed few parameters values are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for domestic / potable usage. BDL - Below the Detectable Limit, DL - Detection Limit. Hyphen(-) denotes limits not provided by Bureau of Indian Standard as per IS 10500.

**** End of the Report ****

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board / MoEF/Accredited by NABL)

TEST REPORT

Issued to	:	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	:	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011341F**
Sample Description	:	**Colony Bore well water sample (2 Ltrs)**	Sampling date :	31.03.2023
Sample drawn By	:	R&C Environment Lab.		
Sampling Method	:	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date	:	13.04.2023	Test completed on :	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
Bacteriological Parameters						
48.	Total Bacterial Count	MPN/100ml	-145-	APHA 23rd Edn. 9221	Absent	Absent
49.	Faecal Coliforms	MPN/100ml	-97-	APHA 23rd Edn. 9221,E	Absent	Absent
50.	Escherichia - Coli	MPN/100ml	-33-	APHA 23rd Edn. 9221,F	Absent	Absent

Note: The above water sample analyzed Bacteriological parameters results are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for Potable / Domestic purpose. NTU - Nephelometric Turbidity Unit, MPN - Most Probable Number.

**** End of the Report ****

R&C ENVIRONMENT LAB Chennai 600 095

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT

Issued to :	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference :	Acknowledgement Receipt number : **3099**	**Report Number :**	**TC774223011342F**
Sample Description :	**Coal Yard Bore well water sample (5 Ltrs)**	Sampling date :	31.03.2023
Sample drawn By :	R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
1.	pH	-	7.68	IS 3025 Part 11 (Reaff. 2022)	6.5 - 8.5	No relaxation
2.	Colour	Hazen	<5	IS 3025 Part 4 (Reaff. 2021)	5	25
3.	Odour	Agreeable	Un-Objectionable	IS 3025 Part 5 (Reaff. 2018)	Agreeable	Agreeable
4.	Temperature	°C	25.0	IS 3025 Part 9 (Reaff. 2022)	-	-
5.	Taste	Agreeable	Un-Objectionable	IS 3025 Part 7&8 (Reaff. 2022)	Agreeable	Agreeable
6.	Turbidity	NTU	2.2	IS 3025 Part 10 (Reaff. 2022)	1	5
7.	Conductivity	µmhos/cm	1195	IS 3025 Part 14 (Reaff. 2022)	-	-
8.	Total Dissolved Solids	mg/l	776	IS 3025 Part 16 (Reaff. 2023)	500	2000
9.	Aluminium (as Al)	mg/l	BDL (DL: 0.01)	IS 3025 Part 55 (Reaff. 2019)	0.03	0.2
10.	Ammonia (as total ammonia-N)	mg/l	0.12	IS 3025 Part 34 (Reaff. 2019)	0.5	No relaxation
11.	Anionic detergents (as MBAS)	mg/l	BDL (DL: 0.01)	Annex K of IS 13428	0.2	1.0
12.	Total Silica (as SiO_2)	mg/l	30.6	IS 3025 Part 35 (Reaff. 2019)	-	-

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R&C/EEL/LQMS/QM/46

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Reference : Acknowledgement Receipt number : **3099** **Report Number : TC774223011342F**

13.	Barium (as Ba)	mg/l	BDL (DL: 0.01)	Annex F of IS 13428	0.7	No relaxation
14.	Boron (as B)	mg/l	BDL (DL: 0.01)	IS 3025 Part 57 (Reaff. 2019)	0.5	1.0
15.	Calcium (as Ca)	mg/l	50	IS 3025 Part 40 (Reaff. 2019)	75	200
16.	Chloramines (as NH_2Cl)	mg/l	4.4	IS 3025 Part 26 (Reaff. 2019)	4.0	No relaxation
17.	Chlorides (as Cl)	mg/l	175	IS 3025 Part 32 (Reaff. 2019)	250	1000
18.	Copper (as Cu)	mg/l	0.18	IS 3025 Part 42 (Reaff. 2019)	0.05	1.5
19.	Fluoride (as F)	mg/l	0.22	APHA 24th Edn. 4500 F B,D	1.0	1.5
20.	Free residual chlorine	mg/l	BDL (DL: 0.1)	IS 3025 Part 26 (Reaff. 2019)	0.2	1.0
21.	Iron (as Fe)	mg/l	0.24	APHA 24th Edn. 3111 B	0.3	No relaxation
22.	Magnesium (as Mg)	mg/l	16	IS 3025 Part 46 (Reaff. 2019)	30	100
23.	Manganese (as Mn)	mg/l	BDL (DL: 0.01)	IS 3025 Part 59 (Reaff. 2019)	0.1	0.3
24.	Mineral oil	mg/l	BDL (DL: 0.01)	Clause 6 of IS 3025 - (Part 39) Infrared	0.5	No relaxation
25.	Nitrate (as NO_3)	mg/l	7.22	IS 3025 Part 34 (Reaff. 2019)	45	No relaxation
26.	Phenolic compounds (as C_6H_5OH)	mg/l	BDL (DL: 0.01)	IS 3025 Part 43 (Reaff. 2019)	0.001	0.002
27.	Selenium (as Se)	mg/l	BDL (DL: 0.001)	IS 3025 Part 56 (Reaff. 2019)	0.01	No relaxation
28.	Strontium (as Sr)	mg/l	BDL (DL: 0.001)	APHA 24th Edn. 3500 Sr B	0.01	No relaxation
29.	Silver (as Ag), mg/l	mg/l	BDL (DL: 0.001)	Annex J of IS 13428	0.1	No relaxation
30.	Sulphate (as SO_4)	mg/l	118	APHA 24th Edn. 4500 SO_4 B	200	400
31.	Sulphide (as H_2S)	mg/l	BDL (DL: 0.001)	IS 3025 Part 29 (Reaff. 2019)	0.05	No relaxation
32.	Alkalinity to Phenolphthalein	mg/l	BDL (DL: 1.0)	IS 3025 Part 23 (Reaff. 2019)	-	-
33.	Alkalinity to Methyl Orange	mg/l	126	IS 3025 Part 23 (Reaff. 2019)	200	600
34.	Total Hardness (as $CaCO_3$)	mg/l	192	IS 3025 Part 21 (Reaff. 2019)	200	600

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35.	Zinc (as Zn)	mg/l	5.12	IS 3025 Part 49 (Reaff. 2019)	5	15
36.	Cadmium (as Cd)	mg/l	BDL (DL: 0.001)	IS 3025 Part 41 (Reaff. 2019)	0.003	No relaxation
37.	Cyanide (as CN)	mg/l	BDL (DL: 0.001)	IS 3025 Part 27 (Reaff. 2019)	0.05	No relaxation
38.	Lead (as Pb)	mg/l	BDL (DL: 0.001)	IS 3025 Part 47 (Reaff. 2019)	0.01	No relaxation
39.	Mercury (as Hg)	mg/l	BDL (DL: 0.001)	IS 3025 Part 48 (Reaff. 2019)	0.001	No relaxation
40.	Molybdenum (as Mo)	mg/l	BDL (DL: 0.001)	IS 3025 Part 2 (Reaff. 2017)	0.07	No relaxation
41.	Nickel (as Ni)	mg/l	BDL (DL: 0.01)	IS 3025 Part 54 (Reaff. 2019)	0.02	No relaxation
42.	Pesticides	µg/l	BDL (DL: 0.001)	USEPA 525.2, 8141 A	0.04	No relaxation
43.	Polychlorinated biphenyls	mg/l	BDL (DL: 0.001)	ASTM 5175	0.0005	No relaxation
44.	Polynuclear aromatic hydro-carbons (as PAH)	mg/l	BDL (DL: 0.0001)	APHA 24th Edn. 6440	0.0001	No relaxation
45.	Total arsenic (as As)	mg/l	BDL (DL: 0.001)	IS 3025 Part 37 (Reaff. 2019)	0.01	0.05
46.	Total chromium (as Cr)	mg/l	BDL (DL: 0.001)	IS 3025 Part 52 (Reaff. 2019)	0.05	No relaxation
47.	Trihalomethanes:					
a)	Bromoform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
b)	Dibromochloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.1	No relaxation
c)	Bromodichloromethane	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.06	No relaxation
d)	Chloroform	mg/l	BDL (DL: 0.01)	APHA 24th Edn. 6232	0.2	No relaxation

Note: The above water sample analyzed few parameters values are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for domestic / potable usage. BDL - Below the Detectable Limit, DL - Detection Limit. Hyphen(-) denotes limits not provided by Bureau of Indian Standard as per IS 10500.

**** End of the Report ****

R&C ENVIRONMENT LAB Chennai 600 095

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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नागपूर - 440016.
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Richardson & Cruddas (1972) Ltd.

(A Government of India undertaking)

रिचर्डसन एण्ड क्रुडास (१९७२) लिमिटेड

(भारत सरकार का उपक्रम)

स्थापना १८५८
ESTD 1858
ISO 9001 Co.,
इंजिनियर्स

CERT No. TC-7742
ENGINEERS

आर एंड सी पर्यावरण प्रयोगशाला,
पर्यावरण इंजीनियरिंग प्रयोगशाला प्रभाग,
१/६१, कुलकरई स्ट्रीट, वीओसी नगर मुख्य सड़क,
अदयालम्पेट, मदुरवॉयल, चेन्नई-६०० ०९४. तमिल नाडु, भारत.
वेबसाइट : http://www.rcenvirolab.com
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९०४३० ७५९४९, फैक्स : + ९१-४४-२६२५ ८२९५

An ISO 9001-2015 Certified Company
Certificate No. BE - 15 QMS 5840

R&C Environment Lab,
Environmental Engineering Laboratory Division,
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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board / MoEF/Accredited by NABL)

TEST REPORT

Issued to :	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference :	Acknowledgement Receipt number : **3099**	**Report Number :**	**TC774223011342F**
Sample Description :	**Coal Yard Bore well water sample (2 Ltrs)**	Sampling date :	31.03.2023
Sample drawn By :	R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023

Sl.No.	PARAMETER(s)	Unit	RESULT	TEST METHOD	IS:10500:2018 LIMITS	
					Acceptable	Permissible
Bacteriological Parameters						
48.	Total Bacterial Count	MPN/100ml	-175-	APHA 23rd Edn. 9221	Absent	Absent
49.	Faecal Coliforms	MPN/100ml	-105-	APHA 23rd Edn. 9221,E	Absent	Absent
50.	Escherichia - Coli	MPN/100ml	-45-	APHA 23rd Edn. 9221,F	Absent	Absent

Note: The above water sample analyzed Bacteriological parameters results are exceeding the acceptable limits as per IS:10500-2012 norms, so necessary treatment is required before use for Potable / Domestic purpose. NTU - Nephelometric Turbidity Unit, MPN - Most Probable Number.

**** End of the Report ****

R & C ENVIRONMENT LAB Chennai 600 095

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

मुलुण्ड एल.बी. सास्त्री मार्ग मुलुण्ड पश्चिम मुम्बई - 400 080. फैक्स : 022 - 2569 0988 फोन : 022 - 2561 1973	Mulund L.B. Shastri Marg. Mulund West Mumbai - 400 080. Fax : 022 - 2569 0988 Phone : 022 - 2561 1973	पंजीकृत एवं मुख्यालय भायखला आयरन वर्क्स सर जे.जे. सड़क, मुम्बई - 400 008. फैक्स : 022 - 2373 1491 फोन : 022 - 2373 8086	Regd. & Head Office : Byculla Iron Works Sir J.J. Road Mumbai - 400 008. Fax : 022 - 2373 1491 Phone : 022 - 2373 8086	नागपूर एफ३, एम.आई.डी.सी. इंडस्ट्रियल एस्टेट हिंगाना सड़क, नागपूर - 440016. फैक्स : 07104 - 237693 फोन : 07104 - 237061	Nagpur F3, MIDC Industrial Estate, Hingna Road, Nagpur - 440 016. Fax : 07104 - 237693 Phone : 07104 - 237061

Annexure-IV

TANCEM

New Cement Plant Project

Enterprise social commitment works

Sl. No.	Name of work	Place of work	Estimate cost (Rs. in lakhs)	Stage of work
1	**Ariyalur Govt. hospital infrastructure facilities work**		**714**	
1(a)	**Construction of Additional 200 Bedded Ward with operation Theatre** at Ariyalur Block. Government District Head Quarters Hospitals in Ariyalur. District including Electrical Arrangements.	Govt. Hospital, Ariyalur	616	Work completed
	Construction of steam Laundry Building at Ariyalur Government District Head Quarters Hospital in Ariyalur District including Electrical Arrangements.		61	Work completed
	Construction of Waiting Hall at Ariyalur Government District Head Quarters Hospital in Ariyalur District including Electrical Arrangements.		18	Work completed
	Construction of Mortuary Block at Ariyalur Government District Head Quarters Hospital in Ariyalur District including Electrical Arrangements.		19	Work completed

1(b)	Purchase of equipments for District Head Quarters Hospital at Ariyalur.			236	1. As per TNMSC requisition for procurement of equipments advance payment 1.63 crore amount released. 2. Equipments order by Collectorate through TNMSC is under process 20% of equipments received by Ariyalur hospital.
2	**Infrastructure facilities at Panchayat Union and Government Schools**			**212**	
	2.1	**Construction of additional class room** (2 Units) at Panchayat Union Elementary School, Usenapath, Ariyalur Block.	Usenabath, ariyalur.	12.35	Work completed
	2.2	**Additional Building (3 Class Rooms)** in Panchayat Union Elementary School, Thamaraikulam, Ariyalur Block.	Thamaraikulam, Ariyalur.	16.80	Work completed
	2.3	**Compound Wall** in Panchayat Union Elementary School, Rajiv Nagar, Ariyalur Block.	Rajiv Nagar, Ariyalur.	10.72	Work completed
	2.4	**Additional Building** (3 Class Rooms) in Panchayat Union Elementary School, Venkatakrishnapuram, Ariyalur Block.	Venkatakrishnapuram, Ariyalur	16.80	Work completed.
	2.5	**Compound Wall** in Panchayat Union Elementary School, Ravuthanpatti, Ariyalur Block.	Ravuthanpatti, Ariyalur	9.76	Work completed.
	2.6	**Compound Wall** in Government High School, Manakudi, Ariyalur	Manakudi, Ariyalur	69.38	Work completed.

		Block.			
	2.7	**Additional Building (GF + 1st F)** Government Higher Secondary School, Anandavadi, Senthurai Block.	Anandavadi, Senthurai, Ariyalur.	25.20	work completed
	2.8	**Providing Bore well** and Motor in Panchayat Union Elementary School, Venkatakrishnapuram, Ariyalur Block.	Venkatakrishnapuram, Ariyalur.	3.50	Work completed.
	2.9	**Providing RO supply** in Panchayat Union Elementary School, Thamaraikulam, Ariyalur Block.	Thamaraikulam, Ariyalur.	2.35	Work completed.
	2.10	P**ainting to the existing building** in Government High School, Manakudi, Ariyalur Block.	Manakudi, Ariyalur	7.00	Work completed.
	2.11	**Compound Wall** in Panchayat Union Elementary School, Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur	1.06	Work completed.
	2.12	**Toilet for boys** in Panchayat Union Elementary School, Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur	2.50	Work completed.
	2.13	**Toilet for girls** in Panchayat Union Elementary School, Usenabath, Ariyalur Block.	Usenabath, Ariyalur	2.90	Work completed.
	2.14	**Toilet for girls** in Panchayat Union Elementary School, Venkatakrishnapuram, Ariyalur Block.	Venkatakrishnapuram, Ariyalur.	2.90	Work completed.
	2.15	**Toilet for girls** in Panchayat Union Elementary School, Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur.	2.90	Work completed.

	2.16	**Compound Wall** in Panchayat Union Elementary School, Manakudi, Ariyalur Block.	Manakudi, Ariyalur	2.08	Work completed.
	2.17	**Providing Weathering course** to the existing building, Panchayat Union Elementary School, Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur	2.00	Work completed.
	2.18	**Providing Bore well and Motor** in Panchayat Union Elementary School, Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur	3.50	Work completed.
	2.19	**Construction of Arch** in Panchayat Union Elementary School, Usenabath, Ariyalur Block.	Usenabath, ariyalur.	1.20	Work completed.
	2.20	**Toilet for boys** in Panchayat Union Elementary School, Valajanagaram, Ariyalur Block.	Valajanagaram, Ariyalur	2.50	Work completed.
	2.21	**Toilet for girls** in Panchayat Union Elementary School, Valajanagaram, Ariyalur Block.	Valajanagaram, Ariyalur	2.90	Work completed.
	2.22	**Compound Wall** in Panchayat Union Elementary School, Venkatakrishnapuram, Ariyalur Block.	Venkatakrishnapuram, Ariyalur	6.30	Work completed.
	2.23	**Toilet for boys** in Panchayat Union Elementary School, Anandavadi, Sendurai Block, Ariyalur Block.	Anandavadi, Sendurai Ariyalur.	2.50	Work completed.
	2.24	**Toilet for girls** in Panchayat Union Elementary School, Anandavadi, Sendurai Block, Ariyalur Block.	Anandavadi, Sendurai Ariyalur.	2.90	Work completed.
3	**Mass plantation, Formation of Percolation ponds and water harvesting structures**			**190**	

	3.1	**Rain water harvesting** structure in SanthanaEri – Ravuthanpatti, Ariyalur Block.	Ravuthanpatti, Ariyalur	9.20	Work completed.
	3.2	**Rain water harvesting** structure in PeriyakuttaiEri – Valajanagaram, Ariyalur Block.	Valajanagaram, Ariyalur	11.85	Work completed.
	3.3	**Tree plantation** in SanthanaEri Bund – Ravuthanpatti, Ariyalur Block.	Ravuthanpatti, Ariyalur	3.20	Work completed.
	3.4	**Rain water harvesting** structure in VenkattanSavadiEri – Venkatakrishnapuram, Ariyalur Block.	Venkatakrishnapuram, Ariyalur	10.40	Work completed.
	3.5	**Inlet Channel** in ChettiEri – Ariyalur Block.	ChettiEri, Ariyalur	19.63	Work completed.
	3.6	**Rain water harvesting** structure in AyyasamyEri – Kallankurichi, Ariyalur Block.	Kallankurichi, Ariyalur	11.85	Work completed.
	3.7	**Rain water harvesting** structure in MeesaikaranEri – Thamaraikulam, Ariyalur Block.	Thamaraikulam, Ariyalur	12.50	Work completed.
	3.8	**Rain water harvesting** structure in Old Eri – Srinivasapuram, Ariyalur Block.	Srinivasapuram, Ariyalur.	10.46	Work completed.
	3.9	**Rain water harvesting** structure in NagammalSavadi - Ariyalur South	Ariyalur South	22.13	Work completed.
	3.10	**Rain water harvesting** structure in VasanEri - Ariyalur South	Ariyalur South	9.00	Work completed.
	3.11	**Rain water harvesting** structure in KombukuzhiKuttai - Ariyalur South	Ariyalur South	7.74	Work completed.

	3.12	**Rain water harvesting** structure in OppakonarEri - Eruthukaranpatti, Ariyalur	Eruthukaranpatti, Ariyalur	7.33	Work completed.
	3.13	**Rain water harvesting** structure in Vadayathankuttai, Ariyalur	Vadayathankuttai, Ariyalur	7.11	Work completed.
	3.14	**Rain water harvesting** structure in PerumalkuttaiEri, Periyanagalur, Ariyalur	Periyanagalur, Ariyalur	5.81	Work completed.
	3.15	**Rain water harvesting** structure in SeranEri- Srinivasapuram, Ariyalur	Srinivasapuram, Ariyalur	5.05	Work completed.
	3.16	**Rain water harvesting** structure in KalaranEri - Venkadakrishnapuram, Ariyalur	Venkadakrishnapuram , Ariyalur	13.76	Work completed.
	3.17	**Rain water harvesting** structure in KalaranEriLingathumedu - Kayarlabath, Ariyalur	Kayarlabath, Ariyalur	11.90	Work completed.
	3.18	**Rain water harvesting** structure in ThelranKuttai - Thamaraikulam, Ariyalur	Thamaraikulam, Ariyalur	11.08	Work completed.

Annexure - V

DISASTER MANAGEMENT PLAN

S.No	CONTENT
1.1	Introduction
1.2	Objective of Plan
1.3.1	Identification of Major Hazards
1.3.2	Scope of Plan
1.3.3	Basis of Plan
1.4	Post Disaster Analysis and Evaluation
1.5	The Availability, Organization and Utilization of resources for emergencies
1.5.1	Incident Controller (IC)
1.5.2	Site Main Controller (SMC)
1.5.3	Essential Worker (EW)
1.5.4	Other Key Personnel
	Safety
	Assembly Points
	Fire Control Arrangements
	Medical Arrangement
	Transportation and Evacuation Arrangement.

1. DISASTER MANAGEMENT PLAN

1.1 INTRODUCTION

An emergency is said to have arisen when operators in the plant are not able to cope up with a potential hazardous situation i.e. loss of control of an incident causes the plant to go beyond its normal operating conditions, thus creating danger. When such an emergency evolves, chain of events affect the normal working within the factory area and / or which may cause injuries ,loss of life, substantial damage to property and environment both inside and outside the factory and a disaster is said to have occurred. The various steps involved in the process of disaster management can be summarized as:

1) Minimize risk occurrence (Prevention)
2) Rapid control (Emergency Response)
3) Effectively Rehabilitate Damaged Areas (Restoration)

Disaster management plan is evolved by careful scrutiny and interlinking of:

1) Types and causes of disaster.
2) Technical know – how
3) Resource availability

1.2 OBJECTIVES OF PLAN

This plan is developed to make best possible use of resources to:

1) Rescue the victims and treat them suitably.
2) Safeguard others (evacuating them to safer places).
3) Contain the incident and control it with minimum damage.
4) Identify the persons affected.
5) Preserve relevant records and equipment needed as evidence incase on an inquiry.
6) Rehabilitate the affected areas.

1.3.1 IDENTIFICATION OF MAJOR HAZARDS

1) Fire hazard
2) Earthquake hazard

1.3.2 SCOPE OF PLAN

The plan will set into action immediately after a fire occurs inside the plant. However, fire hazard will be restricted to fuel storage area only and hence no major disaster is envisaged.

1.3.3 BASIS OF PLAN

M/s. Tamilnadu Cements corporation Ltd. will prepare an onsite emergency plan. The basic guidelines of the plan are as given below:

1. Informative brochure on emergency will be distributed to each staff member of the plant and telephone numbers of key personnel to be contacted during an emergency will be placed at all the operator placement point in the plant.
2. Company will have a direct tele-link service line with the central control room as well as nearest fire station in case of severe emergency.
3. Workers would be trained regularly on fire hazard drill, which will be organized once in a month by the safety and fire department.
4. Various locations would be covered with fire hydrant system that would be tested and put into operation in such a manner that it remains operational during emergency.
5. 24 hours vehicle for service and in- plant first aid emergency kit would provide.

1.4 POST DISASTER ANALYSIS AND EVALUATION

When an emergency is over, it is desirable to carry out a detailed analysis of the causes of the accident to evaluate the influence of various factors involved and to propose methods to eliminate or minimize them in future simultaneously, the adequacy of the disaster preparedness plan will be evaluated and any short comings will be rectified.

1.5 THE AVAILABILITY, ORGANIZATION, AND UTILIZATION OF RESOURCES FOR EMERGENCIES

In order to maintain emergency response capability, certain facilities must be kept in a state of readiness, and sufficient supplies and equipment must be available. Typical examples are:

1. Emergency operation center
2. Communication equipment
3. Alarm systems
4. Personal protection Equipment
5. Fire fighting facilities ,equipment and supplies
6. Spill and vapour release control equipment and supplies
7. Medical facilities ,equipment and supplies
8. Monitoring systems
9. Transportation systems
10. Security and access control equipment

It is the responsibility of the plant management to ensure that the appropriate equipment and materials are available to respond to their very hazard- specific emergencies at the facility. One of the most important objectives of emergency planning is to create a response organization structure capable of being deployed in the shortest possible time during an emergency. Command and control of an emergency condition encompasses the key management functions necessary to ensure safeguard of the health and safety of employees, as well as the public living in the vicinity. These primary functions are as follow:

1. Detection of the emergency condition
2. Assessment of the condition
3. Classification of the emergency
4. Mitigation of the emergency conditions
5. Notification to management personnel
6. Notification to local ,state and government agencies
7. Activation and response of the necessary onsite and off- site support personnel
8. Continuous assessment and reclassification, as necessary
9. Initiation of protective actions
10. Aid to affected personnel
11. Recovery and re-entry

The key personnel shall be nominated with special responsibilities according to the laid down procedures and to make the best use of available resources, the key personnel are as under:

1. Alarm raiser
2. Incident controller
3. Site main controller
4. Essential workers
5. Other key personnel

The responsibilities of the above key personnel are as described below:

1.5.1 INCIDENT CONTROLLER (IC)

His responsibilities include:

1. As soon as the sound of siren or bell is heard, he will arrive at the site of incident.

2. Take the charge of the scene of the incident

3. To assess the scale of emergency. If the emergency is minor, he will start to activate on – site plan.

4. As per the incident, direct the essential workers to prevent it by using extinguishers in case of fire; by covering the liquid spillage by sand or suitable materials in case of liquid.

5. Direct the shutdown of the plant or part of the plant and evacuate the plant personnel to assembly point.

6. Direct all operations within the affected areas with the following priorities.

(a) Secure the safety of personnel.

(b) Minimize loss of material.

(c) Minimize damage to plant, property and environment.

7. To search for casualties.

8. To brief site main controller and keep informed of development of situation.

9. To preserve evidence that will be necessary for subsequent inquiry into the cause of emergency and concluding preventive measures.

1.5.1.2 SITE MAIN CONTROLLER (SMC)

He is the head authority of the organization. He will have overall responsibility for directing operating and calling for outside help from emergency control centre.

The site main controller shall wear white helmet for his easy identification .the responsibilities and duties of the site main controller include:

1. Relieve the incident controller of his responsibilities of overall charge of main control.

2. On consultation with incident controller and other key personnel, decide about the type of emergency.

3. To ensure that key personnel are caller in.

4. To continuously review and assess possible developments to determine the most probable cause of events.

5. To direct the safe closure of the plant and evacuate the plant incident controller and other key person.

1.5.1.3 ESSENTIAL WORKERS (EW)

As soon as the essential workers hear the emergency siren or any emergency brought to the knowledge, they will first report to the incident controller. The team of essential workers trained in fire fighting and first –aid will be made available in the factory round the clock in all shifts.

Their responsibilities include:

1. To fight fire till a fire brigade takes the charge.

2. To help the fire brigade and mutual aid teams.

3. To do emergency engineering work like isolation of equipment, materials, process, providing temporary by-pass line for safe transfer of materials, urgent repairs and replacement, electrical work etc.

4. To provide emergency services like power, water, lighting, instrument, equipment etc.

5. To move equipment, special vehicles and transport to or from the scene of incident.

6. To provide first aid and medical help.

7. To carry out atmospheric tests and pollution control.

1.5.1.4 OTHER KEY PERSONNEL

Other key personnel are required to provide advice and to implement the decisions taken by the site main controller in the light of information received on the situation from the site emergency.

The responsibilities and duties of key personnel include:

(1) SAFETY:

The safety officer /supervisor will carry out the following:

a) To provide necessary equipment like Fire Fighting Equipment (FFE) and Personal Protective Equipment (PPE).

b) To accompany factory inspector during investigation of the emergency.

c) To train workers /supervisors in safety and safe operating procedures.

d) To assist the site main controller, incident controller in preparing a brief report of the incidents.

(2) ASSEMBLY POINTS:

The assembly points for gathering non –essential workers / persons will be fixed and will be clearly marked as per the wind direction.

(3) FIRE CONTROL ARRANGEMENTS:

Fire fighting trained personnel will be made available in all the shift. The responsibilities and duties include:

(a) To fight the fire with available internal Fire Fighting Equipment.

(b) To provide personal protective Equipment to the team.

(c) To cordon the area and inform incident controller or site main controller about the development of emergency.

(d) To trained personnel (essential workers) to use Personal Protective Equipment and Fire Fighting Equipment

(4) MEDICAL ARRANGEMENT:

The responsibilities and duties include:

a) To provide first aid to the affected persons, and if necessary, send them to hospitals for further treatment.

b) To keep a list of blood groupings ready and updated.

(5) TRANSPORTATION AND EVACUATION ARRANGEMENT:

For transportation of people, company's vehicles, cars, rickshaws etc. will be utilized. The hazard in the proposed cement plant is mainly associated with cement production phases and results in the form of dust, noise and fire.

The main hazards during the transportation and storing of material are:

a) The airborne dust created during the storage of material.
b) The conveyor belts during their normal operation as well as during their maintenance

In order to reduce the risk from airborne dust:

a) To use dust suction systems.
b) To implement the necessary procedures for the routine cleaning of the settled dust

In material transport systems there are moving parts that are a constant source of hazard for any persons working near these conveyors during normal operation or during the maintenance activities. For the safe operation of material transportation system all the necessary guards are applied to isolate the moving parts. Additionally where personnel is working at a short distance from the guards, emergency stops are provided within short distance of these operators.

During the normal operation of the transportation systems:

a) The removal of guards by unauthorized personnel must be prevented.
b) Any maintenance work during the operation of the transportation system must be avoided.
c) Removing material during the operation of the conveyors must be avoided.
d) The cleaning of overflows during operation must be avoided unless the cleaning is done by the conveyor operatives.
e) The use of unauthorized passageways either over or under the transportation system must be avoided because there is the risk of personnel getting trapped by the conveyor or overflowing material can fall from height.
f) The overhead bridges must be clean in order to minimize the possibility of the tripping and falling of the personnel performing the checks on the conveyor belts.
g) Any intervention on the conveyor belt overload systems must be done by authorized personnel

Annexure - VI

Richardson & Cruddas (1972) Ltd.

(A Government of India undertaking)

रिचर्डसन एण्ड क्रुडास (१९७२) लिमिटेड

(भारत सरकार का उपक्रम)

स्थापना १८५८
ESTD 1858
ISO 9001 Co.,

CERT No. TC-7742

ENGINEERS

इंजिनियर्स

आर एंड सी पर्यावरण प्रयोगशाला,
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An ISO 9001-2015 Certified Company
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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board/MoEF/Accredited By NABL)

TEST REPORT

Issued to :	M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference :	Acknowledgement Receipt number : 3099	Report Number :	TC774223011340F
Sample Description :	Ambient Noise Level Monitoring	Sampling date :	31.03.2023
Sample drawn By :	R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023
Instrument Used :	Sound Level Meter		

Time in Hrs	Location Name				
	Near Admin Office (AN1)	Near Hospital (AN2)	Near Oxidation Pond (AN3)	Near Store area (AN4)	Near AAQ-2 area (AN5)
Leq. Noise Level @ Day Time, dB(A)					
06.00 - 10.00 hrs	60.8	57.5	58.5	66.7	59.6
10.00 - 14.00 hrs	68.7	61.2	60.6	70.5	63.2
14.00 - 18.00 hrs	64.5	60.8	61.5	69.3	61.7
18.00 - 22.00 hrs	58.6	58.3	57.2	65.4	60.3
Leq.(Mean)	**63.2**	**59.5**	**59.5**	**68.0**	**61.2**
CPCB Limit for Industrial area = 75.0 @ Day time					
Leq. Noise Level @ Night Time, dB(A)					
22.00 - 02.00 hrs	56.4	57.2	54.6	61.3	58.6
02.00 - 06.00 hrs	53.2	52.8	52.2	58.5	55.7
Leq.(Mean)	**54.8**	**55.0**	**53.4**	**59.9**	**57.2**
CPCB Limit for Industrial area = 70.0 @ Night time					

Note: dB(A) - Decibels in A scale, The above Leq. Noise Levels are well within the limits as per CPCB Industrial area norms. AN - Ambient Noise Level.

*** End of Report***

R & C ENVIRONMENT LAB Chennai 600 095

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

मुलुण्ड एल.बी. शास्त्री मार्ग मुलुण्ड पश्चिम मुम्बई - 400 080. फैक्स : 022 - 2569 0988 फोन : 022 - 2561 1973	Mulund L.B. Shastri Marg. Mulund West Mumbai - 400 080. Fax : 022 - 2569 0988 Phone : 022 - 2561 1973	पंजीकृत एवं मुख्यालय भायखला आयरन वर्क्स सर जे.जे. सड़क, मुम्बई - 400 008. फैक्स : 022 - 2373 1491 फोन : 022 - 2373 8086	Regd. & Head Office : Byculla Iron Works Sir J.J. Road Mumbai - 400 008. Fax : 022 - 2373 1491 Phone : 022 - 2373 8086	नागपूर एफ३, एम.आई.डी.सी. इंडस्ट्रियल एस्टेट हिंगना सड़क, नागपूर - 440 016. फैक्स : 07104 - 237693 फोन : 07104 - 237061	Nagpur F3, MIDC Industrial Estate, Hingna Road, Nagpur - 440 016. Fax : 07104 - 237693 Phone : 07104 - 237061

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011326F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 13,14,15	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 24 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Raw Mill KILN Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample A	Sample B	Sample C		
1	Stack Height	-	115.2	115.2	115.2	m	-
2	Stack Diameter	Circular Duct	3.35	3.35	3.35	m	-
3	Stack Temperature	IS 11255,Part 3-2018	154.2	156.4	152.6	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	7.2	7.0	7.4	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	164201.81	158305.40	168293.85	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	24.4	23.2	22.6	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

Authorised Signatory

**** End of the Report ****

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011327F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 18,19,20	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 24 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Raw Mill KILN Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample D	Sample E	Sample F		
1	Stack Height	-	115.2	115.2	115.2	m	-
2	Stack Diameter	Circular Duct	3.35	3.35	3.35	m	-
3	Stack Temperature	IS 11255,Part 3-2018	156.2	154.4	153.2	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	7.2	7.4	7.2	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	163436.65	168134.54	163514.85	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	23.2	24.6	22.6	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011324F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 01,02,03	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 26 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cooler Vent Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample A	Sample B	Sample C		
1	Stack Height	-	41.0	41.0	41.0	m	-
2	Stack Diameter	Circular Duct	2.5	2.5	2.5	m	-
3	Stack Temperature	IS 11255,Part 3-2018	182.5	184.4	185.2	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	7.6	7.5	7.6	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	90529.95	88677.87	89410.20	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	23.2	23.8	22.6	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011325F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 04,05,06	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 26 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cooler Vent Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample D	Sample E	Sample F		
1	Stack Height	-	41.0	41.0	41.0	m	-
2	Stack Diameter	Circular Duct	2.5	2.5	2.5	m	-
3	Stack Temperature	IS 11255,Part 3-2018	183.2	186.4	182.6	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	7.6	7.4	7.5	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	90391.04	87114.58	88737.28	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	22.6	23.2	24.0	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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**** End of the Report ****

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011332F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	31.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 10,11,12	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 20 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Coal Mill Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample A	Sample B	Sample C		
1	Stack Height	-	55.9	55.9	55.9	m	-
2	Stack Diameter	Circular Duct	1.0	1.0	1.0	m	-
3	Stack Temperature	IS 11255,Part 3-2018	58.6	59.4	60.2	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	22.4	21.8	20.6	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	58643.59	56749.96	53322.53	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	26.2	26.8	27.0	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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**** End of the Report ****

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	TC774223011333F	**Report Date**	13.04.2023
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	31.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 30,31,32	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 20 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Coal Mill Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample D	Sample E	Sample F		
1	Stack Height	-	55.9	55.9	55.9	m	-
2	Stack Diameter	Circular Duct	1.0	1.0	1.0	m	-
3	Stack Temperature	IS 11255,Part 3-2018	58.2	59.4	58.6	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	23.2	22.6	21.4	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	60811.36	58832.53	55660.59	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	26.2	27.0	26.4	mg/Nm^3	30

Remarks :

The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. Hyphen(-) denotes limits not provided by EPA.

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011330F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	31.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 22,23,24	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 22 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cement Mill Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample A	Sample B	Sample C		
1	Stack Height	-	44.0	44.0	44.0	m	-
2	Stack Diameter	Circular Duct	1.6	1.6	1.6	m	-
3	Stack Temperature	IS 11255,Part 3-2018	140.2	142.4	140.8	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	15.6	16.0	15.4	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	83905.67	85322.50	82171.03	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	22.6	23.2	22.8	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011331F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	31.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 07,08,09	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 22 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cement Mill Expn. (Repeatability)			UNIT	Limits as per EPA
			Sample D	Sample E	Sample F		
1	Stack Height	-	44.0	44.0	44.0	m	-
2	Stack Diameter	Circular Duct	1.6	1.6	1.6	m	-
3	Stack Temperature	IS 11255,Part 3-2018	141.0	140.4	142.2	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	15.6	15.2	15.4	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	83743.53	81448.52	81893.96	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	21.6	22.0	21.2	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011328F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 16,17,21	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 18 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cement Mill Existing (Repeatability)			UNIT	Limits as per EPA
			Sample A	Sample B	Sample C		
1	Stack Height	-	25.8	25.8	25.8	m	-
2	Stack Diameter	Circular Duct	0.89	0.89	0.89	m	-
3	Stack Temperature	IS 11255,Part 3-2018	80.2	82.4	81.6	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	17.6	17.8	18.0	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	34265.66	34328.33	34678.66	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	27.2	26.4	25.6	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm³ - Milligram Per Normal cubic metre, m/sec - metre per second, Nm³/hr - Normal cubic metre per hour, °C - Degree Centigrade

Authorised Signatory

**** End of the Report ****

R&C ENVIRONMENT LAB Chennai 600 095

Note: This report relates only to the particular sample submitted for test. Any correction not attested shall invalidate this report. This report shall not be reproduced except in full without our written approval. Sample are not drawn by us unless otherwise stated. Retention period of tested samples 15 days only unless otherwise specified.

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स्थापना १८५८
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CERT No. TC-7742
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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011329F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 25,26,27	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 18 lpm**	

RESULTS

S. No.	PARAMETER	TEST METHOD	Cement Mill Existing (Repeatability)			UNIT	Limits as per EPA
			Sample D	Sample E	Sample F		
1	Stack Height	-	25.8	25.8	25.8	m	-
2	Stack Diameter	Circular Duct	0.89	0.89	0.89	m	-
3	Stack Temperature	IS 11255,Part 3-2018	81.4	80.6	82.4	°C	-
4	Gas Velocity	IS 11255,Part 3-2018	18.2	17.4	17.8	m/sec	-
5	Gas Discharge	IS 11255,Part 3-2018	35313.82	33727.73	34216.15	Nm^3/hr	-
6	Particulate Matter	IS 11255,Part 1-2019	27.4	25.6	26.6	mg/Nm^3	**30**

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report. **Hyphen(-) denotes limits not provided by EPA.**

Note: m - metre, mg/Nm^3 - Milligram Per Normal cubic metre, m/sec - metre per second, Nm^3/hr - Normal cubic metre per hour, °C - Degree Centigrade

Authorised Signatory

**** End of the Report ****

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Note: This report relates only to the particular sample submitted for test. Any correction not attested shall invalidate this report. This report shall not be reproduced except in full without our written approval. Sample are not drawn by us unless otherwise stated. Retention period of tested samples 15 days only unless otherwise specified.

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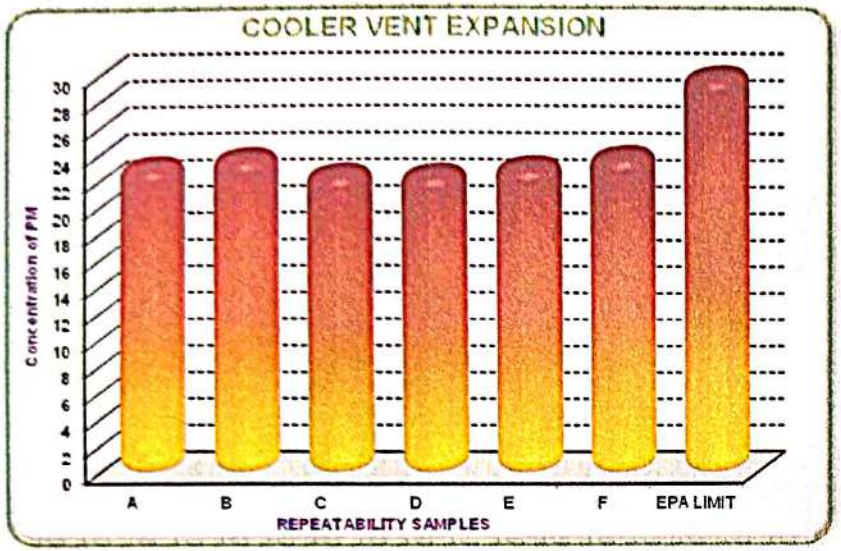
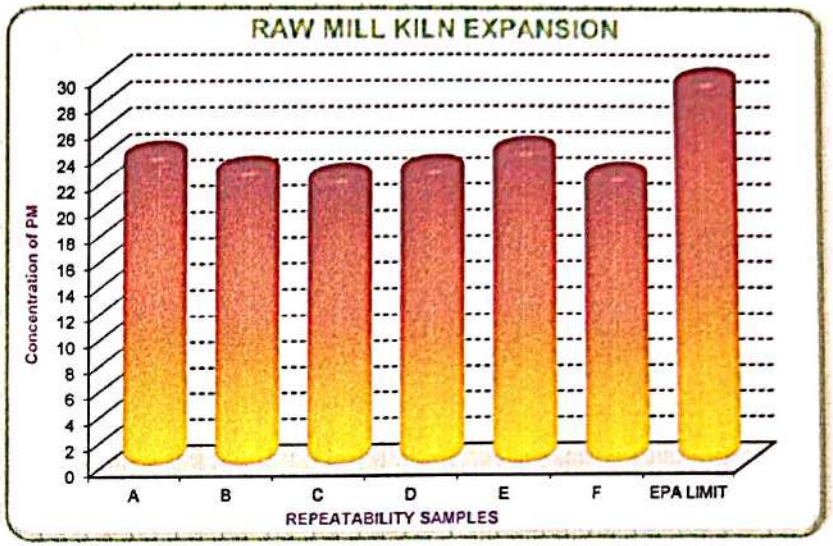
CHART 1 : PARTICULATE MATTER PERFORMANCE IN STACK EMISSION

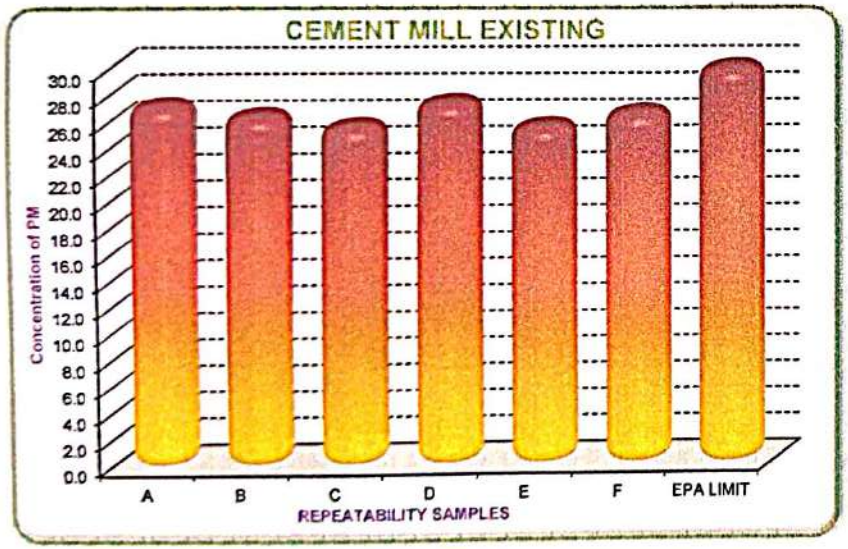
Client : TANCEM, ARIYALUR.

Unit : mg/Nm^3

DATE : 30 & 31 MARCH 2023







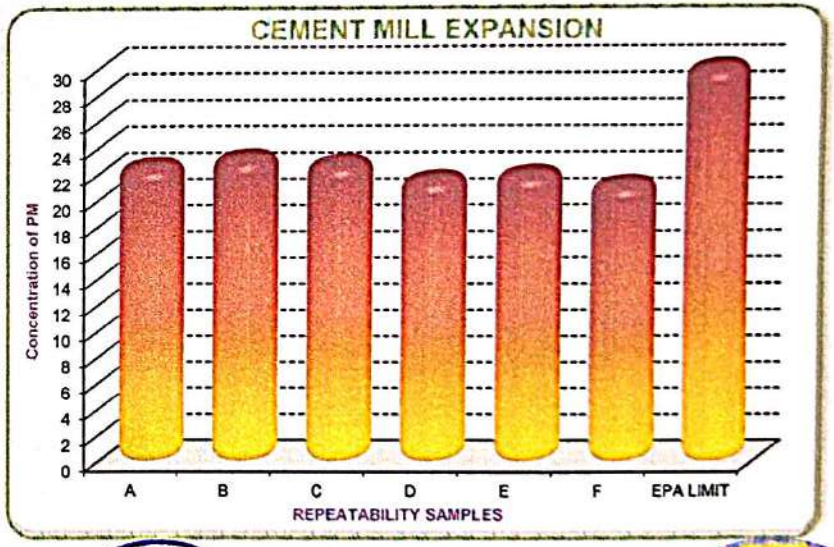


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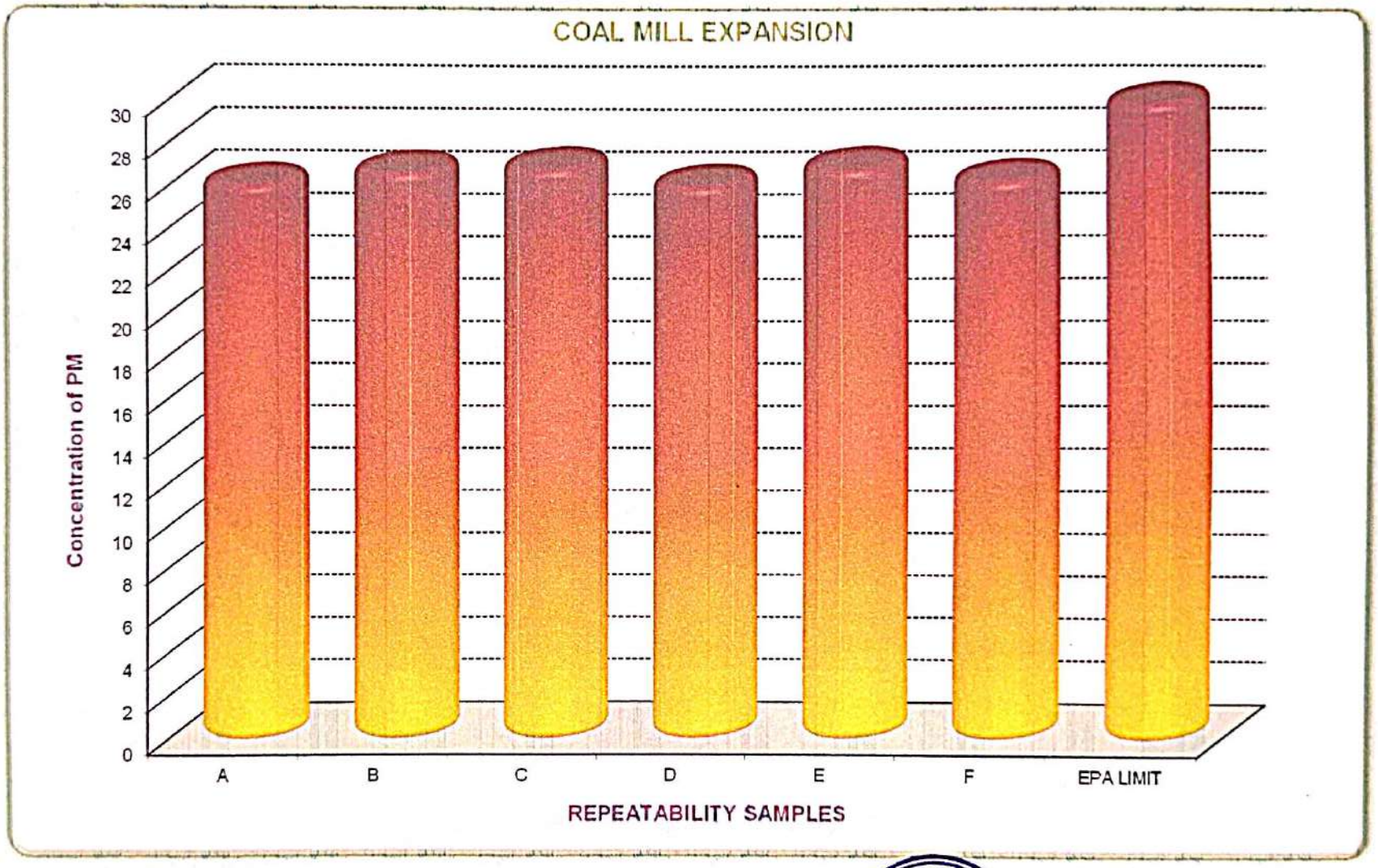
CHART 2 : PARTICULATE MATTER PERFORMANCE IN STACK EMISSION

Client : TANCEM, ARIYALUR.

DATE : 30 & 31 MARCH 2023

Unit : mg/Nm^3



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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT OF PARTICULATE MATTER PERFORMANCE IN STACK

Report Number	**TC774223011334F**	**Report Date**	**13.04.2023**
Customer Name & Address	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.**		
Sample Drawn by	M/s. R&C Environment Lab.	**Sample Reference No.**	EELAB/3099
Sample Collection date	30.03.2023	**Sample Received on**	31.03.2023
Sampling Consumable	Thimble – 28,29,33,34,35	**Test Commenced on**	31.03.2023
Sample Description	**Stack Emission - Particulate Matter Performance Test**	**Test Completed on**	12.04.2023
Sampling Method	IS : 11255	**Vol. of Air Sampled – 20 lpm**	

RESULTS

S. No.	Location	RESULT - Parameter	
		Arsenic, As (mg/Nm³)	Mercury, Hg (mg/Nm³)
1	Expansion Cooler Vent	BDL (DL - 0.01)	BDL (DL - 0.01)
2	Expansion Raw Mill Kiln	BDL (DL - 0.01)	BDL (DL - 0.01)
3	Existing Cement Mill	BDL (DL - 0.01)	BDL (DL - 0.01)
4	Expansion Cement Mill	BDL (DL - 0.01)	BDL (DL - 0.01)
5	Expansion Coal Mill	BDL (DL - 0.01)	BDL (DL - 0.01)
EPA Limits		**0.05**	**0.05**
Test Methodology		**EPA Method 0060**	

Remarks :
The sample was collected and analysed as per IS methods. The values are found to well within the stipulated limits for which the norms are mentioned in the report.

Note: BDL - Below the Detectable Limit, DL - Detection Limit, mg/Nm³ - Milligram Per Normal cubic metre.

Authorised Signatory

**** End of the Report ****

R & C ENVIRONMENT LAB Chennai 600 095

R&C/EEL/LQMS/QM/46

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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT

Issued to :	M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM), Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference :	Acknowledgement Receipt number : 3099	**Report Number :**	TC774223011335F
Sample Description :	**Ambient Air Quality - AAQ1**	Sampling date & time:	30 & 31.03.2023 - 24 Hourly sampling
Sample drawn By :	M/s.R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023
Instrument Used :	Respirable Dust Sampler & Fine Particulate Sampler		
Ambient Temp :	Min - 26.0°C, Max - 34.0°C	Relative Humidity:	Min - 46%, Max - 64%

S. No.	Parameters	RESULT Near Admin Office	Unit	Test Method	NAAQ Standards
1	Sulphur Dioxide (SO_2)	27.2	µg/m³	IS: 5182(P-2) Reaff:2022	80
2	Nitrogen Dioxide (NO_2)	31.4	µg/m³	IS: 5182(P-6) Reaff:2022	80
3	**PM_{10}**	62	µg/m³	IS: 5182(P-23) Reaff:2022	100
4	**$PM_{2.5}$**	28	µg/m³	IS: 5182(P-24) Reaff:2019	60
5	Carbon Monoxide (CO)	BDL (DL:0.005)	mg/m³	IS: 5182(P-10) Reaff:2019	2
6	Lead (Pb)	BDL (DL:0.05)	µg/m³	IS: 5182(P-22) Reaff:2019	1
7	Ozone (O_3)	26.8	µg/m³	IS: 5182(P-9) Reaff:2019	180
8	Ammonia (NH_3)	12.4	µg/m³	IS: 5182(P-25) Reaff:2018	400
9	Benzene (C_6H_6)	BDL (DL:1)	µg/m³	IS: 5182(P-11) Reaff:2022	5
10	Benzo(a)Pyrene ($C_{20}H_{12}$)	BDL (DL:0.01)	ng/m³	IS: 5182(P-12) Reaff:2019	1
11	Arsenic (As)	BDL (DL:1)	ng/m³	APHA 3rd Edn. (AP)	6
12	Nickel (Ni)	BDL (DL:5)	ng/m³	IS: 5182(P-26) Reaff:2020	20
13	Mercury (Hg)	BDL (DL:1)	µg/m³	APHA 3rd Edn. (AP) / EPA Method IO-5	100

Note: PM_{10}-Particulate Matter ≤10 microns, $PM_{2.5}$-Particulate Matter ≤2.5 microns, BDL - Below the Detectable Limit, D.L - Detection Limit, µg/m³- Micrograms per cubic meter, mg/m³ - Milligrams Per cubic meter, ng/m³ - Nano grams Per cubic meter

*** End of Report***

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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स्थापना १८५८
ESTD 1858
ISO 9001 Co.,
इंजिनियर्स

CERT No. TC-7742
ENGINEERS

आर एंड सी पर्यावरण प्रयोगशाला,
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ENVIRONMENTAL ENGINEERING LABORATORY

(Recognized by Central Pollution Control Board/MoEF/Accredited By NABL)

TEST REPORT

Issued to :	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference :	Acknowledgement Receipt number : **3099**	**Report Number :**	**TC774223011336F**
Sample Description :	**Ambient Air Quality - AAQ2**	Sampling date & time:	30 & 31.03.2023 - 24 Hourly sampling
Sample drawn By :	M/s.R&C Environment Lab.		
Sampling Method :	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date :	13.04.2023	Test completed on :	12.04.2023
Instrument Used :	Respirable Dust Sampler & Fine Particulate Sampler		
Ambient Temp :	Min - 26.0°C, Max - 34.0°C	Relative Humidity:	Min - 46%, Max - 64%

S. No.	Parameters	RESULT Near Hospital	Unit	Test Method	NAAQ Standards
1	Sulphur Dioxide (SO_2)	25.2	µg/m³	IS: 5182(P-2) Reaff:2022	80
2	Nitrogen Dioxide (NO_2)	30.4	µg/m³	IS: 5182(P-6) Reaff:2022	80
3	**PM_{10}**	64	µg/m³	IS: 5182(P-23) Reaff:2022	100
4	**$PM_{2.5}$**	32	µg/m³	IS: 5182(P-24) Reaff:2019	60
5	Carbon Monoxide (CO)	BDL (DL:0.005)	mg/m³	IS: 5182(P-10) Reaff:2019	2
6	Lead (Pb)	BDL (DL:0.05)	µg/m³	IS: 5182(P-22) Reaff:2019	1
7	Ozone (O_3)	30.6	µg/m³	IS: 5182(P-9) Reaff:2019	180
8	Ammonia (NH_3)	12.2	µg/m³	IS: 5182(P-25) Reaff:2018	400
9	Benzene (C_6H_6)	BDL (DL:1)	µg/m³	IS: 5182(P-11) Reaff:2022	5
10	Benzo(a)Pyrene ($C_{20}H_{12}$)	BDL (DL:0.01)	ng/m³	IS: 5182(P-12) Reaff:2019	1
11	Arsenic (As)	BDL (DL:1)	ng/m³	APHA 3rd Edn. (AP)	6
12	Nickel (Ni)	BDL (DL:5)	ng/m³	IS: 5182(P-26) Reaff:2020	20
13	Mercury (Hg)	BDL (DL:1)	µg/m³	APHA 3rd Edn. (AP) / EPA Method IO-5	100

Note: PM_{10}-Particulate Matter ≤10 microns, $PM_{2.5}$-Particulate Matter ≤2.5 microns, BDL - Below the Detectable Limit, D.L - Detection Limit, µg/m³- Micrograms per cubic meter, mg/m³ - Milligrams Per cubic meter, ng/m³ - Nano grams Per cubic meter

*** End of Report ***

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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स्थापना १८५८
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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT

Issued to	:	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	:	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011337F**
Sample Description	:	**Ambient Air Quality - AAQ3**	Sampling date & time:	30 & 31.03.2023 - 24 Hourly sampling
Sample drawn By	:	M/s.R&C Environment Lab.		
Sampling Method	:	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date	:	13.04.2023	Test completed on :	12.04.2023
Instrument Used	:	Respirable Dust Sampler & Fine Particulate Sampler		
Ambient Temp	:	Min - 26.0°C, Max - 34.0°C	Relative Humidity:	Min - 46%, Max - 64%

S. No.	Parameters	RESULT Near Oxidation Pond	Unit	Test Method	NAAQ Standards
1	Sulphur Dioxide (SO_2)	18.6	µg/m³	IS: 5182(P-2) Reaff:2022	80
2	Nitrogen Dioxide (NO_2)	24.2	µg/m³	IS: 5182(P-6) Reaff:2022	80
3	PM_{10}	52	µg/m³	IS: 5182(P-23) Reaff:2022	100
4	$PM_{2.5}$	24	µg/m³	IS: 5182(P-24) Reaff:2019	60
5	Carbon Monoxide (CO)	BDL (DL:0.005)	mg/m³	IS: 5182(P-10) Reaff:2019	2
6	Lead (Pb)	BDL (DL:0.05)	µg/m³	IS: 5182(P-22) Reaff:2019	1
7	Ozone (O_3)	31.8	µg/m³	IS: 5182(P-9) Reaff:2019	180
8	Ammonia (NH_3)	24.6	µg/m³	IS: 5182(P-25) Reaff:2018	400
9	Benzene (C_6H_6)	BDL (DL:1)	µg/m³	IS: 5182(P-11) Reaff:2022	5
10	Benzo(a)Pyrene ($C_{20}H_{12}$)	BDL (DL:0.01)	ng/m³	IS: 5182(P-12) Reaff:2019	1
11	Arsenic (As)	BDL (DL:1)	ng/m³	APHA 3rd Edn. (AP)	6
12	Nickel (Ni)	BDL (DL:5)	ng/m³	IS: 5182(P-26) Reaff:2020	20
13	Mercury (Hg)	BDL (DL:1)	µg/m³	APHA 3rd Edn. (AP) / EPA Method IO-5	100

Note: PM_{10}-Particulate Matter ≤10 microns, $PM_{2.5}$-Particulate Matter ≤2.5 microns, BDL - Below the Detectable Limit, D.L - Detection Limit, µg/m³- Micrograms per cubic meter, mg/m³ - Milligrams Per cubic meter, ng/m³ - Nano grams Per cubic meter

*** End of Report ***

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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स्थापना १८५८
ESTD 1858
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ENVIRONMENTAL ENGINEERING LABORATORY

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TEST REPORT

Issued to	:	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	:	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011338F**
Sample Description	:	**Ambient Air Quality - AAQ4**	Sampling date & time:	30 & 31.03.2023 - 24 Hourly sampling
Sample drawn By	:	M/s.R&C Environment Lab.		
Sampling Method	:	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date	:	13.04.2023	Test completed on :	12.04.2023
Instrument Used	:	Respirable Dust Sampler & Fine Particulate Sampler		
Ambient Temp	:	Min - 26.0°C, Max - 34.0°C	Relative Humidity:	Min - 46%, Max - 64%

S. No.	Parameters	RESULT Near Store area	Unit	Test Method	NAAQ Standards
1	Sulphur Dioxide (SO_2)	30.6	µg/m³	IS: 5182(P-2) Reaff:2022	80
2	Nitrogen Dioxide (NO_2)	34.2	µg/m³	IS: 5182(P-6) Reaff:2022	80
3	**PM_{10}**	68	µg/m³	IS: 5182(P-23) Reaff:2022	100
4	**$PM_{2.5}$**	34	µg/m³	IS: 5182(P-24) Reaff:2019	60
5	Carbon Monoxide (CO)	BDL (DL:0.005)	mg/m³	IS: 5182(P-10) Reaff:2019	2
6	Lead (Pb)	BDL (DL:0.05)	µg/m³	IS: 5182(P-22) Reaff:2019	1
7	Ozone (O_3)	31.2	µg/m³	IS: 5182(P-9) Reaff:2019	180
8	Ammonia (NH_3)	10.8	µg/m³	IS: 5182(P-25) Reaff:2018	400
9	Benzene (C_6H_6)	BDL (DL:1)	µg/m³	IS: 5182(P-11) Reaff:2022	5
10	Benzo(a)Pyrene ($C_{20}H_{12}$)	BDL (DL:0.01)	ng/m³	IS: 5182(P-12) Reaff:2019	1
11	Arsenic (As)	BDL (DL:1)	ng/m³	APHA 3rd Edn. (AP)	6
12	Nickel (Ni)	BDL (DL:5)	ng/m³	IS: 5182(P-26) Reaff:2020	20
13	Mercury (Hg)	BDL (DL:1)	µg/m³	APHA 3rd Edn. (AP) / EPA Method IO-5	100

Note: PM_{10}-Particulate Matter ≤10 microns, $PM_{2.5}$-Particulate Matter ≤2.5 microns, BDL - Below the Detectable Limit, D.L - Detection Limit, µg/m³- Micrograms per cubic meter, mg/m³ - Milligrams Per cubic meter, ng/m³ - Nano grams Per cubic meter

*** End of Report ***

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

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TEST REPORT

Issued to	:	**M/s.TAMILNADU CEMENTS CORPORATION LTD., (TANCEM),** Ariyalur Cement Factory, Ariyalur, Tamil Nadu - 621 729.		
Reference	:	Acknowledgement Receipt number : **3099**	**Report Number** :	**TC774223011339F**
Sample Description	:	**Ambient Air Quality - AAQ5**	Sampling date & time:	30 & 31.03.2023 - 24 Hourly sampling
Sample drawn By	:	M/s.R&C Environment Lab.		
Sampling Method	:	R&C/EEL/LQMS/SOP-041	Test commenced on :	31.03.2023
Report date	:	13.04.2023	Test completed on :	12.04.2023
Instrument Used	:	Respirable Dust Sampler & Fine Particulate Sampler		
Ambient Temp	:	Min - 26.0°C, Max - 34.0°C	Relative Humidity:	Min - 46%, Max - 64%

S. No.	Parameters	RESULT Near AAQ-2 area	Unit	Test Method	NAAQ Standards
1	Sulphur Dioxide (SO_2)	24.6	µg/m³	IS: 5182(P-2) Reaff:2022	80
2	Nitrogen Dioxide (NO_2)	28.2	µg/m³	IS: 5182(P-6) Reaff:2022	80
3	PM_{10}	60	µg/m³	IS: 5182(P-23) Reaff:2022	100
4	$PM_{2.5}$	28	µg/m³	IS: 5182(P-24) Reaff:2019	60
5	Carbon Monoxide (CO)	BDL (DL:0.005)	mg/m³	IS: 5182(P-10) Reaff:2019	2
6	Lead (Pb)	BDL (DL:0.05)	µg/m³	IS: 5182(P-22) Reaff:2019	1
7	Ozone (O_3)	31.2	µg/m³	IS: 5182(P-9) Reaff:2019	180
8	Ammonia (NH_3)	14.8	µg/m³	IS: 5182(P-25) Reaff:2018	400
9	Benzene (C_6H_6)	BDL (DL:1)	µg/m³	IS: 5182(P-11) Reaff:2022	5
10	Benzo(a)Pyrene ($C_{20}H_{12}$)	BDL (DL:0.01)	ng/m³	IS: 5182(P-12) Reaff:2019	1
11	Arsenic (As)	BDL (DL:1)	ng/m³	APHA 3rd Edn. (AP)	6
12	Nickel (Ni)	BDL (DL:5)	ng/m³	IS: 5182(P-26) Reaff:2020	20
13	Mercury (Hg)	BDL (DL:1)	µg/m³	APHA 3rd Edn. (AP) / EPA Method IO-5	100

Note: PM_{10}-Particulate Matter ≤10 microns, $PM_{2.5}$-Particulate Matter ≤2.5 microns, BDL - Below the Detectable Limit, D.L - Detection Limit, µg/m³- Micrograms per cubic meter, mg/m³ - Milligrams Per cubic meter, ng/m³ - Nano grams Per cubic meter

*** End of Report***

Authorized Signatory
(Technical Manager - Er.Arunkumar.V)

R&C/EEL/LQMS/QM/46

मुलुण्ड एल.बी. शास्त्री मार्ग मुलुण्ड पश्चिम मुम्बई - 400 080. फैक्स : 022 - 2569 0988 फोन : 022 - 2561 1973	Mulund L.B. Shastri Marg Mulund West Mumbai - 400 080. Fax : 022 - 2569 0988 Phone : 022 - 2561 1973	पंजीकृत एवं मुख्यालय भायखला आयरन वर्क्स सर जे.जे. सड़क, मुम्बई - 400 008. फैक्स : 022 - 2373 1491 फोन : 022 - 2373 8086	Regd. & Head Office : Byculla Iron Works Sir J.J. Road Mumbai - 400 008. Fax : 022 - 2373 1491 Phone : 022 - 2373 8086	नागपूर एफ३, एम.आई.डी.सी. इंडस्ट्रियल एस्टेट हिंगना सड़क, नागपूर - 440 016. फैक्स : 07104 - 237693 फोन : 07104 - 237061	Nagpur F3, MIDC Industrial Estate, Hingna Road, Nagpur - 440 016. Fax : 07104 - 237693 Phone : 07104 - 237061

தமிழ்நாடு சிமெண்ட் கழகம்

(தமிழ்நாடு அரசு நிறுவனம்)

TANCEM

TAMILNADU CEMENTS CORPORATION LIMITED

(A Government of Tamilnadu Undertaking)

அரியலூர் சிமெண்ட் ஆலை, அரியலூர் - 621 729, அரியலூர் மாவட்டம், தமிழ்நாடு.
Ariyalur Cement Factory, Ariyalur - 621 729, Ariyalur District, Tamilnadu.
E-mail : tanaridgmoffice@gmail.com website : www.tancem.com

DATE: 23.09.2022

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING 31ST MARCH 2022

PART-A

1.	Name and address of the owner / occupier of the industry operation or process	: Managing Director Tamilnadu Cements Corpn. Ltd., 5th Floor, Aavin Illam, No.3A, Pasumpon Muthuramalinga Thevar Road, Nandanam, Chennai - 600 035.
2.	Industry Category	: Large (Red)
3.	Year of Establishment	: 1979
4.	Capacity	: 4500 MT/day
5.	Date of last environmental statement submitted	: September – 2021

PART – B

WATER AND RAW MATERIALS CONSUMPTION:

1. WATER CONSUMPTION

Process	:	Nil
Cooling	:	547 K.L. /Day
Domestic	:	110 K.L./Day

Name of the product	Water consumption per unit of products	
	For the year 2020-21	For the year 2021-22
Cement	0.9049 K.L	0.19 K.L

2. RAW MATERIAL CONSUMPTION:

SL.NO	Name of the Raw Material	Consumption of Raw Material Per Unit of Output	
		For the year 2020-21	For the year 2021-22
1	Coal lignite etc.,	0.152	0.1305
2	Gypsum	0.0306	0.0322
3	Fly ash	0.243	0.2514
4	Lime stone	1.24	1.272

Cont...2

PART – C

POLLUTION – DISCHARGED TO ENVIRONMENT /UNIT OF OUTPUT

(Parameter as specified in the consent issued)

Pollutants	Quantity of pollutants discharged mass/day	Concentration of pollutants in discharge Mass/Volume	Percentage of variation from prescribed standards
a)WATER 1. P.H.Value 2. B.O.D. 3. C.O.D. 4.Total Suspended solids	90 KL/day Sewage	7.53 5 mg/Ltr 24 mg/Ltr 16 mg/Ltr	Below tolerance limit
b) AIR 1.From Limestone Crusher (Expansion) a.Spm	24.38 kg	28 mg/NM^3	Below tolerance limit
2.From Kiln(Expansion) a. So_2 b. NO_x c.Spm	1290.78 kg 3045.8 kg 305.71 kg	114 mg/NM^3 269 mg/NM^3 27 mg/NM^3	Above tolerance limit Below tolerance limit Below tolerance limit
3. From Coal mill (Expansion) a.So_2 b. NO_x c. Spm	140.33 kg 310.05 kg 38.76 kg	105 mg/NM^3 232 mg/NM^3 29 mg/NM^3	Above tolerance limit Below tolerance limit Below tolerance limit
4.From Cooler ESP (Expansion) a.So_2 b. NO_x c. Spm	--- --- 108.88 kg	--- --- 18 mg/NM^3	Below tolerance limit
5.From Cement Mill Bag House (Expansion) a. Spm	22.72 kg	22 mg/NM^3	Below tolerance limit
6.From Cement Mill Bag House (Existing) a. Spm	30.35 kg 5,317.76 kg	33 mg/NM^3	Above tolerance limit

Cont…3

POLLUTION DISCHARGED TO ENVIRONMENT / UNIT OF OUTPUT

1. **WATER**

Average sewage let out /day	=	90 K.L
Average daily cement production in the year 2021-2022	=	11,99,227 / 365
	=	3285.55 MT
Water Pollution discharged to Environment/Unit of output	=	90 / 3285.55 = 0.0274 K.L

2. **AIR**:

Total Pollution discharged into Atmosphere from all the chimneys/day	=	5.317 MT
Average daily Cement production in the Year 2021-2022	=	11,99,227 / 365
	=	3285.55 MT
Air pollution discharged into environment Unit of output	=	5.317 / 3285.55
	=	0.0016 MT

PART – D

As specified under Hazardous wastes/management and handling rules 2016

Hazardous	Total Quantity in kgs	
	2020-2021	2021-2022
1. From Process	0.2 T Waste Oil and reused for Lubrication.	
2. From Pollution control facilities	Nil	

PART –E

SOLID WASTE:

Solid Waste	Total quantity in MTs	
	2020-2021	2021-2022
1. From Process	Nil	Nil
2. From Pollution control facilities	151361.52	281411.39
3. Quality recycled or re-utilised	151361.52	281411.39

All the materials collected in pollution Control equipments are reutilized.

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PART – F

The Hazardous Waste generated in the plant is waste Lub oil and it is 0.2 T. It is stored in barrels and utilized for open gear lubrication in the plant. It is not transported outside the plant area.

PART – G

Since the materials collected in the pollution control facilities are either intermediate products or final products, they are again fed into the system and hence there is lot of savings in the intermediate and final products.

For example the plant has saved nearly 281411.39 MT of intermediate product through Limestone (Expansion) Bag filter, Kiln (Expansion) Bag house, Coal Mill (Expansion) Bag house and Cooler (Expansion) ESP. It has also saved nearly 104093.93MT of cement (final product) from the both Existing and Expansion plant cement mill bag houses.

The above figure shows that not only lot of valuable final product is saved but also intermediate products like limestone powder, Raw meal powder, Cooler powder and coal powder are saved. The above intermediate products are nothing but limestone and coal, which are valuable natural resources.

PART – H

Tamilnadu Cements Corporation Limited, Ariyalur Cement Works has taken all our efforts to control pollution by installing latest pollution control equipments in major dust emanating areas.

The Pollution Control equipments available at TANCEM are listed below:

i.	ESPs	=	4 nos
ii.	Bag House	=	4 no
iii.	$RABH_S$	=	2 nos.

- Since January – 2021, Existing plant was not in operation except Cement mill and Packing house. 1 ESP of Cooler (Expansion) is emitting dust below 30 mg/Nm^3 . The Raw mill /Kiln (Expansion) Bag house, Coal mill (Expansion) Bag house and Cement Mill (Existing & Expansion) Bag House emission level is below 30 mg/Nm^3. In Expansion plant, all major stacks i.e kiln, Coal mill, Cooler, Cement mill, which designed dust emission level is below 30 mg/Nm3.
- To adhere to the pollution control norms we have taken the following measures.
  - We have commissioned RABH instead of kiln ESP for kiln II and I on 21.12.2015 and 06.03.2016 respectively at the cost of 16.1 crores (designed emission level below 30mg/Nm^3.
  - Cooler ESP-II is functioning from May-2013 and Cooler ESP-I is functioning from july-2013. Designed emission level is 30 mg/Nm^3.

Cont ...5

- We have planned coal mill ESP upgrading into a new bag filters.
- In Expansion plant, we have installed Bag houses for Kiln, Coal mill, Cement mill and ESP for Cooler. The Pollution control equipments are commissioned on 01.11.2019.
- Green Belt:

In Our mines area we have already planted 12.50 lakhs plants/saplings. In Our colony and Plant area we are having at about 10,000 trees. In addition to that we have planted 2370 saplings in the plant/colony area in the past few years. In the year 2013-14 we have planted 6000 new saplings on the eastern side of our plant through forest dept. In the year 2016-2017 world environment day celebrations and planted 150 new saplings in our production plant areas. In the year of 2019-20 we had celebrated world environment day on 5th June the theme of Biodiversity and planted 100 new saplings in our oxidation pond areas. In the year of 2020-2021 we had celebrated world environment day in the theme of Ecosystem Restoration and planted 120 saplings in Expansion plant and Oxidation pond areas. In the year of 2021-2022, we have celebrated world environment day in the theme of Only One Earth and planted 250 saplings in Plant premises.

- AAQMS station 2 nos installed and all the major stacks (10 nos) are having online stack monitors through which the data's are transmitted through exclusive Broad band line to TNPCB/CPCB.

REMARKS AND CONCLUSION:

1. The figures given in this reports are based on the following:
    a. Plant production report for the year 2020-2021 and 2021-2022
    b. Stack monitoring and ambient air quality survey reports of Tamilnadu pollution Control board taken in and August – 2022.
    c. Major equipments design data.

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TAMILNADU CEMENTS CORPORATION LIMITED
ARIYALUR

ANNEXURE

ENVIRONMENTAL AUDIT REPORT:

PART-B:

I. WATER AND RAW MATERIAL CONSUMPTION:

1. Water consumption per unit of production:

Total water consumption in a year = (547+110) x 365
= 2,39,805 KL / year

Total production of cement in the year 2020-2021 = 6, 49,343.3 MT

Hence water consumption per unit of cement Production in the year (2020-2021) = 5, 87,650 / 6, 49,343.3
= 0.9049 KL.

Total production of cement in the year 2021-2022 = 11,99,227 MT

Hence water consumption per unit of cement Production in the year (2021-2022) = 2,39,805 / 11,99,227 = 0.19 KL.

II. RAW MATERIAL CONSUMPTION:

Consumption of Raw material/Ton of Cement Production

a) Total Cement production in the year 2020-2021 = 649343.3 MT

b) Total Cement Production in the year 2021-2022 = 11,99,227 MT

CONSUMPTION OF DIFFERENT RAW MATERIALS IN THE YEAR 2021-2022

SL.NO		2020-2021 (Qty.in MTs.)	2021-2022 (Qty.in MTs.)
1	Coal	99240.6	1,56,513
2	gypsum	19923	38,557
3	Fly ash	157838.9	3,01,598
4	Lime stone	807290.11	15,25,417

CONSUMPTION OF DIFFERENT RAW MATERIALS /TONNE OF CEMENT PRODUCTION

SL.NO		2020-2021 (Qty.in MTs.)	2021-2022 (Qty.in MTs.)
1	Coal	0.152	0.1305
2	gypsum	0.0306	0.0322
3	Fly ash	0.243	0.2514
4	Lime stone	1.24	1.272

Cont ...7

PART-C

I.WATER POLLUTION (By TNPCB report on 14.03.2022):

1. P.H. Value	=	7.53
Tolerance limit prescribed by TNPCB	=	5.5-9.0
2. B.O.D at 27^0 C for 3 days	=	5 mg/lt.
Tolerance limit	=	30 mg/lt.
3. C.O.D	=	24 mg/lt.
Tolerance limit	=	250 mg/lt.
4. Total suspended solids	=	16 mg/lt.
Tolerance limit	=	100 mg/lt.

II. AIR POLLUTION:

Parameters and limits specified in the consent order

i.	SO_2	=	100 mg/Nm^3
ii.	CO	=	2000 mg/Nm^3
iii.	NO_x	=	600 mg/Nm^3

POLLUTION GENERATED IN DIFFERENT STACKS:

I. LIMESTONE CRUSHER (EXPANSION):

Velocity of gas in the stack	=	11.58 m/sec.at 309 K
Area of the stack	=	0.985 m^2 (1.12 m dia)
Gas discharge through the stack	=	11.58 x0.985
	=	11.41 m^3/sec.
	=	10.08 Nm^3/sec
	=	36275 Nm^3/hr

POLLUTANTS IN LIMESTONE CRUSHER (EXPANSION) STACK:

i.	SO_2	=	------
ii.	NO_x	=	------
iii.	Spm	=	28 mg/Nm^3

Total Spm emission /day = $\frac{28 \times 36275 \times 24}{10^6}$

= 24.38 kgs.

% Variation of actual emission from the Standards = Below tolerance limit

Cont...8

II. KILN (EXPANSION):

Velocity of gas in the stack	=	22.51 m/sec. at 413 K
Area of the stack	=	8.8 m^2 (3.35 m dia)
Gas discharge through the stack	=	22.51 x 8.8
	=	198.18 m^3/sec.
	=	131 Nm^3/sec
	=	471778 Nm^3/hr

POLLUTANTS IN KILN (EXPANSION) STACK:

i.	SO_2	=	114 mg/Nm^3
ii.	NO_x	=	269 mg/Nm^3
iii.	Spm	=	27 mg/Nm^3
iv.	CO	=	Nil

Total SO_2 emission/day $= \frac{114 \times 471778 \times 24}{10^6}$

$= 1290.78$ kgs

Total NO_x emission/day $= \frac{269 \times 471778 \times 24}{10^6}$

$= 3045.8$ kgs.

Total Spm emission/day $= \frac{27 \times 471778 \times 24}{10^6}$

$= 305.71$ kgs.

% Variation of actual emission from the Standards = SO_2 Above tolerance limit.

III. COAL MILL (EXPANSION)

Velocity of gas in the stack	=	24.53 m/sec. at 340 K
Area of the stack	=	0.785 m^2 (1 m dia)
Gas discharge through the stack	=	24.53 x 0.785
	=	19.26 m^3/sec.
	=	15.47 Nm^3/sec
	=	55685 Nm^3/hr

POLLUTANTS IN COAL MILL (EXPANSION) STACK

i.	SO_2	=	105 mg/Nm^3
ii.	NO_x	=	232 mg/Nm^3
iii.	Spm	=	29 mg/Nm^3

Total SO_2 emission/day $= \frac{105 \times 55685 \times 24}{10^6}$

$= 140.33$ kgs

Total NO_x emission/day $= \frac{232 \times 55685 \times 24}{10^6}$

$= 310.05$ kgs.

Cont...9

Total Spm emission/day = $\frac{29 \times 55685 \times 24}{10^6}$

= 38.76 kgs.

% Variation of actual emission from the Standards = SO_2 Above tolerance limit

IV. COOLER (EXPANSION):

Velocity of gas in the stack	=	20.46 m/sec.at 391 K
Area of the stack	=	4.9 m^2 (2.5 m dia)
Gas discharge through the mill/day	=	20.46 x 4.9
	=	100.26 m^3/sec.
	=	70 Nm^3/sec
	=	252040 Nm^3/hr

POLLUTANTS IN COOLER (EXPANSION) STACK

i.	SO2	=	----
ii.	NO_x	=	----
iii.	Spm	=	18 mg/Nm^3

Total Spm emission /day = $\frac{18 \times 252040 \times 24}{10^6}$

= 108.88 kgs.

% Variation of actual emission from the Standards = Below tolerance limit

V. CEMENT MILL (EXPANSION):

Velocity of gas in the stack	=	7.96 m/sec.at 364 K
Area of the stack	=	2 m^2 (1.6 m dia)
Gas discharge through the stack	=	7.96 x 2
	=	15.93 m^3/sec.
	=	11.95 Nm^3/sec
	=	43027 Nm^3/hr

POLLUTANTS IN CEMENT MILL (EXPANSION) STACK:

iv.	SO_2	=	------
v.	NO_x	=	------
vi.	Spm	=	22 mg/Nm^3

Total Spm emission /day = $\frac{22 \times 43027 \times 24}{10^6}$

= 22.72 kgs.

% Variation of actual emission from the Standards = Below tolerance limit

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VI. CEMENT MILL BAG HOUSE (EXISTING):

Velocity of gas in the stack	=	22.14 m/sec.at 353 K
Area of the stack	=	0.62 m^2 (0.89 m dia)
Gas discharge through the stack	=	22.14 x 0.62
	=	13.77 m^3/sec.
	=	10.65 Nm^3/sec
	=	38323 Nm^3/hr

POLLUTANTS IN CEMENT MILL BAG HOUSE (EXISTING) STACK:

i.	SO_2	=	------
ii.	NO_x	=	------
iii.	Spm	=	33 mg/Nm^3

Total Spm emission /day = $\frac{33 \times 38323 \times 24}{10^6}$

= 30.35 kgs.

% Variation of actual emission from the Standards = Above tolerance limit

MATERIAL SAVINGS:

1. LIMESTONE CRUSHER (EXPANSION):

Average dust concentration in the Limestone crusher Bag house inlet	=	37 gm/Nm^3
	=	37000 mg/Nm^3
Bag house outlet emission	=	28 mg/Nm^3
Gas flow rate	=	36275x24
	=	8,70,600 Nm^3/day
Limestone crusher (Expansion) running hours in the year 2021 – 2022	=	3778.5 Hrs.
	=	157.44 days
Material saving in the Limestone crusher Bag house in the year 2021-2022	=	$\frac{(37000-28) \times 8,70,600 \times 157.44}{10^9}$
	=	5067.57 MT

2. KILN (EXPANSION):

Average dust concentration in the kiln Bag house inlet	=	9.9165 gm/Nm^3
	=	9916.5 mg/Nm^3
Bag house outlet emission	=	27 mg/Nm^3
Gas flow rate	=	471778x24
	=	11322672 Nm^3/day

Cont...11

Kiln (Expansion) running hours in the year
2021 – 2022 = 7840.25 Hrs.
= 326.68 days

Material saving in the kiln Bag house in the year 2021-2022 = $\frac{(9916.5-27) \times 11322672 \times 326.68}{10^9}$
= 36579.85 MT

3. **COAL MILL (EXPANSION):**

Average dust concentration in the Coal mill Bag house inlet = 301.9653 gm/Nm^3
= 301965.3 mg/Nm^3

Bag house outlet emission = 29 mg/Nm^3
Gas flow rate = 55685x24
= 1336440 Nm^3/day

Coal mill (Expansion) running hours in the year
2021 – 2022 = 6035.25 Hrs.
= 251.47 days

Material saving in the Coal mill Bag house in the year 2021 – 2022 = $\frac{(301965.3-29) \times 1336440 \times 251.47}{10^9}$
= 101472.6 MT.

4. **COOLER (EXPANSION):**

Average dust concentration in the kiln Bag house inlet = 70.0015 gm/Nm^3
= 70001.5 mg/Nm^3

Bag house outlet emission = 18 mg/Nm^3
Gas flow rate = 252040x24
= 6048960 Nm^3/day

Cooler (Expansion) running hours in the year
2021 – 2022 = 7840.25 Hrs.
= 326.68 days

Material saving in the Cooler ESP in the year 2021-2022 = $\frac{(70001.5-18) \times 6048960 \times 326.68}{10^9}$
= 138291.4 MT

5. **CEMENT MILL BAG HOUSE (EXPANSION):**

Average dust concentration in the Cement Mill Bag House Inlet = 387.1612 gm/Nm^3
= 387161.2 mg/Nm^3

Bag House outlet emission = 22 mg/Nm^3
Gas Flow rate = 43027x24
= 1032648 Nm^3/day

Cement mill running hours in the year
2021 – 2022 = 3810.5 hrs
= 158.77 days

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Material saving in the Cement mill Bag House in the year 2021 – 2022

$$= \frac{(387161.2-22) \times 1032648 \times 158.77}{10^9}$$

= 63473.17 MT

6. CEMENT MILL BAG HOUSE (EXISTING):

Average dust concentration in the Cement Mill Bag House Inlet = 182 gm/Nm^3

= 182000 mg/Nm^3

Bag House outlet emission = 33 mg/Nm^3

Gas Flow rate = 38323x24

= 919752 Nm^3/day

Cement mill running hours in the year 2021 – 2022 = 5825 hrs

= 242.71days

Material saving in the Cement mill Bag House in the year 2021 – 2022

$$= \frac{(182000-33) \times 919752 \times 242.71}{10^9}$$

= 40620.76 MT

TOTAL MATERIAL SAVINGS:

SI.NO	EQUIPMENT	INTERMEDIATE PRODUCTS MTs.	FINAL PRODUCTS MTs.
1.	Limestone Crusher (Expansion)	5067.57	
2.	Kiln Bag house (Expansion)	36579.85	
3.	Coal mill Bag house (Expansion)	101472.6	
4.	Cooler ESP (Expansion)	138291.4	
5.	Cement Mill Bag House (Expansion)		63473.17
6.	Cement Mill Bag House (Existing)		40620.76
	Total	281411.4	104093.9

Total material collected from Pollution Control equipment = 281411.4+ 104093.9

= **385505.32 MTs**

Yours faithfully,
For Tamilnadu Cements Corporation Ltd.
Ariyalur Cement Works,

Deputy General Manager (Tech)

Annexure - IX

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_1				
Avg Period	From: 01-Oct-2022 To: 31-Oct-2022				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NOx(ug/m3)	CO(ug/m3)
01/10/2022	33.57	8.12	22.3	20.2	741.59
02/10/2022	32.72	6.28	73.49	18.9	476.61
03/10/2022	35.22	10.95	23.2	16.4	408.36
04/10/2022	32.38	8	50.81	16.14	736.16
05/10/2022	23.28	4.45	23.71	20.51	1153.22
06/10/2022	31.98	6.15	34.82	24.8	1472.71
07/10/2022	35.04	7.77	17.45	15.01	845.44
08/10/2022	34.75	10.6	20.02	17.4	969.62
09/10/2022	30.1	7.13	29.09	19.29	1409.53
10/10/2022	43.4	9.56	21.06	16.38	803.04
11/10/2022	33.54	5.89	12.79	16.54	482.05
12/10/2022	31.14	11	22.69	19.34	656.75
13/10/2022	32.9	8.21	37.23	25.61	924.89
14/10/2022	38.99	13.6	42.88	26.18	1218.91
15/10/2022	43.7	11.49	18.52	27.85	1089.22
16/10/2022	37.33	8.8	14.59	30.19	496.09
17/10/2022	41.91	10.07	15.87	25.52	894.07
18/10/2022	31.41	8.7	24.56	23.19	1176.13
19/10/2022	31.26	7.19	22.61	21.43	886.86
20/10/2022	30.98	9.32	25.03	23.82	1000.47
21/10/2022	32.5	7.92	20.43	19.62	817.52
22/10/2022	34.47	11	23	27.85	837.93
23/10/2022	33.18	6.61	29.09	29.45	1158.12
24/10/2022	32.43	9.5	7.51	8.43	305.82
25/10/2022	29.75	9.37	16.46	19.1	930.65
26/10/2022	31.16	9.45	14.75	13.7	592.73
27/10/2022	44.62	16.58	13.8	17.71	614.45
28/10/2022	36.19	11.79	12.37	12.4	572.75
29/10/2022	35.83	11.34	11.95	12.98	473.28
30/10/2022	33.1	8.22	4.16	6.01	172.47
31/10/2022	31.28	9.79	27.1	25.59	1093

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_1				
Avg Period	From: 01-NOV-2022 To: 30-NOV-2022				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NOx(ug/m3)	CO(ug/m3)
01/11/2022	28.88	3.24	28.13	26.12	1123.53
02/11/2022	39.33	15.06	19.17	18.15	773.3
03/11/2022	35.53	6.56	15.72	15.67	637.77
04/11/2022	36.27	6.65	19.96	18.28	807.11
05/11/2022	43.08	6.89	26.16	22.89	1059.42
06/11/2022	43.5	6.71	33.49	19.6	1356.44
07/11/2022	40.59	5.9	27.73	49.4	1374.59
08/11/2022	40.65	6.14	14.25	15.6	1086.1
09/11/2022	43.15	6.99	18.4	15.63	690.46
10/11/2022	43.56	7.08	15.85	13.85	653.42
11/11/2022	32.57	6.6	15.77	12.3	640.53
12/11/2022	33.89	6.11	22.77	10.3	920.94
13/11/2022	36.92	9.27	31.46	21.59	1244.68
14/11/2022	35.78	6.27	18.62	15.78	675.73
15/11/2022	39.21	5.44	18.27	16.21	737.4
16/11/2022	38.63	5.97	28.75	24.27	1164.99
17/11/2022	35.34	8.21	9.9	14.10	406.46
18/11/2022	38.91	6.54	10.32	12.92	420.43
19/11/2022	39.06	6.33	18.32	15.88	737.41
20/11/2022	52.91	6.22	26.62	22.65	1031.48
21/11/2022	33	5.74	12.21	10.43	495.22
22/11/2022	33.57	6.99	23.65	20.80	958.68
23/11/2022	32.56	6.74	33.19	28.65	1342.47
24/11/2022	33.67	5.53	20.59	16.95	803.47
25/11/2022	31.71	6.46	14	11.57	537.29
26/11/2022	33.81	6.64	17.84	14.72	740.52
27/11/2022	34.7	6.74	15.67	11.2	669.94
28/11/2022	31.91	6.16	8.88	7.05	329.81
29/11/2022	32	5.89	13.57	10.31	357.22
30/11/2022	31.73	6.62	12.49	17.33	862.8

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_1				
Avg Period	From: 01-DEC-2022 To: 31-DEC-2022				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NOx(ug/m3)	CO(ug/m3)
01/12/2022	34.13	5.82	30.38	25.73	1189.36
02/12/2022	32.87	7.06	26.15	21.92	1019.92
03/12/2022	31.46	5.95	26.86	22.32	1056.47
04/12/2022	33.69	6.06	18.08	14.88	702.77
05/12/2022	36.93	8.29	23.14	19.63	912.62
06/12/2022	35.92	6.46	24.65	20.45	973.1
07/12/2022	33.36	6.18	18.35	15.46	718.68
08/12/2022	33.77	6.03	20.57	17.05	803.9
09/12/2022	33.62	5.83	10.28	8.40	368.33
10/12/2022	34.65	8.29	20.57	17.06	778.73
11/12/2022	32.7	6.01	25.32	20.34	994.52
12/12/2022	32.57	6.46	23.84	20.3	916.17
13/12/2022	31.72	5.41	17.42	17.6	658.1
14/12/2022	30.6	7.81	13.15	16.1	588.8
15/12/2022	31.72	5.36	14.16	11.67	555.54
16/12/2022	33.77	5.92	20.75	17.38	809.54
17/12/2022	35.88	5.94	17.35	14.00	668.71
18/12/2022	36.82	6.87	9.76	8.31	367.23
19/12/2022	36.54	7.17	27.81	16.69	1100
20/12/2022	32.53	5.07	18.65	6.15	748.29
21/12/2022	34.19	5.73	9.1	7.78	353.41
22/12/2022	33.94	6.31	25.09	21.82	1015.26
23/12/2022	33.32	5.66	30.54	24.2	1231.61
24/12/2022	32.02	6.41	18.1	15.33	729.72
25/12/2022	30.09	15.82	8.48	6.05	340.87
26/12/2022	29.31	5.29	21.86	8.86	898.13
27/12/2022	34.2	6.3	23.06	19.96	935.34
28/12/2022	32.05	6.02	18.81	16.03	766.83
29/12/2022	32.15	5.18	11.51	9.83	420.8
30/12/2022	34.89	3.33	10.45	9.93	468.18
31/12/2022	30.19	5.37	16.75	13.84	684.59

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_1				
Avg Period	From: 01-JAN-2023 To: 31-JAN-2023				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NOx(ug/m3)	CO(ug/m3)
01/01/2023	26.76	5.23	14.6	12.56	596.2
02/01/2023	32.17	5.69	23.41	21.94	1029.51
03/01/2023	34.67	6.02	26.29	21.37	1118.16
04/01/2023	31.46	6.44	24.92	18.88	1091.79
05/01/2023	29.97	5.32	18.04	15.29	736.61
06/01/2023	29.91	6.27	15.75	13.38	615.87
07/01/2023	31.5	7.07	15.96	13.93	653.07
08/01/2023	32.44	10.84	15.26	13.06	626.49
09/01/2023	26.43	5.05	21.46	18.74	939.21
10/01/2023	36.02	7.89	23.62	20.14	1044.85
11/01/2023	40.74	8.04	20.71	18.17	843.64
12/01/2023	34.34	6.18	21.18	17.86	865.82
13/01/2023	28.89	5.49	21.15	18.87	866.94
14/01/2023	30.83	5.61	22.91	19.17	941.94
15/01/2023	33.34	5.75	8.68	7.22	405.22
16/01/2023	35.91	6.61	27.42	23.71	1236.86
17/01/2023	42.78	7.96	33.84	28.68	1426.89
18/01/2023	34.49	12.59	20.94	18.24	880.93
19/01/2023	25.92	15.74	18.92	16.24	797.84
20/01/2023	61.55	19.73	17.2	15.27	729.32
21/01/2023	51.13	16.19	23.9	11.44	1008.7
22/01/2023	32.62	4.2	5.2	8.01	219.9
23/01/2023	37.47	5.02	22.84	19.59	833.04
24/01/2023	29.82	2.82	14.02	12.54	579.43
25/01/2023	KILN BRICKS REPLACEMENT WORK				
26/01/2023					
27/01/2023					
28/01/2023					
29/01/2023					
30/01/2023					
31/01/2023					

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**AAQMS_1**				
Avg Period	**From: 01-FEB-2023 To: 28-FEB-2023**				
Date	**Parameters**				
	PM10(ug/m3)	**PM2.5(ug/m3)**	**SO2(ug/m3)**	**NOx(ug/m3)**	**CO(ug/m3)**
01/02/2023	KILN BRICKS REPLACEMENT WORK				
02/02/2023					
03/02/2023					
04/02/2023					
05/02/2023					
06/02/2023					
07/02/2023	31.1	6.9	8.0	6.90	327.6
08/02/2023	34.8	11.1	13.2	10.28	479.9
09/02/2023	34.5	7.7	28.1	24.23	1150.2
10/02/2023	33.2	7.2	26.9	23.16	1098.9
11/02/2023	27.4	5.0	11.3	9.72	461.5
12/02/2023	27.7	6.0	14.1	12.22	580.3
13/02/2023	37.2	9.2	22.3	19.23	913.3
14/02/2023	42.5	7.4	24.7	21.27	1010.9
15/02/2023	31.7	6.5	21.6	18.56	693.1
16/02/2023	39.1	8.4	18.7	17.99	853.8
17/02/2023	42.2	8.4	25.4	23.81	1130.3
18/02/2023	39.1	9.2	29.9	12.99	862.2
19/02/2023	46.7	11.1	34.7	7.55	1326.1
20/02/2023	37.9	7.6	22.3	17.58	834.8
21/02/2023	68.9	9.9	24.4	18.83	1251.7
22/02/2023	40.3	6.6	15.8	17.14	734.4
23/02/2023	112.0	7.1	8.3	10.96	398.8
24/02/2023	46.6	10.0	23.5	21.08	819.1
25/02/2023	48.9	9.7	19.1	15.70	819.1
26/02/2023	81.1	11.0	31.3	24.10	1215.6
27/02/2023	MAINTENANCE	13.5	27.8	24.1	1073.9
28/02/2023	42.2	11.8	15.6	11.58	558.4

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_1				
Avg Period	From: 01-MAR-2023 To: 31-MAR-2023				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NOx(ug/m3)	CO(ug/m3)
01/03/2023	38.1	11.8	26.1	19.45	988.6
02/03/2023	38.1	11.3	28.5	22.2	1073.1
03/03/2023	30	8.8	38.5	31.07	1492.6
04/03/2023	36.4	10.8	31.9	25.2	1210.4
05/03/2023	39.7	11.1	27.2	15.4	764.8
06/03/2023	38.1	9.3	16.7	13.8	987.4
07/03/2023	35.8	14.1	19.7	18.9	720.5
08/03/2023	36.4	13.8	22.9	21.4	499
09/03/2023	40.3	13.3	29.8	22.26	1112.8
10/03/2023	49.3	12.8	20.6	25.8	769.1
11/03/2023	38.7	10.2	13	24.08	452.8
12/03/2023	28.4	25.9	18	16.9	549.7
13/03/2023	36.5	8.9	7.7	17.07	716.4
14/03/2023	44	10.7	20.1	15.36	1135
15/03/2023	44.2	15.1	12.8	5.09	468.8
16/03/2023	43.6	11.4	5	20.47	742.9
17/03/2023	42.5	10.7	8.5	20.19	887.1
18/03/2023	38.8	10.1	27.9	15.73	1070.6
19/03/2023	38	9.2	30.2	20.17	1150
20/03/2023	34.2	9.7	18	7.9	549.7
21/03/2023	30.8	9.9	30.4	12.8	1067.9
22/03/2023	33.6	9.6	29.8	21.44	996.5
23/03/2023	50.6	9.9	27	8.98	377.7
24/03/2023	33.1	10.2	10	18.69	786.1
25/03/2023	35.9	11	15.9	15.71	724.6
26/03/2023	51.3	13.6	25.7	20.95	973.1
27/03/2023	41.5	10.9	30.5	16.17	1125.7
28/03/2023	34.3	10.3	19.1	11.96	792
29/03/2023	35.3	10.6	15.5	7.76	618
30/03/2023	35.4	10.6	29.9	9.01	940.8
31/03/2023	34.3	12.2	27.1	8.92	907.6

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_2				
Avg Period	From: 01-Oct-2022 To: 31-Oct-2022				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NO2(ug/m3)	CO(ug/m3)
01/10/2022	39.7	11	25.5	12.7	486.1
02/10/2022	40.1	10.8	25.9	15.8	323.5
03/10/2022	39.3	11.5	26.1	23.7	160.5
04/10/2022	43.4	10.3	25.9	26.1	609.9
05/10/2022	43.1	6.8	37	15.4	740.6
06/10/2022	31.9	5.2	36.1	43.5	890.4
07/10/2022	41.5	9	33.1	20.8	401.2
08/10/2022	46	9.8	33.4	31.1	636.8
09/10/2022	46.9	7.8	33.5	30.7	735.9
10/10/2022	36.4	7.8	27.2	14.2	574.7
11/10/2022	47	8.6	28	21.4	501.2
12/10/2022	33.1	7.9	24.3	24.6	632.6
13/10/2022	32.8	9.3	18.6	26.3	590.7
14/10/2022	41.5	10.4	25.5	19	808.4
15/10/2022	43.7	9.2	25.9	30.2	757.6
16/10/2022	34.2	5.6	25	30.7	964.3
17/10/2022	32.4	5.9	26	30.9	860.2
18/10/2022	43.2	7.6	26.1	32.2	376.3
19/10/2022	49.3	7	25.3	37.5	419.9
20/10/2022	35.9	7	25.3	23.3	463.5
21/10/2022	47.6	8.1	25.9	19.2	304.5
22/10/2022	46.3	10.3	25.7	18.2	670.4
23/10/2022	35.5	15.2	25.2	21.9	951.6
24/10/2022	48.6	11.3	32.3	24.5	867.9
25/10/2022	66.2	48.9	25.2	30.8	952.9
26/10/2022	59.6	20	32	39.8	564.5
27/10/2022	35	8	34.5	26.9	474.8
28/10/2022	30.9	8.4	35.7	34.5	478.4
29/10/2022	30.7	8.8	23.1	22.6	683.3
30/10/2022	28.7	7.3	9.9	9.5	191.6
31/10/2022	39	13.5	13.5	19.2	393.2

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**AAQMS_2**				
Avg Period	**From: 01-NOV-2022 To: 30-NOV-2022**				
Date	**Parameters**				
	PM10(ug/m3)	**PM2.5(ug/m3)**	**SO2(ug/m3)**	**NO2(ug/m3)**	**CO(ug/m3)**
01/11/2022	28.1	8.5	10.7	9.8	188.5
02/11/2022	31.6	4.6	9.9	11.1	222.1
03/11/2022	31.7	7.4	10	13.9	270
04/11/2022	31.2	7.4	10.1	16.9	321.6
05/11/2022	32.2	7.6	10	21.3	390.8
06/11/2022	32.6	7.3	9.9	20.3	481.4
07/11/2022	30.4	7.7	10	16.3	556.9
08/11/2022	45.3	9.6	13.9	19.1	634.7
09/11/2022	49.8	10.2	20.6	22.8	778
10/11/2022	37.6	9.6	20.5	29.5	746.5
11/11/2022	32.2	8.7	16	30.5	616.2
12/11/2022	33	9.1	12.3	21.5	433.7
13/11/2022	34.8	8.9	12.7	25.8	460.9
14/11/2022	UNDER MAINTENANCE				
15/11/2022	51.7	27.7	38.7	14.6	622.7
16/11/2022	67.3	11.7	12.4	32.1	463.9
17/11/2022	39	9.1	12	14.8	252.6
18/11/2022	37.4	9.1	5.5	13.7	213.3
19/11/2022	29	8.3	5.5	24.1	431.8
20/11/2022	23.3	7	8.9	16.6	262.8
21/11/2022	31.7	8.3	15.2	26.7	485.1
22/11/2022	35.2	9.5	12.8	11.6	192
23/11/2022	41.7	8.6	12.9	12	202.7
24/11/2022	34.6	8.3	16.4	20.5	359.7
25/11/2022	34.3	8.9	18.9	18.8	325
26/11/2022	39.9	9.8	20.4	27.6	241.2
27/11/2022	38.6	7.6	27.2	28.1	496.1
28/11/2022	32.9	7.4	20.9	26.7	503.4
29/11/2022	28.9	8.4	23.8	20.2	347.6
30/11/2022	33	9.6	26.3	20.3	722.2

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_2				
Avg Period	From: 01-DEC-2022 To: 31-DEC-2022				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NO2(ug/m3)	CO(ug/m3)
01/12/2022	33.9	7.9	27.6	29.4	798.2
02/12/2022	32.1	9.3	25.6	33.5	728.8
03/12/2022	29.6	8.4	26.2	33.7	634.8
04/12/2022	29.9	8.6	26.2	15.6	254.6
05/12/2022	32.8	9.8	23	36.8	796.7
06/12/2022	31.3	9	28.1	43.2	929.7
07/12/2022	31.7	7.9	23.4	29.3	536.2
08/12/2022	28.4	6.1	8.8	13.9	226.7
09/12/2022	29.2	7.1	15.8	15.7	273.5
10/12/2022	30.6	6.1	24.9	34.6	662.5
11/12/2022	28.2	6.1	26.5	35.3	707.9
12/12/2022	22.9	6.6	26.8	26.8	387.4
13/12/2022	28.9	4.9	38.8	24.7	676.6
14/12/2022	31	6.9	25.8	30.4	620.2
15/12/2022	27.5	5.5	25.7	21.8	452.9
16/12/2022	37.9	6.6	25.8	20	403.6
17/12/2022	42.5	8.5	25.7	24.8	512.1
18/12/2022	35.3	8.1	26	36	712.3
19/12/2022	46.5	5.7	26.2	29	579.5
20/12/2022	29.7	6.3	26.2	18.2	358.9
21/12/2022	33.1	7.4	25.3	12.4	252.2
22/12/2022	30.6	5.8	24.4	15.8	548.8
23/12/2022	33.4	6.4	22.7	3.9	366.4
24/12/2022	33	7.5	22.6	18.4	335.3
25/12/2022	32.4	6.8	25.6	36.8	713.6
26/12/2022	26.4	5.4	25.8	17.5	332.9
27/12/2022	32.7	6.6	25.7	31.2	592.2
28/12/2022	31.8	7.2	25	27	515.2
29/12/2022	29.5	5.7	25.4	16.6	296.4
30/12/2022	30.3	7	26.6	15.6	261.1
31/12/2022	31.1	5.5	25.2	23.3	434.9

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_2				
Avg Period	From: 01-JAN-2023 To: 31-JAN-2023				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NO2(ug/m3)	CO(ug/m3)
01/01/2023	28.6	5.8	25.3	8.5	138.7
02/01/2023	33.3	6.9	26	19.5	354.6
03/01/2023	35	7	26.6	30.2	616.3
04/01/2023	34.7	10.7	27.4	31.7	624.4
05/01/2023	33.5	7.3	25.7	33.6	693.7
06/01/2023	32.8	6.7	25	34.6	706.8
07/01/2023	32.7	6.8	25.9	20.5	387.9
08/01/2023	38.4	6.6	25.6	10.1	171.8
09/01/2023	32	7.2	25	27	500.4
10/01/2023	28.3	6.2	25.4	24.5	477.5
11/01/2023	25.2	5.5	25.6	12.9	231.1
12/01/2023	28.8	6.4	25.7	25	484.3
13/01/2023	28.1	5.9	26.9	20.5	415.3
14/01/2023	28.8	5.4	25.6	12.5	323.7
15/01/2023	32.7	6.7	25.9	4	107.1
16/01/2023	30.1	6.8	23.8	28.6	788.8
17/01/2023	24.9	5.3	20.6	18.3	369.1
18/01/2023	28.7	8.3	20.7	39.1	855.6
19/01/2023	30.1	6	20.9	28.4	667.3
20/01/2023	26.6	5.6	20.6	18.3	373.8
21/01/2023	27.5	6.2	21.2	21.7	434.5
22/01/2023	26.7	6.2	20.4	9.1	185.7
23/01/2023	32.9	7	20.5	35.8	715.9
24/01/2023	30.3	6.8	23.3	29.3	593.3
25/01/2023	KILN BRICKS REPLACEMENT WORK				
26/01/2023					
27/01/2023					
28/01/2023					
29/01/2023					
30/01/2023					
31/01/2023					

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**AAQMS_2**				
Avg Period	**From: 01-FEB-2023 To: 28-FEB-2023**				
Date	**Parameters**				
	PM10(ug/m3)	**PM2.5(ug/m3)**	**SO2(ug/m3)**	**NO2(ug/m3)**	**CO(ug/m3)**
01/02/2023	KILN BRICKS REPLACEMENT WORK				
02/02/2023					
03/02/2023					
04/02/2023					
05/02/2023					
06/02/2023					
07/02/2023	30.8	6.2	26.3	10.3	216
08/02/2023	38.4	6.4	25.9	32.6	468.3
09/02/2023	32	6.7	25.7	36.1	787.4
10/02/2023	31.8	6.4	25.8	44.3	856.7
11/02/2023	24.1	5.4	24.4	18.8	393.9
12/02/2023	27.9	5.1	23.1	5.1	824.2
13/02/2023	33.3	6.4	22.9	43.2	851.4
14/02/2023	36	7.5	24.3	40.3	789
15/02/2023	27.1	5.7	24.7	36.9	1028.6
16/02/2023	35.8	7.1	25.9	33	1152.9
17/02/2023	43	10.6	23.5	45.3	1254
18/02/2023	33.1	6.9	18.7	45.8	643.7
19/02/2023	31.5	7.2	19.1	42.8	243.8
20/02/2023	36.3	7	19	17.6	700.8
21/02/2023	34	6.7	23	22.4	1025.6
22/02/2023	34.7	7	26.2	18.6	1127.4
23/02/2023	30.2	8.4	22.1	23.5	895.6
24/02/2023	31.4	7.6	21.2	37.2	569.2
25/02/2023	44.7	11	25.8	22.1	427.1
26/02/2023	48.6	10.7	25.2	15.2	239.7
27/02/2023	43.4	9.2	25.5	45.4	763.8
28/02/2023	36.7	7.7	25.5	31.8	506.2

Average Report					
Industry	TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR				
Station	AAQMS_2				
Avg Period	From: 01-MAR-2023 To: 31-MAR-2023				
Date	Parameters				
	PM10(ug/m3)	PM2.5(ug/m3)	SO2(ug/m3)	NO2(ug/m3)	CO(ug/m3)
01/03/2023	46.5	6.7	26.1	31.2	463.9
02/03/2023	45.1	5.1	26	20.8	382
03/03/2023	41.6	9.4	26.2	26.5	643.8
04/03/2023	37.6	8.6	25.7	34.4	426.7
05/03/2023	39	7.9	26.9	39	623.8
06/03/2023	32.6	5.8	23.6	19.2	276.8
07/03/2023	43.4	6.6	17.4	26	470.2
08/03/2023	39.4	8.9	18	14.7	510.8
09/03/2023	39.6	8.5	17.6	22.9	410.9
10/03/2023	33.5	6.2	17.6	38.6	573.6
11/03/2023	41	4.7	17.7	30.9	919.4
12/03/2023	51.2	4.6	17.3	19.2	937.1
13/03/2023	36.5	6.1	17.5	9.3	261.7
14/03/2023	42.9	7.6	18.2	11.4	221.4
15/03/2023	49.3	12.9	42.9	26.9	369.4
16/03/2023	55.7	7.7	18.3	29.2	431.9
17/03/2023	53.4	6.2	20.9	33.7	587.3
18/03/2023	57.9	6.4	26.1	15.9	318.7
19/03/2023	57.7	6.9	25.5	13.2	263.9
20/03/2023	60.6	6.5	26.8	33.4	700.8
21/03/2023	55.9	5.6	25.3	24.7	325.3
22/03/2023	58.6	6.3	26.1	32.8	247.7
23/03/2023	57.4	6	25	17.4	769.2
24/03/2023	50.5	7	22.4	20.6	425.8
25/03/2023	52.5	6.2	22.7	38.9	772
26/03/2023	58.6	7.4	22.4	47.1	906.2
27/03/2023	49.3	6.4	22.3	43.1	763.5
28/03/2023	48.9	7.5	22.1	28.2	709
29/03/2023	58.6	5.7	22	47.1	807
30/03/2023	37.4	5.9	22	38.2	664.2
31/03/2023	29.9	7.1	22.1	23.1	122.7

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-OCT-2022 To: 31-OCT-2022**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/10/2022	10.628	135.6	2.324	16.232	18.4
02/10/2022	10.736	86.3	2.509	15.041	19.53
03/10/2022	12.238	58.8	3.158	12.929	20.47
04/10/2022	10.479	134.8	2.348	14.124	23.08
05/10/2022	10.419	137.9	2.514	10.485	17.87
06/10/2022	6.751	56.1	2.44	7.012	13.84
07/10/2022	6.628	36	2.245	5.519	8.95
08/10/2022	3.277	4.7	2.25	3.839	5.84
09/10/2022	3.897	4.7	2.276	3.5	6.24
10/10/2022	4.374	4.7	2.285	2.83	7.81
11/10/2022	9.613	35.1	2.207	3.01	6.3
12/10/2022	12.089	73.2	2.803	7.145	7.38
13/10/2022	12.523	139.2	2.44	9.136	9.57
14/10/2022	14.324	111	2.363	8.387	8.47
15/10/2022	15.13	128.3	2.563	9.124	8.95
16/10/2022	12.64	119.5	2.64	9.01	9.75
17/10/2022	12.984	126.7	2.299	8.526	9.81
18/10/2022	13.263	148.2	2.45	8.675	11.37
19/10/2022	12.906	112.1	2.858	8.724	11.68
20/10/2022	17.287	51.1	2.939	8.565	12.14
21/10/2022	15.407	79.3	3.943	9.429	13.25
22/10/2022	16.589	101.5	2.716	9.844	13.45
23/10/2022	21.746	87.9	3.19	9.597	12.9
24/10/2022	18.399	100.5	3.18	9.164	13.44
25/10/2022	19.478	79.8	2.225	9.265	12.19
26/10/2022	18.016	94.6	2.206	9.459	11.93
27/10/2022	21.1	76.9	4.4	9.6	7.9
28/10/2022	17.368	17.8	3.852	11.163	14.65
29/10/2022	PLANT WAS NOT RUNNING				
30/10/2022	12.529	5.9	2.325	7.994	16.88
31/10/2022	13.699	44.5	2.533	10.176	16.99

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-NOV-2022 To: 30-NOV-2022**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/11/2022	13.009	86.6	2.44	11.543	16.28
02/11/2022	11.366	72.9	3.743	11.582	4.85
03/11/2022	13.523	47.5	3.581	10.651	3.46
04/11/2022	14.786	96.2	3.358	9.867	4.25
05/11/2022	14.224	101.7	2.312	10.569	4.91
06/11/2022	15.256	90.1	2.391	11.377	5.28
07/11/2022	16.582	72.2	3.055	11.828	5.71
08/11/2022	6.233	69.3	2.353	11.604	6.59
09/11/2022	8.069	89.6	2.337	11.296	6.69
10/11/2022	7.816	66.1	2.359	10.669	6.79
11/11/2022	10.27	81.5	3.105	11.611	11.92
12/11/2022	11.854	68.5	3.507	9.562	10.26
13/11/2022	9.77	64.3	2.364	9.78	11.5
14/11/2022	13.14	31.1	3.084	8.508	10.74
15/11/2022	10.764	69.6	2.598	10.326	10.34
16/11/2022	10.351	83.7	2.477	10.714	9.73
17/11/2022	13.645	140.5	2.817	11.309	10.26
18/11/2022	17.407	147.6	2.613	11.665	11.66
19/11/2022	11.02	151.1	2.346	11.747	13.98
20/11/2022	7.416	156.7	3.162	12.484	13.41
21/11/2022	7.722	170	2.509	12.183	13.02
22/11/2022	7.545	148.8	2.544	11.362	13.18
23/11/2022	7.094	147.8	2.396	11.861	14.84
24/11/2022	7.672	150	2.21	11.714	15.57
25/11/2022	8.312	136.6	2.405	12.094	17.47
26/11/2022	8.362	117.7	3.383	12.926	17.83
27/11/2022	8.581	117.7	2.531	12.35	17.5
28/11/2022	8.096	117.4	2.55	12.033	19.42
29/11/2022	8.193	89.4	2.324	12.662	19.91
30/11/2022	7.874	109	2.475	12.856	18.96

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-DEC-2022 To: 31-DEC-2022**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/12/2022	3.475	101.6	2.482	11.515	12.95
02/12/2022	3.518	113.4	2.326	12.272	9.1
03/12/2022	8.793	126.3	2.614	12.84	16.6
04/12/2022	8.017	118.7	2.98	12.924	14.26
05/12/2022	7.069	134.6	2.663	13.044	10.07
06/12/2022	3.932	143	2.654	13.53	9.8
07/12/2022	6.268	115.7	4.193	13.499	4.71
08/12/2022	6.269	121.8	2.645	13.567	7.56
09/12/2022	3.322	125	2.452	13.726	8.42
10/12/2022	3.423	138.4	2.565	13.433	8.19
11/12/2022	4.368	137.1	2.337	13.544	7.89
12/12/2022	3.612	114.6	2.429	14.626	10.34
13/12/2022	8.343	120	3.192	14.858	16.1
14/12/2022	4.632	123.2	3.541	11.635	16.15
15/12/2022	4.744	153.6	2.395	10.481	13.04
16/12/2022	4.042	225.9	2.434	9.401	15.47
17/12/2022	6.708	234.2	2.547	11.465	18.22
18/12/2022	6.639	237.9	2.536	11.325	18.04
19/12/2022	6.256	228.8	3.09	11.295	17.84
20/12/2022	6.604	247	2.366	8.894	15.66
21/12/2022	6.113	253	4.34	9.246	14.04
22/12/2022	3.856	260.4	2.351	8.655	14.54
23/12/2022	5.366	231.3	4.502	9.119	14.74
24/12/2022	6.578	238.5	2.535	8.8	12.98
25/12/2022	6.478	237.3	3.622	7.957	19.79
26/12/2022	5.356	219	2.931	8.24	19.35
27/12/2022	7.195	203.7	2.466	8.196	13.22
28/12/2022	7.804	194.5	3.335	5.797	12.11
29/12/2022	6.4	183.9	3.48	8.107	11.17
30/12/2022	3.153	176	2.303	7.897	12.05
31/12/2022	11.65	199.5	2.292	11.335	10.57

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-JAN-2023 To: 31-JAN-2023**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/01/2023	6.095	203.7	2.795	10.665	9.27
02/01/2023	6.484	207.9	2.525	9.196	10.04
03/01/2023	5.031	209.1	2.383	9.317	12.26
04/01/2023	8.081	203.8	3.591	10.508	15.57
05/01/2023	8.677	220.8	2.361	10.928	13.47
06/01/2023	9.494	228.2	2.402	9.362	7.3
07/01/2023	12.945	218.1	2.433	9.825	8.62
08/01/2023	7.336	233	2.381	9.049	8.9
09/01/2023	5.902	246.4	2.38	10.337	8.79
10/01/2023	8.649	232.3	5.378	10.84	12.92
11/01/2023	9.499	238.1	2.369	10.519	13.27
12/01/2023	11.883	237.1	2.454	9.995	13.7
13/01/2023	12.156	219.5	2.681	10.773	13.5
14/01/2023	13.899	204.8	4.201	8.221	12.2
15/01/2023	12.708	222.4	3.543	10.98	5.53
16/01/2023	8.777	242.1	2.648	10.933	5.44
17/01/2023	6.648	241.6	2.51	14.464	6.4
18/01/2023	12.334	249.9	2.384	14.178	4.61
19/01/2023	21.082	244.8	2.488	14.103	4.01
20/01/2023	22.444	228.1	2.665	13.685	4.4
21/01/2023	20.833	242.8	2.397	13.622	8.23
22/01/2023	28.6	237.2	2.554	15.27	9.7
23/01/2023	19.286	246.2	2.531	14.856	4.5
24/01/2023	19.499	233.1	2.427	14.545	6.13
25/01/2023	KILN BRICKS REPLACEMENT WORK				
26/01/2023					
27/01/2023					
28/01/2023					
29/01/2023					
30/01/2023					
31/01/2023					

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-FEB-2023 To: 28-FEB-2023**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/02/2023	KILN BRICKS REPLACEMENT WORK				
02/02/2023					
03/02/2023					
04/02/2023					
05/02/2023					
06/02/2023					
07/02/2023					
08/02/2023	20.519	183.3	9.807	9.936	9.53
09/02/2023	16.279	165	7.17	11.663	10.6
10/02/2023	16.848	154.3	9.106	10.688	9.13
11/02/2023	17.297	135.5	9.973	7.952	8.13
12/02/2023	12.819	140.3	12.614	7.964	8.18
13/02/2023	16.733	142.9	10.743	8.602	10.75
14/02/2023	18.452	145.9	10.81	8.162	11.51
15/02/2023	21.133	91.9	12.903	7.359	10.57
16/02/2023	17.99	145	14.306	8.735	10.08
17/02/2023	19.651	112.1	12.912	8.989	14.61
18/02/2023	18.7	116.8	14.127	8.627	15.12
19/02/2023	18.788	131.5	13.465	8.499	16.84
20/02/2023	15.3	73.4	16.286	8.449	15.3
21/02/2023	19.866	63.2	13.184	8.819	16.92
22/02/2023	20.1	139.5	20.595	7.892	20.13
23/02/2023	21.217	137.9	21.768	7.601	20.92
24/02/2023	21.22	78.6	21.912	8.571	21.51
25/02/2023	21.056	412.5	20.576	8.346	23.43
26/02/2023	22.767	469	28.974	9.589	24.1
27/02/2023	21.693	408.5	31.005	9.241	26.61
28/02/2023	18.686	337	23.996	8.143	21.25

Average Report					
Industry	**TAMILNADU CEMENTS CORPORATION LTD, ARIYALUR**				
Station	**EXPANSION PLANT STACK**				
Avg Period	**From: 01-MAR-2023 To: 31-MAR-2023**				
Date	**Parameters**				
	PM-KILN (mg/Nm3)	KILN –NOX (mg/Nm3)	PM-COOLER (mg/Nm3)	PM-COAL MILL (mg/Nm3)	PM-CEMENT MILL (mg/Nm3)
01/03/2023	16.029	320.4	1.515	8.644	10.55
02/03/2023	18.376	316.4	2.735	9.896	7.76
03/03/2023	17.468	311.8	2.273	10.252	6.36
04/03/2023	19.77	320.8	2.252	10.427	8.59
05/03/2023	22.4	314.2	2.261	10.509	8.55
06/03/2023	20.162	316.4	2.306	10.211	7.7
07/03/2023	20.067	312.3	2.373	9.584	8.97
08/03/2023	18.843	312.9	2.275	9.2	9.62
09/03/2023	18.695	301.3	2.255	10.153	9.98
10/03/2023	19.84	330.7	3.021	9.266	10
11/03/2023	23.6	307.6	2.339	9.28	10.54
12/03/2023	11.031	300.5	2.317	9.319	10.67
13/03/2023	21.291	253.9	2.288	9.927	10.52
14/03/2023	24.6	273.7	2.655	9.315	10.8
15/03/2023	23.946	268.7	2.492	8.987	10.99
16/03/2023	24.059	294.3	2.09	8.463	11.12
17/03/2023	25.41	306.2	2.195	8.361	11.29
18/03/2023	25.782	299.4	2.127	8.684	12.02
19/03/2023	25.034	286.7	2.199	8.931	12.71
20/03/2023	17.5	284.2	2.939	7.977	12.93
21/03/2023	22.3	266.3	2.105	8.196	11.79
22/03/2023	24.1	279	2.114	9.674	12.34
23/03/2023	17.552	253	2.19	7.391	13.65
24/03/2023	26.19	195	2.139	8.944	14.4
25/03/2023	24.559	191.2	2.063	9.33	13.72
26/03/2023	22.3	212.1	2.148	10.227	13.79
27/03/2023	18.363	202	2.084	10.133	13.85
28/03/2023	15.097	162.2	2.057	9.879	13.39
29/03/2023	15.878	207.7	2.373	9.867	15.51
30/03/2023	17.424	204.8	2.083	9.619	14.48
31/03/2023	16.426	121.7	2.081	9.297	17.62

Category of the Industry :

RED

CONSENT ORDER NO. 2208243039244 DATED: 12/07/2022.

PROCEEDINGS NO.T4/TNPCB/F.0288ARY/RL/ARY/A/2022 DATED: 12/07/2022

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT –M/s. TAMILNADU CEMENTS CORPORATION LTD , S.F.No. 32,33,42,45 to 50,53,79,80,81,84,87,88,89,, KAIRLABATH village, Ariyalur Taluk and Ariyalur District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) –Issued- Reg.

REF: 1. Proc.No. T4/TNPCB/F.0288ARY/RL/ARY/W&A/2021 DATED: 01/11/2021
2. IR.No : F.0288ARY/RL/JCEE-M/ARY/2022 dated 19/05/2022

RENEWAL OF CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as “The Act”) and the rules and orders made there under to

The Deputy General Manager
M/s.TAMILNADU CEMENTS CORPORATION LTD,
S.F.No. 32,33,42,45 to 50,53,79,80,81,84,87,88,89,,
KAIRLABATH village,
Ariyalur Taluk,
Ariyalur District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2024

RAGUPATHI SANGANAN
Digitally signed by RAGUPATHI SANGANAN
Date: 2022.07.13 18:00:45 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	CLINKER	1475000	MT/ANNUM
2.	ORDINARY PORTLAND CEMENT AND PORTLAND POZZOLANA CEMENT	1630000	MT/ANNUM
	By-Product Details		
1.	No by product	0	0
	Intermediate Product Details		
1.	No intermediate product	0	0

2. This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I	Point source emission with stack :			
Stack No.	**Point Emission Source**	**Air pollution Control measures**	**Stack height from Ground Level in m**	**Gaseous Discharge in Nm3/hr**
1	LIMESTONE CRUSHER - I (EXISTING)	Cyclone Separator with stack	14.9	30000
2	LIMESTONE CRUSHER - I (EXPANSION)	Bag Filters with stack	22.5	50000
3	LIMESTONE STORAGE-I TRANSFER POINT (EXPANSION)	Bag Filters	15.8	6500
4	LIMESTONE STORAGE-II TRANSFER POINT (EXPANSION)	Bag Filters	24.8	5600
5	RAW MILL (EXISTING)	Bag Filters with stack	12.5	30000
6	RAW MILL FEED HOPPER (EXPANSION)	Bag Filters	10.5	14000
7	RAW MILL TRANSFER POINT (EXPANSION)	Bag Filters	23.06	7500
8	RAW MILL (EXPANSION)	Bag Filters	28.88	13000
9	RAW MILL TRANSFER POINT (EXPANSION)	Bag Filters	26.3	4500
10	RAW MEAL SILO TRANSFER POINT (EXPANSION)	Bag Filters	53.3	8000
11	RAW MEAL SILO TRANSFER POINT (EXPANSION)	Bag Filters	11.2	10000
12	KILN-I (EXISTING)	Reverse Air Bag House with Stack	58.3	200000
13	KILN-II (EXISTING)	Reverse Air Bag House with Stack	58.3	200000
14	KILN (EXPANSION)	Bag Filters with stack	115.2	597600
15	KILN FEED TRANSFER POINT (EXISTING)	Bag Filters with stack	11.5	30000
16	KILN FEED TRANSFER POINT (EXPANSION)	Bag Filters	39.1	8000
17	KILN FEED TRANSFER POINT (EXPANSION)	Bag Filters	107.4	3720
18	BLENDING SILO-I (EXISTING)	Bag Filters with stack	11.5	30000
19	BLENDING SILO-II (EXISTING)	Bag Filters with stack	11.5	30000
20	CLINKER COOLER-I (EXISTING)	ESP with stack	37.22	200000
21	CLINKER COOLER-II (EXISTING)	ESP with stack	37.22	200000
22	CLINKER COOLER (EXPANSION)	ESP with stack	41	338400

23	CLINKER COOLER TRANSFER POINT (EXISTING)	Bag Filters with stack	18.9	30000
24	CLINKER COOLER TRANSFER POINT (EXPANSION)	Bag Filters	1.2	6000
25	DEEP BUCKET CONVEYOR TRANSFER POINT (EXISTING)	Bag Filters with stack	7	30000
26	CLINKER STOCK PILE TRANSFER POINT (EXISTING)	Cyclone Separator with stack	10.5	30000
27	CLINKER SILO (EXPANSION)	Bag Filters	38.8	35000
28	CLINKER SILO TRANSFER POINT (EXPANSION)	Bag Filters	4.98	17500
29	CLINKER SILO TRANSFER POINT (EXPANSION)	Bag Filters	19.5	1500
30	COAL MILL (EXISTING)	ESP with stack	25.8	60000
31	COAL MILL (EXPANSION)	Bag Filters with stack	55.9	72360
32	COAL MILL TRANSFER POINT (EXPANSION)	Bag Filters	38.15	3500
33	COAL MILL TRANSFER POINT (EXPANSION)	Bag Filters	38.15	3500
34	COAL CRUSHER (EXISTING)	Bag Filters with stack	14.15	20000
35	CEMENT MILL (EXISTING)	Bag Filters with stack	38.5	60000
36	CEMENT MILL TRANSFER POINT (EXISTING)	Bag Filters with stack	13.5	30000
37	CEMENT MILL (EXPANSION)	Bag Filters with stack	44	38880
38	CEMENT MILL SEPARATOR (EXPANSION)	Bag Filters with stack	44	51840
39	CEMENT MILL TRANSFER POINT (EXPANSION)	Bag Filters	14.3	5000
40	CEMENT MILL TRANSFER POINT (EXPANSION)	Bag Filters	28.55	11000
41	CEMENT MILL FEED TRANSFER POINT (EXPANSION)	Bag Filters	28.55	8000
42	CEMENT MILL TRANSFER POINT (EXPANSION)	Bag Filters	16.45	7000
43	CEMENT MILL SEPARATOR TRANSFER POINT (EXPANSION)	Bag Filters	15.9	3000
44	CEMENT SILO TRANSFER POINT (EXPANSION)	Bag Filters	45.17	6600

45	CEMENT SILO TRANSFER POINT (EXPANSION)	Bag Filters	12.07	10000
46	CEMENT SILO TRANSFER POINT (EXPANSION)	Bag Filters	10.12	5200
47	CEMENT SILO TRANSFER POINT (EXPANSION)	Bag Filters	45.17	6600
48	CEMENT SILO (EXPANSION)	Bag Filters	17.1	25000
49	FLY ASH HOPPER (EXISTING)	Bag Filters with stack	11.5	30000
50	FLY ASH SILO (EXPANSION)	Bag Filters	33.8	13000
51	PACKING HOUSE-I (EXISTING)	Bag Filters with stack	13	30000
52	PACKING HOUSE-II (EXISTING)	Bag Filters with stack	13	30000
53	PACKING PLANT (EXPANSION)	Bag Filters	17.1	25000
54	DG SET 2500 KVA (EXISTING)	Stack	8	15000
55	DG SET 1000 KVA (EXPANSION)	Stack	30	7000
II	**Fugitive/Noise emission :**			
Sl. No.	**Fugitive or Noise Emission sources**	**Type of emission**	**Control measures**	
1.	TRANSPORT VEHICLE MOVEMENT LOADING & UNLOADING	Fugitive	WATER SPRAYING BY TIPPER AND WATER SPRINKLER SYS.	
2.	DG SET 2500 KVA 1 NO	Noise	ACOUSTIC ENCLOUSE	
3.	DG SET 1000 KVA 1 NO	Noise	ACOUSTIC ENCLOUSE	

Special Additional Conditions:

i. The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.

ii. The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The unit shall operate and maintain the air pollution control measures efficiency and continuously so as to achieve the Ambient Air quality / Emission standards prescribed by the Board & MoEF &CC.
2. The unit shall comply with the new emission standards prescribed by MoEF&CC vide notification dated 25.08.2014 &10.05.2016.
3. The unit shall ensure that the noise generated by the unit shall adhere to the Ambient Noise Level standards prescribed by the Board.
4. The industry shall ensure that all the dust accumulated in the premises (in old line and new line areas) are cleared immediately.
5. The unit shall not run existing plant until further orders from the Government, as committed.
6. The unit shall maintain the online stack monitoring system and the continuous AAQ monitoring system efficiently so as to send good quality data to Care Air Centre.
7. The unit shall comply with the fugitive emission guidelines prescribed by CPCB vide PROBES/118/2007 dated: 06.07.2007.
8. The storage of coal, clinker, lime stone, Gypsum, fly ash and other additives should be done under covered shed.
9. The unit shall carry out cleaning of spilled materials such as Gypsum, Fly ash, and Coal dust inside the working area periodically to avoid carryover of dust to the surrounding.
10. The unit shall pave all the areas where vehicle movement take place.
11. The unit shall conduct the ground level concentration study due to various emission sources through a laboratory approved by CPCB within a month and install the CAAQM stations as already instructed by Board within 3 months.
12. The performance efficiency of the APC devices shall be conducted through a laboratory approved by CPCB and report shall be submitted to TNPCB.
13. Fugitive emission monitoring shall be conducted at cement mill, coal mill and Raw material handling area through a laboratory approved by CPCB and the report shall be submitted to TNPCB.
14. All continuous emission monitoring systems should be operated as per CPCB CEMs guidelines and the data shall be transmitted as per guidelines. Further the unit shall comply the following:
a. Kiln Stack Gaseous Analyzer:
(i) Sampling flow rate shall be maintained at 60 TPH.
(ii) NOX value shall be normalized and transmitted as NO2 instead of transmitting as NO.
(iii) O2 correction shall be given for the NOX values.
(iv) Zero check shall be conducted daily and span check shall be conducted once in fortnight.
(v) Proper record for drift observations shall be maintained.
(vi) Analyzer values shall be directly transmitted to the TNPCB/CPCB server without having any intermediate server or PC.
b. Kiln stack PM Analyser:
(i) Reference sampling port hole shall be provided for calibration/ manual iso kinetic sampling.
(ii) The unit shall ensure that the purge blower filter are not choked for adequate purge air supply to the analyzer.
(iii) The data shall be normalized and transmitted as mg/ Nm3 instead of mg/ m3.
(iv) Dust factor check shall be done every month.
(v) The unit shall ensure that the analyzer should be TUV/MCERTS certified analyser.
(vi) Analyzer installed for coal mill, cement mill and raw mill shall be serviced and recalibrated since constant values were showing.
c. CAAQMS
(i) CAAQMS gaseous analyzers shall be serviced and recalibrated since they are not working properly.
(ii) The unit shall rectify the filter tapes for PM10 and PM2.5 and ensure that they are working properly.
(iii) Calibrator shall be made available at the unit and inhouse calibration shall be done as per the guidelines.
(iv) The performance calibration of all the online analyzers shall be conducted once in a year through a laboratory approved by CPCB and report shall be submitted to TNPCB.
15. The unit shall conduct a comprehensive Environmental audit through a laboratory approved by CPCB/MoEF once in a year which includes water audit, ETP/STP adequacy & efficacy, APCD performance efficiency etc, and shall furnish report to TNPCB.
16. The unit shall continue to develop more green belt in and around the unit premises.
17. The industry shall operate and maintain the water sprinklers and street sweepers provided by the industry at all times.
18. The industry shall improve the house keeping in the entire premises.
19. The industry shall calibrate and maintain the online continuous emission monitoring system provided for the Kilns, Clinker coolers, cement mill & coal mills and also the continuous AAQMS so as to send quality data to the CAC, TNPCB, Chennai.
20. The unit shall ensure that calibration is done at frequent intervals to keep the analyzer intact.
21. The unit shall maintain all the online monitors continuously and efficiently and should ensure the online connectivity with Care Air Centre of TNPCB, Chennai to provide proper quality data at all

times.
22. The unit shall continuously operate and maintain the online analyzer and online display board installed in the entrance of the unit efficiently.
23. The unit shall ensure that the emission meets the emission standards as notified by MoEE&CC vide GSR497 (E) dated: 10.05.2016 and shall comply with the condition stipulated in the MoEF&CC,O&M,F.No22-34/2018-1A dated 09.08.2018.
24. All internal roads shall be cleaned with road sweeper then and there and the house keeping should be done all the time effectively and water sprinkling shall be done frequently so as to arrest the dust spreading due to vehicular movement.
25. The unit shall increase the consumption of ETP sludge with immediate effect.
26. The industry shall utilise /enhance the usage of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co- processing/Co-incineration in Cement Kiln so as to improve the Thermal Substitution Ratio (TSR). Also the unit shall provide necessary infrastructure facilities such as feeding system, conveyor systems, etc., for co processing to achieve the TSR of 10% during 2022-23 within 3 months and report to the Board.
27. The unit shall immediately take necessary action for providing infrastructure facilities to achieve the TSR as 10% and shall complete the same within within 3 months to achieve 10%.
28. The industry shall develop more green belt in the premises by planting more number of tree saplings.
29. The unit shall operate the plant without attracting complaints from the nearby Public.
30. This consent order does not absolve from obtaining necessary permission / clearance from other Authority or under other Statute as applicable.

RAGUPATHI SANGANAN

Digitally signed by RAGUPATHI SANGANAN
Date: 2022.07.13 18:01:19 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
The Deputy General Manager,
M/s.TAMILNADU CEMENTS CORPORATION LTD,
TAMIL NADU CEMENTS CORPORATION LIMITED, ARIYALUR CEMENT WORKS,ARASU NAGAR,ARIYALUR,
Pin: 621729

Copy to:

1.The Commissioner, ARIYALUR-Panchayat Union, Ariyalur Taluk, Ariyalur District .
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, ARIYALUR.
3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, Triuchirappalli.
4. File

Category of the Industry :

RED

CONSENT ORDER NO. 2208143039244 DATED: 12/07/2022.

PROCEEDINGS NO.T4/TNPCB/F.0288ARY/RL/ARY/W/2022 DATED: 12/07/2022

SUB: Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. TAMILNADU CEMENTS CORPORATION LTD , S.F.No. 32,33,42,45 to 50,53,79,80,81,84,87,88,89,, KAIRLABATH village, Ariyalur Taluk and Ariyalur District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

REF: 1. Proc.No. T4/TNPCB/F.0288ARY/RL/ARY/W&A/2021 DATED: 01/11/2021
2. IR.No : F.0288ARY/RL/JCEE-M/ARY/2022 dated 19/05/2022

RENEWAL OF CONSENT is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as “The Act”) and the rules and orders made there under to

The Deputy General Manager
M/s.TAMILNADU CEMENTS CORPORATION LTD,
S.F.No. 32,33,42,45 to 50,53,79,80,81,84,87,88,89,,
KAIRLABATH Village ,
Ariyalur Taluk ,
Ariyalur District .

Authorising the occupier to make discharge of sewage and /or trade effluent.

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This RENEWAL OF CONSENT is valid for the period ending March 31, 2024

RAGUPATHI SANGANAN
Digitally signed by RAGUPATHI SANGANAN
Date: 2022.07.13 17:59:38 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

SPECIAL CONDITIONS

1. This renewal of consent is valid for operating the facility for the manufacture of products/byproducts (Col. 2) at the rate (Col 3) mentioned below. Any change in the product/byproduct and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	CLINKER	1475000	MT/ANNUM
2.	ORDINARY PORTLAND CEMENT AND PORTLAND POZZOLANA CEMENT	1630000	MT/ANNUM
	By-Product Details		
1.	No by product	0	0
	Intermediate Product Details		
1.	No intermediate product	0	0

2. This renewal of consent is valid for operating the facility with the below mentioned outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	SEWAGE	110.0	On land for gardening
Effluent Type : Trade Effluent			
1.	No trade effluent	0.0	Not applicable

Special Additional Conditions:

The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Bio Diversity Board /National Bio Diversity Authority if the unit is using any Biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.

Additional Conditions:

1. The Unit shall manufacture only the products for which consent is obtained and shall ensure that the production is within the consented quantity.
2. The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously to achieve the Standards prescribed by the Board at all times and the treated sewage shall be utilized for gardening within the premises as reported after meeting standards prescribed by the Board.
3. The industry shall ensure that the sewage either treated or untreated is not discharged outside the premises.
4. The unit shall ensure that no trade effluent generated from the process.
5. The unit shall increase the consumption of ETP sludge with immediate effect.
6. The industry shall utilise /enhance the usage of Alternate Fuels and Raw materials (AFR such as Plastic wastes, Hazardous wastes) for Co- processing/Co-incineration in Cement Kiln so as to improve the Thermal Substitution Ratio (TSR). Also the unit shall provide necessary infrastructure facilities such as feeding system, conveyor systems, etc., for co processing to achieve the TSR of 10% during 2022-23 within 3 months and report to the Board.
7. The unit shall immediately take necessary action for providing infrastructure facilities to achieve the TSR as 10% and shall complete the same within within 3 months to achieve 10%.
8. The unit shall always possess valid NOC for water drawl from the competent Authority.
9. The unit shall continue to develop green belt with native species of trees to attenuate the Air/Noise pollution.
10. The unit shall not use “Use and throw away Plastics” such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness within the industry premises. Instead it shall encourage use of eco friendly alternatives such as banana leaf, areca nut palm plate, stainless steel glass, porcelain plates cups, cloth bag, jute bags etc.
11. The unit shall operate the plant without attracting complaints from the nearby Public.
12. This consent order does not absolve from obtaining necessary permission / clearance from other Authority or under other Statute as applicable.

RAGUPATHI SANGANAN

Digitally signed by RAGUPATHI SANGANAN
Date: 2022.07.13 18:00:10 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
The Deputy General Manager,
M/s.TAMILNADU CEMENTS CORPORATION LTD,
TAMIL NADU CEMENTS CORPORATION LIMITED, ARIYALUR CEMENT WORKS,ARASU NAGAR,ARIYALUR,
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Copy to:

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4. File
