Chettinad Cement/ Tamilnadu/ Ariyalur/ 79
Cement Plant & CPP/EC Compliance/Oct '21 – Mar '22/ 2021-22

25rd May, 2022

The Joint Director
Ministry of Environment, Forest & Climate Change
Government Of India
IRO, 1st Floor, Additional Office Block for GPOA,
Shastri Bhawan,
Haddows Road, Nungambakkam
Chennai - 600 006.
Sir,

Sub : Submission of Six Monthly Environmental Clearance Compliance & Environmental Monitoring Reports (Oct '21 – Mar '22) – Expansion of Cement Plant Capacity (5.0 to 5.5 million tons per annum) and Captive Power Plant (30 to 45 mw) - Chettinad Cement Corporation Private Limited, Ariyalur Works at Kilapaluvur Village, Ariyalur Taluk & District , Tamilnadu

Ref : Environmental Clearance issued by Ministry of Environment and Forests vide Letter No. F.No. J-11011/506/2006 -IA.II (I) dated 17th Jul 2009

We submit herewith the following reports pertaining to our Integrated Cement Plant with Captive Power Plant located at Kilapaluvur Village, Ariyalur Taluk & District, Tamil Nadu for the period from **Oct '21 – Mar '22.** The Environmental Clearance granted by MoEF is for the expansion of Cement Plant Capacity from 5.0 to 5.5 million tons per annum and Captive Power Plant Capacity from 30 to 45 MW. Line-1 Cement Plant Were in operation during this period and Line-2 Stopped condition.

a. Environmental Clearance Compliance Report (Oct '21 – Mar '22)-**Annexure 1**
b. Environmental Monitoring Report comprising of
   I. Ambient Air Quality Monitoring - Consolidated Report - **Annexure 2**

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II. Noise Level Monitoring - Consolidated Report - **Annexure 3**

III. Ground Water Quality Monitoring Report- **Annexure 4**

IV. Stack Emission Monitoring - Consolidated Report - **Annexure 5**

V. Fugitive Emission Monitoring Report- **Annexure 6**

VI. Treated Effluent Quality Monitoring - Consolidated Report - **Annexure 7**

Yours faithfully,
for **Chettinad Cement Corporation Private Limited**

A. Amalraj
Joint President (Works)

Copy to :

Regional Directorate, CPCB, Chennai
Member Secretary, TNPCB, Chennai.
JCEE, TNPCB, Trichy
DEE, TNPCB, Ariyalur

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Chettinad Cement Corporation Private Limited (Ariyalur Works)

Keelapaluvur Village, Ariyalur Taluk & District, Tamilnadu

Environmental Clearance (EC) Compliance Report Oct'2021 – Mar'2022)

[(Environmental Clearance (EC) issued by MoEF vide letter No. J-11011 /506/2006-IAII (I) dated 17th Jul 2009 for the expansion of Cement Plant Capacity (5.0 to 5.5 million tons per annum) and Captive Power Plant (30 to 45 mw)]

A. Specific Conditions

S No	Specific Condition	Compliance Status
i.	Online continuous stack monitoring facilities for all the stacks and adequate air pollution control systems shall be provided to keep emission levels below 50 mg/Nm³. Electrostatic Precipitator (ESP) to Cooler and Captive Power Plant, Bag House /Bag Filters already provided to existing Raw Mill/Kiln, Coal Mill, VRM & Cement Mill shall be properly maintained to control air emissions <50mg/Nm3 and data on ambient air quality , stack emissions and fugitive emissions shall be regularly submitted to the Ministry's Regional Office at Bangalore, Tamilnadu Pollution Control Board and Central Pollution Control Boards (CPCB) once in six months	Online continuous stack monitoring system is available for Raw Mill/Kiln Stack, Cooler ESP Stack, Coal Mill Stack, Cement Mill Stack & Captive Power Plant (CPP) Boiler. The air pollution control devices viz., ESP, Bag House, and Water Sprinkling are in place to control the dust emission within the norms prescribed. Air Pollution Control Measures provided include ESP to Cooler & CPP Boiler, Bag House for Raw Mill/Kiln, Coal Mill & Cement Mill and Bag Filters to Ash Silo, Clinker Silo & all transfer and all APC Measures are being be properly maintained to ensure that the emission levels are below the prescribed norms Monitored data on Ambient Air Quality, Stack Emissions and Fugitive Emissions are being submitted to the MoEF & CC's Regional Office at Chennai , Central Pollution Control Board (CPCB) & Tamilnadu Pollution Control Board, once in six months. Last report submitted on 26th Sep 2021.
ii.	The company shall install adequate dust collection and extraction system to control fugitive emission system at various transfer points, raw mill handling	Dust collection/extraction systems available to control fugitive emission are detailed below.

<table>
<tr><th>S No</th><th>Specific Condition</th><th>Compliance Status</th></tr>
<tr><td></td><td>(unloading, conveying, transporting, stacking), vehicular movement, bagging and packing areas etc. Dust Extraction and Dust Suppression system like Bag Filters and Water Spray System shall be installed in the coal handling system, transfer points etc. Asphalting /concreting of roads and water spray all around the stock yard and loading/unloading areas shall be carried out to Control fugitive emissions. Covered sheds for storage of raw materials and fully covered conveyers for transportation of materials shall be provided. Raw Meal, Clinker and Fly Ash shall be stored in silos.</td><td>
<table>
<tr><th>Activity</th><th>Control Measures Provided</th></tr>
<tr><td>Unloading of Raw Materials</td><td>Water Sprinkling</td></tr>
<tr><td>Stacking</td><td>Closed Storage with water Sprinkling System for Coal, Gypsum</td></tr>
<tr><td>Storing</td><td>Silos with Bag Filters for Raw Meal, Clinker & Fly Ash, Cement</td></tr>
<tr><td>Conveying Fly Ash from ESP Hopper to Fly Ash Silo</td><td>Pneumatic conveying through closed pipeline</td></tr>
<tr><td>Conveying of Materials (Raw Meal, Clinker, Coal, etc.,)</td><td>Closed Conveyors and transfer points with Bag Filters</td></tr>
<tr><td>Conveying of Fly Ash from Silo to Cement Mill & Cement to Silo</td><td>Using Air Slide and Bucket Elevator</td></tr>
<tr><td>Transporting, Vehicular Movement</td><td>• Paved Roads
• Allowing only vehicles with Pollution Under Control Certificate inside the premises
• Tarpaulin Cover for the materials
• No Overloading
• Speed Control</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>S No</th><th>Specific Condition</th><th>Compliance Status</th></tr>
<tr><td></td><td></td><td><table><tr><th>Activity</th><th>Control Measures Provided</th></tr><tr><td>Bagging and Packing</td><td>Electronic Packers with Bag Filters</td></tr></table></td></tr>
<tr><td>iii.</td><td>Secondary fugitive emissions should be controlled and regularly monitored as per Guidelines issued by the CPCB. Secondary fugitive emissions from all the sources shall be controlled within latest permissible limits issued by Ministry and regularly monitored. Guidelines /Code of practice issued by the CPCB shall be followed.</td><td>Secondary fugitive Emissions are being controlled by providing following appropriate control measures and are also regularly monitored as per CPCB Guidelines for controlling the same, within stipulated norms.
• Paved/concrete roads for truck movement
• Use of closed trucks/bulkers/covering materials with tarpaulin before commencing transport
• Speed control
• Avoiding overloading
• Providing closed storage for Gypsum, Coal etc.,
• Closed Silos for Raw Meal Clinker, Fly Ash & Cement
• Water Sprinkling arrangement
• Bag Filters at Transfer Points
• Maintaining the equipment in good condition.
• Progressive Greenbelt development in the Plant premises
Fugitive emissions are being monitored at three locations every quarter.</td></tr>
<tr><td>iv.</td><td>Efforts shall be made to reduce impact of transport of the raw materials and end products on the surrounding environment including agriculture land. All the raw materials including Fly Ash shall be transported in the closed containers only and should not be overloaded. Vehicular emissions shall be regularly monitored.</td><td>The roads inside the plant have been concreted/paved with tar to reduce the fugitive dust emission due to transport of raw materials.

By preventing over loading and ensuring speed control, the spillage of materials is avoided.
Transportation of raw materials in closed trucks, covering the materials with tarpaulin</td></tr>
</table>

S No	Specific Condition	Compliance Status
		before commencing transportation and using bulkers for transportation of Fly Ash are ensured to prevent fugitive emission.
v.	Total ground water requirement shall not exceed 1990 m^3/day. All the treated waste water treated in a neutralization plant and recycled and reused in the Cement Plant for cooling purpose /or for dust suppression greenbelt development and plant related activities etc. No process waste water shall be discharged outside the factory premises and zero effluent discharge shall be adopted. Domestic effluent treated in Sewage Treatment Plant (STP) shall be used for greenbelt development within the Plant and Colony area.	Total ground water requirement will not exceed 1225.6 m^3/day. The industrial waste water treated in a neutralization plant is being recycled and reused in the Plant for mill spray cooling purpose. Domestic waste water treated in Sewage Treatment Plant (STP) is being used for dust suppression and greenbelt development within the premises. No process waste water is being discharged outside the factory premises as "Zero Liquid effluent Discharge" is being followed.
vi.	Prior permission for the excess water required for the expansion project i.e., 90 KLD shall be obtained from the State Ground Water Board and all the recommendations of the state government water board shall be followed. A copy shall be submitted to the Regional Office of this Ministry at Bangalore within 3 months of the issue of this letter. Rejects from the Reverse Osmosis Plant shall be properly utilized. Waste oils shall be sold to authorized recyclers/re processors only.	The clearance for additional ground water drawl of 90 KLD has been obtained from Chief Engineer, State Ground Water and Surface Water Resources Data Centre, Chennai and the conditions stipulated in the above said clearance are being complied with. The copy of the above mentioned clearance had already been submitted to the MoEF & CC's Regional Office, Bangalore. The Renewal of "No Objection Certificate" has also been obtained for the drawl of ground water from the Chief Engineer, State Groundwater and Surface Water Resources Data Centre, Chennai for a total ground

S No	Specific Condition	Compliance Status
		water drawl of 1225.6 KLD vide letter No.: OT 8 /AG-2/274/ Renewal of NOC/Trichy/2022 dt: 22.04.2022. The rejects from the Reverse Osmosis Plant after treatment is being used for mill spray cooling purpose. Waste oil is sold to authorized recyclers/re-processors only.
vii.	All the Cement dust collected from pollution control devices like ESPs, Bag House, Bag Filters etc. shall be recycled and reused in the process and used for Cement manufacturing. Slag shall be used for manufacture of Portland Slag Cement (PSC). Organic wastes shall be used to vermi composting. Inorganic waste shall be disposed off in environment-friendly manner. Sludge from Sewage Treatment Plant (STP) shall be used as manure for greenbelt development.	Dust collected in all bag filters is being reused in the respective process. The waste materials like Fly Ash and Slag are being used In the Cement manufacturing process to produce Portland Pozzolana Cement (PPC) and Portland Slag Cement (PSC) respectively. Organic wastes are being composted and Inorganic wastes are being disposed off in our kiln environment-friendly manner. STP Sludge is being used as manure for greenbelt Development.
viii.	All the Fly Ash shall be utilized as per fly ash notification 1999 subsequently amended in 2003 .Efforts shall be made to use fly ash maximum in making Portland Pozzolana Cement (PPC). Fly ash shall be stored in silos and other materials in closed sheds.	Fly Ash generated in our Captive Power Plant is fully used for manufacturing Portland Pozzolana Cement (PPC). Efforts are being made to use maximum percentage of Fly Ash in Cement manufacturing conforming to BIS standard specification. The Fly Ash is stored in Silos and other materials like gypsum, coal etc., and are stored in closed sheds.
ix.	An effort shall be made to use of high calorific hazardous waste in the Cement Kiln and necessary provision shall be made accordingly.	Necessary provisions like high efficiency multi-channel burner, feeding system etc., have been installed to facilitate co-processing of hazardous wastes in the Kiln.

S No	Specific Condition	Compliance Status
		Hazardous Waste Authorisation has been obtained from TNPCB [Authorisation No.: 18HFC9598326 and dated : 28/11/2018] for Co-processing & Co-Incineration of hazardous waste. The co-processing of CETP Sludge (Textile) in our Kiln is under progress. Continuing the co-processing of this sludge depends on the quality of Limestone received from our Captive Limestone Mines and the quality of CETP Sludge received from Textile Industry, as variations have been observed in the quality of both.
x.	As proposed greenbelt shall be developed in 29.07 ha (33%) out of total 87.21 ha as per the CPCB guidelines to mitigate the effects of air emissions in consultation with local DFO. As proposed Rs 10 Lakh shall be earmarked towards greenbelt development and maintenance.	**Details of Greenbelt Development** 60281 saplings have been planted so far. **Details of Greenbelt Development** Total Plant & Colony Area : 87.21 ha Proposed Greenbelt Area : 29.07 ha Actual Greenbelt Area : 28.80 ha Balance area to be developed with Greenbelt : 0.27 ha Plan for plantation of saplings : 200 Completion of plantation : June- 2022 Greenbelt development is being carried out progressively.
xi	The project authority shall adhere to the provisions stipulated in the Fly Ash notification of September,1999 and as amended in August 2003 in regard to Fly Ash Utilization.	Fly Ash generated from the Captive Power Plant is being fully used for manufacturing Portland Pozzolana Cement (PPC).
xii.	All recommendations made in the corporate responsibility for environment protection (CREP) for Cement Plant shall be implemented	CREP guidelines pertaining to Cement Sector are being followed.

B. General Conditions

S No	General Condition	Compliance Status
i.	The project authority shall adhere to the stipulations made by Tamilnadu Pollution Control Board (TNPCB) and State Government.	Stipulations of Tamilnadu Pollution Control Board / State Government are being complied with.
ii.	No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.	No further expansion or modernization of the plant will be carried out without prior approval of the MoEF & CC, New Delhi & TNPCB.
iii.	The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the T.N. Pollution Control Board. At no time, the particulate emissions from the Cement Plant shall exceed TNPCB limit. Interlocking facility shall be provided in the pollution control equipment so that in the event of the pollution control equipment not working, the respective unit(s) is shut down automatically.	The air pollution control devices like ESP, Bag House/ Water Sprinkling and Low NOx Burner etc., are in place to control the gaseous and particulate matter emissions within norms. The air pollution control devices are maintained in good working condition so that emissions are controlled effectively, efficiently and continuously. The emissions from the Cement Plant are within prescribed limit. Interlocking facility has been provided in the pollution control equipment so that in the event of the pollution control equipment not working, the respective production unit gets shut down automatically.
iv.	One ambient air quality monitoring station shall be installed in downwind direction. Ambient Air Quality including Ambient Noise Levels shall not exceed the standards stipulated under EPA or by the State authorities. Monitoring of Ambient Air Quality and Stack Emissions shall be carried out regularly in consultation with TNPCB and report submitted to the TNPCB	2 nos. of Continuous Air Quality Monitoring Stations Installed and connected to TNPCB – Care Air Centre. Ambient Air Quality and Ambient Noise Levels are within the standards stipulated under EPA and the State authorities. Monitoring of Ambient Air Quality and Stack Emissions are being carried out regularly and the monitored data is being submitted to the TNPCB monthly and to the MoEF &

S No	General Condition	Compliance Status
	quarterly and to the Ministry's Regional Office at Bangalore half-yearly.	CC's Regional Office at Chennai half-yearly.
v.	The company must harvest the rainwater from the rooftops and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	The rainwater from the rooftops and run off are directed through storm water drains to rain harvesting pond to recharge the ground water and ensure availability of water for the various activities of the Plant to conserve fresh water.
vi.	The company shall undertake eco-development measures including community welfare measures in the project area.	The eco-development activities like rain water harvesting, planting of saplings have been carried out. The various community welfare measures which include Health, Education and Infrastructure initiatives are being carried out.
vii.	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 shall conform to the Standards prescribed under environmental (Protection)Act,1986 rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time)	For all sources of noise generation, the required control measures viz., acoustic hoods, silencers, enclosures have been provided. The Equipment and Machinery are being maintained well. Ambient Noise Level is being monitored by a recognized laboratory at 8 locations. These Ambient Noise Levels conform to the standards prescribed 75 dBA (day time) and 70 dBA (night time).
viii.	Proper housekeeping and adequate occupational health programmes shall be taken up.	Regular housekeeping is being carried out in the entire plant area and occupational health programme like pre-employment and periodical health check up for the employees, health awareness programme, ensuring use of personal protective equipment by the employees, maintaining clean and safe work environment etc., are being carried out for employees.

S No	General Condition	Compliance Status
ix.	A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.	A separate environmental management cell to carry out various activities related to Environment has been set up under the control of Senior Executive, who reports to the Unit Head. The regular environmental monitoring is being carried by External Agency having MOEFCC Approval & NABL Accreditations.
x.	As proposed, Rs. 2.00 Crores and 0.50 Crores shall be earmarked towards capital cost and recurring cost/annum for environmental pollution control measures and judiciously used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. The funds so provided shall not be diverted for any other purpose.	Fund allocated for capital cost and recurring cost of environmental pollution control measures has been used to implement the conditions stipulated by the Ministry of Environment, Forest & Climate Change as well as the State Government only and has not been diverted for any other purpose.
xi.	The regional office of this ministry at Bangalore/CPCB/TNPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Six monthly EC compliance report and the monitored data are being submitted to Regional Office of MoEF & CC at Chennai, CPCB & TNPCB regularly.
xii.	The 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.	As the internally accrued fund has been invested for the proposed expansion, this condition is not applicable. The date of commencement (10.12.2009) of land development work for Captive Power Plant communicated to MoEF, Regional Office of MoEF, Bangalore on 15.12.2009.
xiii.	The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the	Advertisements in two local newspapers Indian Express (in English) & Dinamani (in Tamil) published on 22.07.2009 informing the public that the project has been accorded

S No	General Condition	Compliance Status
	clearance letter are available with the T.N. Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This should 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 shall be forwarded to the Regional office at Bangalore.	environmental clearance by the Ministry and copies of the clearance letter are available with the TNPCB and may also be seen at website of Ministry of Environment & Forests at http:envfor.nic.in.The copies of the same have also been submitted on 24.07.2009 to MoEF Regional Office at Bangalore.
xiv.	A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad /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.	Environmental Clearance copy sent to Keelapaluvur Panchayat, Keelapaluvur village Ariyalur Talk & District on 27.07.2009. Also, a copy of EC granted has also been uploaded in our website.
xv.	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 MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO_2, NOx (ambient levels as well as stack	The status of compliance of the stipulated environment clearance conditions, including results of monitored data are being uploaded in our website. The six monthly compliance report and the monitored data are being submitted to the Regional Office of MoEFCC at Chennai, Zonal Office of CPCB, Bengaluru & TNPCB. The pollutant levels (ambient air as well as

S No	General Condition	Compliance Status
	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.	stack emissions) are being monitored and displayed at main gate of the company in the public domain.
xvi.	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 respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry at Bangalore / CPCB / TNPCB shall monitor the stipulated conditions.	The six monthly EC compliance report and the monitored data are being submitted regularly to the Regional Office of MoEF & CC, Chennai and the copies of the same have been sent by email to the Regional Office of MoEF&CC, Chennai, the Zonal Office of CPCB, Bengaluru and TNPCB
xvii.	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 Offices of the MoEF by e-mail.	Environment statement for the year 2020-2021 in Form V submitted on 23.09.2021 to TNPCB and the Regional Office of the MoEF & CC, Chennai and also uploaded in the company's website along with the status of compliance of EC conditions .The soft copy has also been sent to the Regional Office of the MoEF & CC, Chennai by email.

Other Conditions

S No	Other Condition	Compliance Status
8.0	The ministry or any other competent authority may stipulate any further condition(s) on receiving reports from the project authorities. The above	Guidelines noted. If additional conditions are stipulated, the same will also be implemented.

S No	Other Condition	Compliance Status
	conditions shall be monitored by the Regional Office of this Ministry located at Bangalore.	
9.0	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions, is not satisfactory.	Guidelines noted.
10.0	Any other conditions or alteration in the above said conditions shall have to be implemented by the project authorities in a time bound manner.	Guidelines noted. If additional conditions or alterations in the above said conditions are stipulated, the same will be implemented.
11.0	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, and the Public Liability Insurance Act, 1991 along with their amendments and rules.	Guidelines noted.

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Annexure 2

Chettinad Cement Corporation Private Limited (Ariyalur Works)												
Kilapaluvur Village , Ariyalur District, Tamilnadu												
Ambiant Air Quality Monitoring- Consolidated Report (Oct-2021 - Mar-2022)												
S.No	Location	PM_{10} (µg/m³)			$PM_{2.5}$ (µg/m³)			SO_2 (µg/m³)			NOx (µg/m³)		
		Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
1	Near Auto Garage	48.6	44.8	46.4	16.8	14.9	16.0	17.7	7.7	11.4	21.0	11.2	16.8
2	Near Main Gate SO Building	54.2	44.8	50.4	20.6	14.4	17.6	12.4	7.7	10.0	28.6	11.0	16.1
3	Near Coal Yard Area	54.2	44.1	47.6	19.0	14.9	16.8	19.4	7.4	12.5	24.4	10.7	19.6
4	Near Packing House	53.8	47.9	51.3	24.0	19.4	21.2	15.6	6.9	11.2	26.7	11.4	18.1
5	Keelapalur Village South	53.7	48.5	51.2	23.9	17.3	20.5	18.2	7.1	11.8	26.7	11.4	18.1
6	Maravanur Village West	59.4	48.0	53.6	24.0	15.6	19.5	14.8	8.8	11.8	22.9	9.8	17.9
7	Keelapalur Village East	54.2	46.2	49.4	23.3	15.6	19.1	14.0	7.8	11.3	25.6	10.0	18.8
8	Thideerkuppam Village North	55.6	45.8	51.3	26.2	15.9	22.5	11.1	7.4	9.2	23.5	10.4	17.5
Norm		100 µg/m³			60 µg/m³			80 µg/m³			80 µg/m³		

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Annexure 3

Chettinad Cement Corporation Private Limited (Ariyalur Works)								
Kilapaluvur Village , Ariyalur District, Tamilnadu								
Noise Level Monitoring- Consolidated Report (Oct-2021 - Mar 2022)								
S.No	Location	UoM	Day			Night		
			L_{min}	L_{eq}	L_{max}	L_{min}	L_{eq}	L_{max}
Within the Premises								
1	CPP Boundry	dB(A)	63.80	65.37	67.80	60.70	62.57	64.50
2	Packing Plant Area	dB(A)	62.90	64.25	65.20	59.80	61.53	63.20
3	Coal Storage Shed	dB(A)	68.90	70.22	71.50	60.70	63.48	65.80
4	Limestone Circular Pile	dB(A)	65.40	67.00	68.70	57.60	59.73	61.80
Limit (L_{eq})		dB(A)	75			70		
Outside the Premises								
S.No	Location	UoM	Day			Night		
			L_{min}	L_{max}	L_{eq}	L_{min}	L_{max}	L_{eq}
1	Keelapalur Village - South	dB(A)	42.0	45.7	44.2	34.1	38.2	36.6
2	Maravanur Village - West	dB(A)	41.3	44.2	43.1	34.2	37.2	36.6
3	Keelapalur Village - East	dB(A)	41.2	44.4	42.5	34.0	38.0	36.6
4	Thideerkuppam Village - North	dB(A)	42.3	46.8	44.2	33.0	37.6	35.8
Limit (L_{eq})		dB(A)	55			45		

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Chettinad Cement Corporation Private Limited (Ariyalur Works)								
Kilapaluvur Village, Ariyalur District,Tamilnadu								
Ground Water Quality Monitoring Report (Oct-2021 - Mar 2022)								
S. No	Parameter	UoM	GW1	GW2	GW3	GW4	GW5	Limit
			Dec-21	Dec-21	Dec-21	Dec-21	Dec-21	
1	Colour	Hazen	5	5	5	5	5	
2	Odour		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	
3	pH	-	6.78	7.18	6.96	6.98	7.26	5.5 - 9.0
4	Total Dissolved Solids	mg/l	480	980	900	1240	760	2100
5	Turbidity	NTU	0.1	0.2	0.1	0.1	0.1	-
6	Chloride as Cl	mg/l	78	368	362	342	97	1000
7	Fluride as F	mg/l	0.16	0.14	0.12	0.16	0.15	2
8	Free Residual Chlorine	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
9	Iron as Fe	mg/l	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	
10	Sulphate as SO4	mg/l	50	65	60	55	40	1000
11	Total Alkalinity as CaCO3	mg/l	68	338	299	299	73	
12	Total Hardness as CaCO3	mg/l	84	273	263	358	447	
13	Cyanide as CN	mg/l	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	0.2
14	Phenolphthalein Alkalinity as CaCO3	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
15	Appearance		Clear	Clear	Clear	Clear	Clear	
16	Conductivity @ 25 Deg C	ms/cm	763	1375	1318	1761	1130	
17	Sodium as Na	mg/l	98	128	110	158	48	-
18	Total Suspended Solids @ 105 deg C	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	100
19	Free Ammonia as NH3	mg/l	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	
20	Calcium Hardness as CaCO3	mg/l	273	147	137	221	237	
21	Magnesium Hardness as CaCO3	mg/l	147	126	126	137	210	
22	Nitrogen [NO2+NO3]	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
23	Phenols	mg/l	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	1
24	Silia as SiO2	mg/l	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	
25	Anionic Detergents as MBAS	mg/l	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	
26	Copper as Cu	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	
27	Total Chromium as Cr	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	2
28	Boron as B	mg/l	0.147	0.079	0.099	0.064	0.025	2
29	Mangnese as Mn	mg/l	BLQ[LOQ:0.002]	0.008	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.1
30	Lead as Pb	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.1
31	Mercury as Hg	mg/l	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	0.01
32	Total Arsenic as As	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.2
33	Selenium as Se	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.05
34	Cadmium as Cd	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	2
GW 1 : Varanavasi Village			GW 4 : Plant Westside					
GW 2 : Samathuvapuram Village			GW 5 : Plant Northside					
GW 3 : East Main Gate								
BDL : Below Detectable Level			BLQ : Below Limit of Quantification					

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Chettinad Cement Corporation Private Limited (Ariyalur Works)								
Kilapaluvur Village, Ariyalur District,Tamilnadu								
Ground Water Quality Monitoring Report (Oct-2021 - Mar 2022)								
S. No	Parameter	UoM	GW1	GW2	GW3	GW4	GW5	Limit
			Mar-22	Mar-22	Mar-22	Mar-22	Mar-22	
1	Colour	Hazen	1	1	1	1	1	
2	Odour		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	
3	pH	-	6.97	7.84	7.51	7.07	7.34	5.5 - 9.0
4	Total Dissolved Solids	mg/l	555	465	675	555	465	2100
5	Turbidity	NTU	0.28	0.23	0.24	0.22	0.23	-
6	Chloride as Cl	mg/l	100	95	150	120	100	1000
7	Fluride as F	mg/l	BDL[DL:0.1]	BDL[DL:0.1]	BDL[DL:0.1]	BDL[DL:0.1]	BDL[DL:0.1]	2
8	Free Residual Chlorine	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
9	Iron as Fe	mg/l	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	BDL[DL:0.05]	
10	Sulphate as SO_4	mg/l	41	60	83	66	72.3	1000
11	Total Alkalinity as $CaCO_3$	mg/l	294	249	316	441	271	
12	Total Hardness as $CaCO_3$	mg/l	384	232	404	444	253	
13	Cyanide as CN	mg/l	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	0.2
14	Phenolphthalein Alkalinity as $CaCO_3$	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
15	Appearance		Clear	Clear	Clear	Clear	Clear	
16	Conductivity @ 25 Deg C	ms/cm	1008	765	1228	1683	830	
17	Sodium as Na	mg/l	30	28.6	45	28	30	-
18	Total Suspended Solids @ 105 deg C	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	100
19	Free Ammonia as NH_3	mg/l	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	
20	Calcium Hardness as $CaCO_3$	mg/l	293	141	303	384	162	
21	Magnesium Hardness as $CaCO_3$	mg/l	90	91	101	61	91	
22	Nitrogen [NO_2+NO_3]	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	
23	Phenols	mg/l	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	BDL[DL:0.001]	1
24	Silia as SiO_2	mg/l	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	BDL[DL:0.01]	
25	Anionic Detergents as MBAS	mg/l	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	BDL[DL:0.5]	
26	Copper as Cu	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	
27	Total Chromium as Cr	mg/l	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	BDL[DL:1.0]	2
28	Boron as B	mg/l	0.049	0.041	0.089	0.081	0.018	2
29	Mangnese as Mn	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.1
30	Lead as Pb	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.1
31	Mercury as Hg	mg/l	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	BLQ[LOQ:0.005]	0.01
32	Total Arsenic as As	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.2
33	Selenium as Se	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	0.05
34	Cadmium as Cd	mg/l	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	BLQ[LOQ:0.002]	2
GW 1 : Varanavasi Village			GW 4 : Plant Westside					
GW 2 : Samathuvapuram Village			GW 5 : Plant Northside					
GW 3 : East Main Gate								
BDL : Below Detectable Level			BLQ : Below Limit of Quantification					

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Annexure 5

Chettinad Cement Corporation Private Limited (Ariyalur Works)							
Kilapaluvur Village , Ariyalur District, Tamilnadu							
Stack Emission Monotoring- Consolidated Report (Oct-2021 - Mar-2022)							
S.No	Stack Connected to	Parameter	UoM	Norm	Max	Min	Avg
1	Line-1 RABH Kiln Stack	Particulate Matter	mg/Nm^3	30	26.7	16.4	20.9
2	Line – 1 Cooler ESP				23.0	15.2	18.9
3	Line-1 Coal Mill				27.0	16.3	20.7
4	Line - 1 Cement Mill				26.5	18.7	21.8
5	CPP 1 &2 Common Stack			50	42.6	19.3	26.7
6	CPP 3 Stack				24.2	13.0	19.3

S.No	Stack Connected to	Parameter	UoM	Norm	Max	Min	Avg
1	Line-1 RABH Kiln Stack	SO_2	mg/Nm^3	100	5.2	1.0	1.8
2	CPP 1 &2 Common Stack			600	470.0	250.0	362.6
3	CPP 3 Stack				454.7	267.0	355.9

S.No	Stack Connected to	Parameter	UoM	Norm	Max	Min	Avg
1	Line-1 RABH Kiln Stack	NOx	mg/Nm^3	800	575.0	253.0	387.4
2	CPP 1 &2 Common Stack			450	308.0	189.0	243.4
3	CPP 3 Stack				290.0	71.0	170.8

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Annexure 6

Chettinad Cement Corporation Private Limited (Ariyalur Works)							
Kilapaluvur Village , Ariyalur District, Tamilnadu							
Fugitive Emission Monotoring- Consolidated Report (Oct-2021 - Mar-2022)							
S.No	Location	Parameter	UoM	Norms	Max	Min	Avg
1	Lime Stone Stacker Area	PM	$\mu g/m^3$	2000	400	208	304
2	ESP Cooler Area				416	320	368
3	Coal Unloading Area				415	312	363.5
4	Packing Area				291	255	273

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)

Annexure 7

Chettinad Cement Corporation Private Limited (Ariyalur Works)

Kilapaluvur Village , Ariyalur District , Tamilnadu

Treated Industrial & Sewage Effluent Quality Monitoring - Consolidated Report (Oct-2021 - Mar-2022)

A. Treated Industrial Effluent (Captive Power Plant)

S No	Paramenter	UoM	Norm	Max	Min	Avg
1	PH	-	5.5 to 9.0	8.40	7.5	7.9
2	Suspended Solids	mg/litre	100	12.0	9.6	11.1
3	Total Dissolved Solids	mg/litre	2100	2081	1111	1441
4	Chlorides	mg/litre	1000	420	387	406
5	Sulphates	mg/litre	1000	332	292	315
6	BOD	mg/litre	30	13.0	6.6	10.4
7	COD	mg/litre	250	53.0	43.0	49.0

B. Treated Sewage Effluent - Factory

S No	Paramenter	UoM	Norm	Max	Min	Avg
1	PH	-	5.5 to 9.0	8.4	7.4	7.7
2	Total Suspended Solids	mg/litre	30	20.0	14.0	16.7
3	BOD	mg/litre	20	18.4	9.0	13.5
4	COD	mg/litre	250	72.0	51.0	61.8

C. Treated Sewage Effluent - Colony

S No	Paramenter	UoM	Norm	Max	Min	Avg
1	PH	-	5.5 to 9.0	7.8	7.0	7.6
2	Total Suspended Solids	mg/litre	30	16.0	7.6	10.9
3	BOD	mg/litre	20	14.0	3.0	9.5
4	COD	mg/litre	250	89.0	38.0	57.2

for Chettinad Cement Corporation Private Limited

A. Amalraj
Joint President (Works)