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THE RAMCO CEMENTS LIMITED

(Formerly known as Madras Cements Ltd.)

RCL/MoEF&CC/12/2018-19

21st May 2018

The Addl. Principal Chief Conservator of Forests,
Ministry of Environment and Forests,
Regional Office (Southern Zone),
No. 34, Cathedral Garden Road,
Nungambakkam, CHENNAI – 600 034.

Respected Sir,

Sub: Submission of half yearly Compliance Report for Environmental Clearances for the period – October 2017 to March 2018 - Reg.
Ref: 1. EC for Cement Plant - 2.50 million TPA Clinker & 2.60 million TPA Cement Capacity vide Lr. No. J-11011/403/2006-IA-II (I) dated 07.02.2007.
2. EC for Cement Plant - 2.80 million TPA Clinker & 3.65 million TPA Cement Capacity vide Lr. No. J-11011/403/2006-IA II (I) dated 09.06.2009.
3. EC for Cement Plant – 3.185 million TPA Clinker & 3.65 million TPA Cement Capacity vide Lr. No. J-11011/403/2006-IA-II (I) dated 29.09.2016.

We herewith submit the half yearly Compliance Reports for the above cited Environmental Clearance letters issued for our Cement Plant & Thermal Power Plant for the period October 2017 to March 2018 along with relevant enclosures.

This is to submit that the undersigned is the person in-charge of environmental division.

This is for your kind information and perusal please.

Thanking you,

Yours faithfully,
for The Ramco Cements Limited,

T. Sridhar Reddy
Asst. Vice President (Works)
Phone No. 08654 – 224400,
Fax No. 08654 – 222532,
e-mail: mccljpm@ramcocements.co.in.

Encl: As above.

**THE RAMCO CEMENTS LIMITED, KSR NAGAR
COMPLIANCE REPORT - ENVIRONMENTAL CLEARANCE
CEMENT PLANT – 2.5 MILLION TPA CLINKER, 2.6 MILLION TPA CEMENT &
THERMAL POWER PLANT – 36 MW**

EC Lr. No. : J-11011/403/2006-IA-II (I) dated 7th February, 2007
Period : October 2017 to March 2018

A. Specific Conditions:

- i. *The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the A.P. Pollution Control Board. At no time, the particulate emissions from the cement plant shall exceed 50 mg/Nm³. The emissions from CPP shall be less than 100 mg/Nm³.*

Continuous on-line monitors for particulate emissions shall be carried out as per the recommendations of the CREP guidelines and on-line data shall be submitted to the APPCB and CPCB regularly. 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 shutdown automatically.

Complied.

- Efforts are being made to control particulate matter emissions from stacks within the prescribed limit.
- All the pollution control equipment for cement plant Line – I and Line – II are designed for emission level of 30 mg/Nm³.
- All the pollution control equipments for CPP are designed for emission level of 50 mg/Nm³.
- 10 Nos. of online monitors are installed to measure particulate emissions for stacks and linked up with APPCB and CPCB websites.
- In the event of pollution control equipment not working, the respective unit(s) gets stopped automatically in phased manner with associated interlocks.

- ii. *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 APPCB and report submitted to the APPCB quarterly and to the Ministry's Regional Office at Bangalore half-yearly. One ambient air quality monitoring station shall be installed in downwind direction.*

Complied.

- Compiled data of ambient air quality monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure - I.
- These stations are selected covering all directions of cement plant.
- Compiled data of stack emission monitoring levels carried by MoEF&CC approved external laboratory for the same period is enclosed as Annexure - II.
- Reports of ambient air quality and stack emissions monitoring submitted to the APPCB, regularly.

- Online data on ambient air quality and stack monitoring is linked up with APPCB & CPCB websites.

iii. *The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points, raw mill handling (unloading, conveying, transporting, stacking), vehicular movement, bagging and packing areas etc. Bag filters will be provided in the kiln / raw mill and coal mill and ESP to AFBC boilers and coolers to control air emissions less than 50 mg/Nm³. The dust collected from the pollution control equipments shall be recycled back into the process. Storage of raw material shall be in closed roof sheds. Water spray system shall be provided all around the coal stockpiles and dust suppression system around the coal conveyor system.*

Complied. 88 Nos. of Air Pollution Control Equipments (APCEs) in cement plant and 9 Nos. of APCEs are in operation in TPP (Annexure – III).

- ESPs are in operation with respect to Cooler – I & II and TPP – I & II AFBC boilers, where as Bag House is connected to Kiln – I & RABH is connected to Kiln – II.
- Single phase transformers are replaced with three phase transformers in Cooler – II ESP.
- With modernization activity in the year 2016-17, the outlet concentration of dust from all pollution control equipment attached to Cement Plant is designed for 30 mg/Nm³.
- The dust collected from all APCEs is being totally recycled to the respective process / storage facility.
- All material transfer points are connected with air pollution control equipments.
- All the packing machines are fitted with bag filters.
- All conveyers are covered with GI sheets.
- Received raw materials are being stored in closed systems.
- Closed sheds are provided for additive stacker & reclaimer, coal stacker & reclaimer and for gypsum storage.
- Fly ash and clinker being stored in silos and fly ash is unloaded / conveyed through pneumatic system. The entire fly ash generated from TPP is used in cement plant.
- Water spray system arranged around the coal stacker & reclaimer.
- Agglomerative Dust Suppression system (water fogging) is installed at raw material hopper area, coal handling area and additive handling area.
- Water fogging system is also installed at limestone crusher hopper.

iv. *Asphalting / concreting of roads and water spray all around the coal stockpiles shall be carried out to control fugitive emissions.*

Complied. All major roads of the plant (including coal stacker / reclaimer road) are paved with concrete. Water is being sprayed around the coal stockpile.

v. *Total water requirement from the ground water source shall not exceed 5,519.60 m³/d and prior permission for the drawl of ground water from the SGWB / CGWA shall be obtained. No process wastewater shall be discharged due to its use either in the process or evaporation. All the treated wastewater shall be recycled and reused for ash conditioning, dust suppression, greenbelt development and other plant related activities etc. No*

effluent shall be discharged outside the factory premises and 'zero' discharge shall be adopted. Domestic effluent shall be used after treatment in Sewage Treatment Plant (STP) for greenbelt development within the plant and colony area.

Complied.

- Permission obtained from GWD vide Lr. No. 11/Hg/MC/2006 dated 29.03.2007 (enclosed as Annexure - IV).
- Cement manufacturing will not generate process effluents.
- TPP effluent is being treated in effluent treatment plant.
- Sewage treatment plant is in operation to treat domestic sewage from colony and plant. Auto garage wash water is being treated at Oil & Grease Trap.
- Compiled data of STP, TPP ETP and Oil & Grease outlet samples analysis carried out by MoEF&CC approved agency for the period October 2017 to March 2018 is enclosed as Annexure – V, VI & VII respectively.
- These treated effluents are used for greenbelt, water sprinkling & partially for process activities and being maintaining 'zero effluent discharge'.
- The excess treated waste water, if any, is being passed to pond in our own lands to uplift the water table in the nearby area.

vi. The company must harvest the rainwater from the roof tops and storm water drains to recharge the ground water. The company must also collect rain water in the mined out pits of captive lime stone mine and use the same water for the various activities of the project to conserve fresh water.

Being complied.

- 48 Nos. of rain water harvesting structures are made to recharge the ground water in the colony by March 2018. 4 Nos. of rain water harvesting structure are made to recharge the ground water in the plant by March 2018 (Annexure – VIII).
- Water collected in mine pits is being used for cement plant, for thermal power plant, mines & for domestic uses.
- Treated waste water from STP, ETP and Oil & Grease Trap is used for greenbelt, water sprinkling and partially for process activities, to conserve fresh water.

vii. As proposed in EIA / EMP, greenbelt shall be developed in 172.7 ha (60%) out of total 248 ha. land in consultation with the local DFO as per the CPCB guidelines.

Greenbelt is developed in an area of 130.24 ha by March 2018. This condition is modified in the latest Environmental Clearance issued for Cement Plant expansion project [No. J-11011/403/2006-IA-II (I) dated 29th September, 2016], as point No. vi of specific conditions:

- A greenbelt of 130.24 ha (52.5 % of 248.08 ha) as on 30.11.2014 has been developed, which should be maintained as it is.

Emphasis is being made to maintain 130.24 ha greenbelt area in and around plant premises and for planting dust capturing plants in consultation with local DFO to mitigate the effects of air emissions.

viii. *All the cement dust collected from pollution control devices shall be recycled and reutilized in the process. The entire ash generated from the power plant will be pneumatically conveyed to the cement plant and used for manufacturing of PPC. Hazardous waste viz. spent oil from gear boxes and automatic batteries etc. shall be properly stored in a designated area and sold to authorized recyclers / reprocessors.*

Complied.

- Dust collected from pollution control equipment is being recycled in the respective process, totally.
- The entire fly ash generated from TPP is used in the manufacturing of cement.
- Disposing waste lead acid batteries to APPCB authorized agent.
- Waste oil along with fresh fuel is being used for kiln firing while light up & for reclaimers lubrication and / or sold to APPCB authorized agents.
- Waste lead acid batteries are being stored in closed shed and waste oil is stored in a tank of capacity 3.5 kL, till their disposal.

ix. *The company shall undertake eco-development measures including community welfare measures in the project area.*

Being complied.

- Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility.
- CSR activities for the nearby villages are being carried out as per the need basis of the local people, subjected to the budget availability.
- Details of CSR expenditure for the financial year 2017-18 are enclosed as Annexure – IX.

x. *Present requirement of limestone shall be sourced from the Ravirala Forest Mine only for which environmental clearance has been accorded by the Ministry on 16th October, 2002. The limestone required in future shall be sourced from the captive limestone mine for which prior environmental clearance has been accorded by the Ministry.*

Noted. Presently, limestone requirement is being sourced from Captive mines, for which Environmental Clearances are obtained.

- Jayanthipuram Limestone Mine (North Band)
- Jayanthipuram Limestone Mine (South Band)
- Ravirala Limestone Mine
- Ramco Budawada Limestone Mine

xi. *All the recommendations of the CREP guidelines shall be strictly followed.*

Being implemented. CREP guidelines are being followed. As part of this, modernization project is done by replacing / modifying the pollution control equipment of cement plant with designed emission rate of 30 mg/Nm³, after

obtaining valid EC, CFE & CFO. The compliance report for CREP guidelines for cement plant is enclosed as Annexure - X.

B. General Conditions:

i. The project authority must adhere to the stipulations made by AP State Pollution Control Board (APPCB) and State Government.

Being complied as per the CFO Order No. APPCB/HO/UH-IV/CFO:VJA/Auto Renewal-9/2016 dated 08.12.2016, which is valid up to 31st January 2022.

ii. No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.

Noted. Ministry accorded EC for modernization and up-gradation project to produce 2.80 million TPA clinker & 3.65 million TPA cement vide Lr. No. J-11011/403/2006-IA II (I) dated 09th June 2009, for which CFO is granted / renewed by APPCB.

Ministry also accorded EC for expansion project to increase clinker production from 2.80 million TPA to 3.185 million TPA & to install 6 MW Turbo Generator vide Lr. No. J-11011/403/2006-IA-II (I) dated 29th September, 2016. CFO order is granted by APPCB for this project.

iii. At least four ambient air quality monitoring stations shall be established in the downward direction as well as where maximum ground level concentration of SPM, SO₂ and NO_x are anticipated in consultation with the APPCB. Data on ambient air quality and stack emissions shall be regularly submitted to this Ministry including its Regional Office at Bangalore and APPCB once in six months.

Complied.

- 3 Nos. of ambient air quality monitoring stations are established near to plant boundary and 9 Nos. of ambient air quality monitoring stations are established in nearby villages.
- Compiled data of ambient air quality monitoring (spread all around the cement plant) carried out by MoEF&CC approved agency on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – I.
- Compiled data of stack emission monitoring levels carried by MoEF&CC approved external laboratory for the same period is enclosed as Annexure - II.
- Monthly stack & ambient air quality monitoring data are being submitted to APPCB on regular basis.
- Half-yearly compliance reports are being submitted to APPCB and Regional Office of Ministry located at Chennai on regular basis.

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 from time to time. The treated wastewater shall be utilized for plantation purpose.

Complied.

- Cement manufacturing does not generate process effluents.

- Compiled data of STP, TPP ETP and auto garage oil & grease trap outlet sample analysis carried out by MoEF&CC approved agency on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – V, VI & VII respectively.
 - The treated wastewater is being used for greenbelt, water sprinkling and partially for process activities.
 - The excess treated waste water, if any, is being passed to pond in our company's own lands to uplift the water table nearby area.
- 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 shall conform to the standards prescribed under Environmental (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).*

Being complied. Efforts are made to achieve noise levels within norms.

- vi. *Proper housekeeping and adequate occupational health programmes must be taken up. Occupational Health Surveillance programme shall be done on a regular basis and records maintained. The programme must include lung function and sputum analysis tests once in six months.*

Being complied.

- Proper housekeeping is maintained in the plant premises.
 - 3 Nos. of Mobile Road Sweepers & 1 No. of Industrial Vacuum Cleaner are being used for better housekeeping.
 - Occupational health surveillance programme is being carried for the employees. Occupational Health Centre (with qualified Occupational Health Specialist) is established with the following facilities:
 - X-ray
 - ECG
 - Spirometry (lung function test)
 - Audiometry
 - Semi-auto analyser to carryout bio-chemical tests
 - Clinical lab for micro-biological tests (including sputum test)
 - Checking colour blindness
 - Dental chair
 - Ambulance
- vii. *The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EIA / EMP.*

Complied.

- Air pollution control equipments are established as EIA / EMP report and are being maintained properly.
- Sewage treatment plant, effluent treatment plant to treat thermal power plant effluents and oil & grease trap to treat auto garage effluent are established and are being operated as proposed in EIA / EMP.

- The treated effluents & sewage is used for greenbelt development, water sprinkling activities and partially for process activities.
- Socio-economic measures are being carried out as per EIA / EMP reports, for upliftment of nearby areas.

viii. A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of Senior Executive.

Complied. Separate environmental management cell is carrying out monitoring functions. The organization chart of environmental cell is enclosed as Annexure - XI.

ix. As mentioned in the EIA / EMP, Rs. 16.35 Crores and Rs. 10.00 Crores kept towards the total cost and recurring cost / annum for implementing environmental pollution control measures shall be judiciously used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.

Being complied. Earmarked funds so provided are not being diverted for any other purposes.

- Rs. 1635 lakh spent towards total cost of various pollution control equipment for cement plant Line – II & thermal power plant Line – II at the time of installation of plant.
- Rs. 4.31 crore spent on new air pollution control equipment in the financial year 2016-17 as part of the Line – I expansion project.
- Whereas, Rs. 91.33 lakh spent on capital proposals in the financial year 2017-18.
- Rs. 12.35 crore spent as recurring cost in the financial year 2017-18, for various environmental protection measures associated with plant.
- Greenbelt expenditure in the financial year 2017-18 is Rs. 116.86 lakh with respect to plant, colony, mining lease areas and nearby areas.
- The expenditure details for various environmental protection measures are enclosed as Annexure - XII. Total expenditure in the financial year 2017-18 towards environmental protection account is around Rs. 16.30 crore.

x. The Regional Office of this Ministry at Bangalore / Central Pollution Control Board / AP Pollution Control Board shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation should be submitted to them regularly.

This is being submitted as part of six month compliance report with required statistical interpretations of monitored data.

xi. The Project Authorities should 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.

Informed.

- xii. *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 AP Pollution Control Board / Committee and may also be seen at Website of the Ministry of Environment and Forests 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.*

Complied. Advertised in "Eenadu" Telugu daily and "The Hindu" English daily on 14-02-2007. Copy of the same is forwarded to MOEF, RO, Bangalore vide Lr. No. LAB/PCB/10836/2007 dated 20-02-2007.

**THE RAMCO CEMENTS LIMITED, KSR NAGAR
COMPLIANCE REPORT – ENVIRONMENTAL CLEARANCE -
CEMENT PLANT – 2.80 MILLION TPA CLINKER, 3.65 MILLION TPA CEMENT &
THERMAL POWER PLANT – 36 MW**

EC Lr. No. : J-11011/403/2006-IA II (I) dated 09th June 2009
Period : October 2017 to March 2018

A. Specific Conditions:

- i. *Continuous stack monitoring facilities to monitor gaseous emissions from all the stacks shall be provided. After expansion, limit of SPM shall be controlled within 50 mg/Nm³ by installing adequate air pollution control system viz. Electrostatic precipitators, bag house, bag filters etc. Data on ambient air, fugitive and stack emissions shall be submitted to the Ministry's Regional Office at Bangalore, AP Pollution Control Board (APPCB) and CPCB regularly.*

Complied.

- 10 Nos. of on-line stack monitors are installed to monitor particulate emissions.
 - Modifications / replacements in the pollution control equipment are made with the designed emission level of 30 mg/Nm³ from all the stacks of cement plant.
 - Cooler – I ESP will be replaced with higher capacity. Single phase transformers are replaced with three phase transformers in Cooler – II ESP.
 - Data on ambient air and stack emissions is being regularly submitted to APPCB on monthly basis & half-yearly basis.
 - Compiled data of ambient air and stack monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – I & II respectively.
 - Online data on ambient air quality and stack monitoring is linked up with APPCB & CPCB websites.
- ii. *Possibilities shall be explored for the proper and full utilization of gases generated from the kiln in waste heat recovery boiler (WHRB) and a feasibility report shall be prepared and submitted to the Ministry and its Regional Office at Bangalore within 3 months from the date of issue of the letter.*

Explored and will be implemented. The available hot gases are utilized for drying of raw materials in Vertical Roller Mills. Gas temperature after the mills is about 90°C and as such waste heat recovery system is not viable. Nevertheless obtained Techno - Commercial quotes from M/s Thermax Ltd (Power Division) and it is cost prohibitive. Submitted letter to MoEF&CC regarding the same vide Lr. No. MCL/MoEF/5442/2010 dated 19th July 2010.

- iii. *As proposed, Electrostatic precipitators (ESPs) to clinker, bag house to kiln / raw mill, coal mill and pulse jet bag filters to cement mill and slag mill shall be provided to control gaseous emissions within 50 mg/Nm³. Bag filters shall also be provided at transfer points. Water sprinklers shall be provided to control dust emissions in cement plant and mine area.*

Complied. Modifications / replacements in the pollution control equipment are made with the designed emission level of 30 mg/Nm³ from all the stacks of cement plant.

- Kiln – I ESP, Coal Mill – I ESP and Cement Mill ESP are replaced with Bag Houses.
 - Slag Mill bag house upgraded.
 - Cooler – I ESP will be replaced with higher capacity. Single phase transformers are replaced with three phase transformers in Cooler – II ESP.
 - High efficiency bag filters are provided for LS crusher and additive crusher.
 - All material transfer points are connected with bag filters.
 - Agglomerative Dust Suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
 - Water fogging system is installed at limestone crusher hopper.
 - Total 88 Nos. of Air Pollution Control Equipments (APCEs) in cement plant & 9 Nos. of APCEs in TPP are in operation (Annexure – III).
 - Permanent water sprinkling system installed at mines haul road.
 - In addition to this, water sprinkling is being done with truck mounted sprinklers on roads of cement plant and mines internal haul roads.
- iv. *Ambient air monitoring shall be carried out in and around the project site and efforts shall be made to control and minimize the particulate matters to bare minimum. One ambient air quality monitoring station shall be installed in downwind direction. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard.*

Being complied.

- 3 Nos. of ambient air quality monitoring stations are established near to plant boundary and 9 Nos. of ambient air quality monitoring stations are established in nearby villages.
 - Ambient air monitoring is being carried out by MoEF&CC approved external laboratory and efforts are being made that the ambient air quality parameters conform to the norms prescribed by the CPCB.
 - Installed 2 Nos. of Continuous Ambient Air Quality Monitoring Stations at Time Office & at Mines Office respectively (one station is installed in downwind direction) and online data is being transmitted to APPCB & CPCB websites.
 - Compiled data of ambient air quality monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure - I.
- v. *The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points, raw mill handling (unloading, conveying, transporting, stacking), vehicular movement, bagging and packing areas etc. Crusher shall be operated with high efficiency bag filters. All conveyers shall be covered with GI sheets. Covered sheds for storage of raw materials and fully covered conveyers for transportation of materials shall be provided besides coal, cement, fly ash and clinker shall be stored in silos. Pneumatic system shall be used for fly ash handling. Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RPM particularly in mine area and other vulnerable areas.*

Complied. Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE are in operation in TPP (Annexure – III).

- All material transfer points are equipped with dust collection systems to control fugitive dust emissions.
- High efficiency bag filters are provided for LS crusher and additive crusher.
- The dust collected from APCE is being totally recycled to the respective process / storage facility.
- All conveyers are covered with GI sheets. All packing machines are fitted with bag filters.
- To control fugitive emissions, dust extraction system with bag filter facility is provided at truck loading area.
- Closed sheds are provided for additive stacker & reclaimer, coal stacker & reclaimer and for gypsum storage.
- Fly ash and clinker being stored in closed silos and fly ash is unloaded / conveyed through pneumatic system. The entire fly ash generated from TPP is used in the manufacturing of cement.
- Cement is stored in closed silos.
- Agglomerative dust suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Water spray system is arranged around the coal stacker & reclaimer.
- Water fogging system is installed at limestone crusher hopper.
- Permanent water sprinkling system installed at mines haul road.
- In addition to this, water sprinkling is being done with truck mounted sprinklers on roads of cement plant and mines internal haul roads.

vi. *Data on ambient air quality, stack emissions and fugitive emissions shall be regularly submitted on-line to the Ministry's Regional Office at Bangalore, Central Pollution Control Board (CPCB) and AP Pollution Control Board (APPCB) as well as hard copy once in six months. Data on SPM, SO₂ and NO_x shall also be displayed outside the premises at the appropriate place for the general public.*

Being complied.

- Compiled data of ambient air and stack monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – I & II respectively.
- Online data on ambient air quality and stack monitoring is linked up with APPCB & CPCB websites.
- Data on PM, SO₂ & NO_x for the stacks and PM₁₀, PM_{2.5}, SO₂ & NO_x data for ambient air quality respectively displayed outside the premises for the general public.

vii. *Asphalting / concreting of roads and water spray all around the critical areas prone to air pollution and having high levels of SPM and RPM shall be ensured.*

Complied.

- All major roads of the plant are paved with concrete.
- Water sprinkling is being done with truck mounted sprinklers on critical roads of cement plant.

viii. *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.*

Being complied.

- All the material transfer points are equipped with dust collection systems to control secondary fugitive emissions.
- Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE in TPP are in operation.
- Water fogging system is installed at limestone crusher hopper.
- Agglomerative Dust Suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Guidelines / code of practice issued by the CPCB in this regard are being followed accordingly.

ix. *Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. All the raw materials including fly ash shall be transported in the closed containers only and shall not be overloaded. Vehicular emissions shall be regularly monitored.*

Being complied.

- Major portion of raw materials, clinker (intermediate product) and cement (end product) are being transported through closed wagons to control dust on surrounding agricultural lands.
- Fly ash is being transported in the closed containers only.
- The entire fly ash generated from TPP is used in the manufacturing of cement.
- All the raw material containers are not being overloaded.
- It is ensured that vehicular emissions are being regularly monitored by respective transporters.

x. *Total water requirement for cement plant from bore wells / mine pit water shall not exceed 6,630 m³/day. The wastewater from boiler blow down, DM plant regeneration waste water, UF & RO rejects shall be neutralized in neutralization tank and mixed with cooling tower blow down in a Central Monitoring Basin (CMB) and used for greenbelt development. All the treated wastewater shall be recycled and reused in the process and / or for dust suppression and greenbelt development and other plant related activities etc. No process waste water shall be discharged outside the factory premises and 'zero' discharge shall be adopted.*

Being complied.

- Total water requirement for cement plant, power plant and domestic usages from mine pit water / bore well is 6,260 m³/day, after replacing the GCT & ESP of Kiln – I with Bag House.
- Cement manufacturing will not generate process effluents.
- TPP effluent is being treated in effluent treatment plant. The wastewater from boiler blow down, DM plant regeneration, UF & RO rejects and cooling tower

blowdown of TPP are being neutralized in neutralization tank and being used for greenbelt.

- Sewage treatment plant is in operation to treat domestic sewage from colony.
- Auto garage wash water is being treated at Oil & Grease Trap.
- Compiled data of STP, TPP ETP and Oil & Grease outlet samples analysis carried out by MoEF&CC approved agency on monthly basis being for the period October 2017 to March 2018 is enclosed as Annexure – V, VI & VII respectively.
- These treated effluents are used for greenbelt, water sprinkling & partially for process activities and being maintaining 'zero discharge'.
- The excess treated waste water, if any, is being passed to pond in our company's own lands to uplift the water table in the nearby area.

xi. 'Permission' for the drawl of 6,630 m³/day ground water / mine pit water shall be obtained from the Central Ground Water Authority / State Ground Water Board (GGWA / SGWB) and a copy of the letter shall be submitted to the Ministry's Regional Office at Bangalore within 3 months of issue of the environment clearance.

Complied. Permission obtained from GWD for 7000 m³/day vide Lr. No. 11/Hg/MC/2006 dated 29.03.2007 (enclosed as Annexure - IV).

xii. All the bag filter dust, raw meal dust, coal dust, clinker dust and cement dust from air pollution control devices shall be recycled and reused in the process and used for cement manufacturing. The sludge from sewage treatment plant (STP) shall be used as manure for greenbelt development. Organic wastes shall be subjected to vermin composting and used as manure for greenbelt. Inorganic wastes (papers and other wastes) shall be properly disposed off or sold to rag pickers / scrap dealers. Used oil and batteries shall be used in kiln as an alternate fuel and / or sold to authorized recyclers / reprocessors only.

Being complied.

- All the bag filter dust, raw meal dust, coal dust, clinker dust and cement dust from air pollution control devices are being recycled totally in the respective section and reused in the cement manufacturing process.
- The sludge from sewage treatment plant (STP) is being used as manure for greenbelt development.
- Organic wastes is subjected to vermin composting and used as manure for greenbelt.
- Inorganic wastes (papers and other wastes) are properly disposed off.
- Waste oil along with fresh fuel is being used for kiln firing while light up & for reclaimers lubrication and sold to APPCB authorized agents.
- Used lead acid batteries are sold to APPCB authorized agents.
- Waste lead acid batteries are being stored in closed shed and waste oil is stored in a tank of capacity 3.5 kL, till their disposal.

xiii. An effort shall be made to use of high calorific hazardous waste in the cement kiln and necessary provision shall be made accordingly.

Being complied.

- Hazardous Waste Authorization for handling various high calorific hazardous wastes obtained from APPCB and applied for regular permission from CPCB.
- CPCB has rejected our proposal for the specified list of materials.

xiv. *Efforts shall be made to use low-grade lime, more fly ash and solid waste in the cement manufacturing.*

Being complied.

- About 15% low grade limestone is being used by blending activity.
- For production capacity of 3.65 million TPA cement, the total fly ash requirement is 1.11 million TPA and slag requirement is 0.287 million TPA respectively.

xv. *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 and slag maximum in making Pozollona Portland Cement (PPC) and Portland Slag Cement (PSC).*

Being complied.

- The entire fly ash generated from TPP is used in the manufacturing of cement.
- For production capacity of 3.65 million TPA cement, the total fly ash requirement is 1.11 million TPA and total slag requirement is 0.287 million TPA respectively.

xvi. *As proposed, greenbelt shall be developed in 172.75 ha (69.63%), out of total 248.08 ha area in and around the cement plant as per the CPCB guidelines to mitigate the effects of air emissions in consultation with local DFO.*

Greenbelt is developed in an area of 130.24 ha by March 2018. This condition is modified in the latest Environmental Clearance issued for Cement Plant expansion project [No. J-11011/403/2006-IA-II (I) dated 29th September, 2016], as point No. vi of specific conditions:

- A greenbelt of 130.24 ha (52.5 % of 248.08 ha) as on 30.11.2014 has been developed, which should be maintained as it is.

Emphasis is being made to maintain 130.24 ha greenbelt area in and around plant premises in consultation with local DFO to mitigate the effects of air emissions.

xvii. *Permission and recommendations of the State Forest Department regarding impact of proposed plant on surrounding reserve forests viz. Jaggayapeta Extension RF (0.2-10.5 km, E-S), Budavada RF (3.2-10.5 km, W), Ballusupadu RF (6-11 km, WNW), Gandrayi RF (8.5-11 km, NNW) and Kuntimaddi RF (8 km, SSE) shall be obtained and implemented. Further, Conservation Plan for the conservation of wild fauna in consultation with the State Forest Department shall be prepared and implemented.*

Complied.

- District Forest Officer, Vijayawada has accorded 'No Objection Certificate' for the modernization project, vide Lr. No. 712/2000-V6 dated 13.05.2009.

- Wild life conservation plan is not required as no wild life and schedule -1 species are present in the area as per the DFO Krishna Division, Vijayawada through Letter No. Rc. No.712/95-V6 date 29.08.2008.

xviii. All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Cement plants shall be implemented.

Being implemented. The compliance report for CREP guidelines for cement plant is enclosed as Annexure - X.

xix. The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

Complied.

- Separate colony with permanent structures is constructed for contract workmen with all necessary infrastructure facilities such as toilets connected with septic tanks, safe drinking water, medical health care, etc.
- Potability certificates for RO plant inlet and outlet samples for the period October 2017 to March 2018 are enclosed as Annexure - XIII.

B. General Conditions:

i. The project authority shall adhere to the stipulations made by Andhra Pradesh Pollution Control Board (APPCB) and State Government.

Being complied as per the CFO Order No. APPCB/HO/UH-IV/CFO:VJA/Auto Renewal-9/2016 dated 08.12.2016, which is valid up to 31st January 2022.

ii. No further expansion or modification of the plant shall be carried out without prior approval of this Ministry.

Noted. EC is issued by Ministry vide Lr. No. J-11011/403/2006-IA-II (I) dated 29th September, 2016 to increase the clinker production from 2.80 million TPA to 3.185 million TPA clinker in Cement Plant and installation of 6 MW Turbo Generator in Thermal Power Plant (of capacity 2 x 18 MW).

iii. The gaseous and particulate matter emissions from various units shall conform to the standards prescribed by the AP Pollution Control Board. At no time, the particulate emissions from the cement plant shall exceed APPCB 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 shutdown automatically.

Complied.

- Efforts are being made to adhere to the gaseous and particulate matter emissions from various units to the standards prescribed by the APPCB.
- In the event of pollution control equipment not working, the respective unit(s) gets stopped automatically in phased manner with associated interlocks.

- iv. *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 APPCB and report submitted to the APPCB quarterly and to the Ministry's Regional Office at Bangalore half-yearly.*

Being complied.

- Ambient air quality monitoring and stack monitoring are being carried out with MoEF&CC approved external laboratory.
 - Data on ambient air and stack emissions is being regularly submitted to APPCB on monthly basis & half yearly basis and half-yearly basis to MoEF&CC, Regional Office.
 - Compiled data of ambient air quality monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure - I.
 - Efforts are being made to achieve noise levels within norms.
- 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.*

Being complied.

- 48 Nos. of rain water harvesting structures are made to recharge the ground water in the colony by March 2018. 4 Nos. of rain water harvesting structure are made to recharge the ground water in the plant by March 2018 (Annexure – VIII).
 - Water collected in mine pits is only being used for cement plant, thermal power plant and for domestic purposes.
 - Treated waste water from STP, ETP and Oil & Grease Trap is used for greenbelt and water sprinkling activities.
- vi. *The company shall undertake eco-development measures including community welfare measures in the project area.*

Being complied.

- Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility.
 - CSR activities for the nearby villages are being carried out as per the need basis of the local people, subjected to the budget availability.
 - Details of CSR expenditure is being submitted along with half-yearly compliance reports regularly to MoEF&CC regularly.
- 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).*

Being complied. Efforts are made to achieve noise levels within the standards.

viii. All recommendations made in the Corporate Responsibility for Environment Protection (CREP) for cement plants shall be implemented.

Being implemented. The compliance report for CREP guidelines for cement plant is enclosed as Annexure - X.

ix. Proper housekeeping shall be taken up. Regular annual medical examination of all the employees shall be carried out from the occupational health point of view and records maintained.

Being complied.

- Proper housekeeping is maintained in the plant premises.
- 3 Nos. of mobile road sweepers and 1 No. of vacuum cleaner are being used for better housekeeping.
- Occupational health checkup is being carried for all the employees and records are being maintained.

x. A separate environmental management cell to carry out various management and monitoring functions shall be set up under the control of Senior Executive.

Complied. Separate environmental management cell is carrying out monitoring functions. The organization chart of environmental cell is enclosed as **Annexure - XI**.

xi. Occupational health surveillance programme shall be done on a regular basis and records maintained. The programme must include lung function and sputum analysis tests once in six months.

Being complied.

- Occupational health checkup is being carried for all the employees, covering lung function and sputum analysis tests also.
- Occupational Health Centre (with qualified Occupational Health Specialist) is established with the following facilities:
 - X-ray
 - ECG
 - Spirometry (lung function test)
 - Audiometry
 - Semi-auto analyser to carryout bio-chemical tests
 - Clinical lab for micro-biological tests (including sputum test)
 - Checking colour blindness
 - Dental chair
 - Ambulance

xii. As proposed, Rs. 2.00 Crores and Rs. 2.50 Crores shall be earmarked towards the total capital cost and recurring cost/annum for environmental pollution control measures and shall be suitably used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government. Rs. 25.00 Lakhs and Rs. 25.00 Lakhs earmarked towards EMP / greenbelt and occupational health per annum and Rs. 50.00

Lakhs earmarked for corporate social responsibility shall be judiciously utilized and regular report shall be submitted to the Regional Office of this Ministry at Bangalore. The funds so provided shall not be diverted for any other purpose.

Being complied. Earmarked funds so provided are not being diverted for any other purposes.

- Rs. 2.18 crore spent towards the total capital cost for environmental pollution control measures at the time of modernization.
- Rs. 4.31 crore spent on new air pollution control equipment in the financial year 2016-17 as part of the Line – I expansion project.
- Whereas, Rs. 91.33 lakh spent on capital proposals in the financial year 2017-18.
- Rs. 12.35 crore spent as recurring cost in the financial year 2017-18, for various environmental protection measures associated with plant.
- Greenbelt expenditure in the financial year 2017-18 is Rs. 116.86 lakh with respect to plant, colony, mining lease areas and nearby areas.
- The expenditure details for various environmental protection measures are enclosed as Annexure - XII. Total expenditure in the financial year 2017-18 towards environmental protection account is around Rs. 16.30 crore.
- Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility.

xiii. The Regional Office of this Ministry at Bangalore / CPCB / APPCB shall monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.

This compliance report along with statistical interpretation of monitored data is submitted as per this stipulation.

xiv. 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.

Noted. Date of financial closure for this project is not required as total funding for this project is from own funds.

xv. 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 AP Pollution Control Board and may also be seen at Website of the Ministry of Environment and Forests 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 shall be forwarded to the Regional office at Bangalore.

Complied. Published the same in 11.06.2009 Eenadu (Telugu) & The Hindu (English) newspapers and copy submitted to Regional Office, Ministry.

**THE RAMCO CEMENTS LIMITED, KSR NAGAR
COMPLIANCE REPORT - ENVIRONMENTAL CLEARANCE
CEMENT PLANT – 3.185 MILLION TPA CLINKER, 3.65 MILLION TPA CEMENT &
THERMAL POWER PLANT – 42 MW**

EC Lr. No. : J-11011/403/2006-IA-II (I) dated 29th September, 2016
Period : October 2017 to March 2018

C. Specific Conditions:

i. The project proponent shall install 24x7 air monitoring devices to monitor air emissions, as provided by the CPCB and submit report to Ministry and its Regional Office.

Complied.

- 10 Nos. of on-line stack monitors (24x7) are installed to monitor particulate emissions.
- Online data on air emissions is linked up with APPCB & CPCB websites.
- This is being submitted as part of this condition.

ii. The Standards issued by the Ministry vide G.S.R. No. 612 (E) dated 25th August, 2014 regarding cement plants with respect to particulate matter, SO₂ and NO_x shall be followed.

To fulfill this condition, the following measures are initiated:

- Cooler – ESP is replaced with high capacity equipment.
- Single phase transformers are replaced with three phase transformers in Cooler – II ESP.
- Bags of higher efficiency are replaced at Kiln – I RABH, Kiln – II Bag House, Slag Mill Bag House, etc with efficiency bags.
- 3 Nos. of additional bag filters are installed at top of new pre-heater string – 2 of Kiln – I, Coal Mill – I top area and Coal Mill – II top.
- Low NO_x burners and low NO_x calciners are installed for both Kiln – I & II.

iii. Continuous stack monitoring facilities to monitor gaseous emissions from all the stacks shall be provided. After expansion limit of SPM shall be controlled within 50 mg/Nm³ by installing adequate air pollution control system viz., electrostatic precipitators, bag house, bag filters etc. Data on ambient air, fugitive and stack emissions shall be submitted to the Ministry's Regional Office at Bangalore, A.P. Pollution Control Board (APPCB) and CPCB regularly.

Complied.

- 10 Nos. of on-line stack monitors are installed to monitor particulate emissions.
- Modifications / replacements in the pollution control equipment are made with the designed emission level of 30 mg/Nm³ from all the stacks.
- Data on ambient air and stack emissions is being regularly submitted to APPCB on monthly basis & half-yearly basis.
- Compiled data of ambient air and stack monitoring data collected by

MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – I & II respectively.

- Online data on ambient air quality and stack monitoring is linked up with APPCB & CPCB websites.

iv. *Possibilities shall be explored for the proper and full utilization of gases generated from the kiln in waste heat recovery boiler (WHRB) and a feasibility report shall be prepared and submitted to the Ministry and its Regional Office at Bangalore within 3 months from the date of issue of the letter.*

Explored and will be implemented. The available hot gases are utilized for drying of raw materials in Vertical Roller Mills. Gas temperature after the mills is about 90°C and as such waste heat recovery system is not viable. Nevertheless obtained Techno - Commercial quotes from M/s Thermax Ltd (Power Division) and it is cost prohibitive. Submitted letter to MoEF&CC regarding the same vide Lr. No. MCL/MoEF/5442/2010 dated 19th July 2010.

v. *Pet Coke can be used in the total Coal Mix with 60 % Pet Coke and 40 % Indian Imported coal combination for Cement Plant use.*

Pet coke is being used as part of this condition.

vi. *A greenbelt of 130.24 ha (52.5 % of 248.08 ha) as on 30.11.2014 has been developed, which should be maintained as it is.*

Greenbelt is developed in an area of 130.24 ha by March 2018. Emphasis is being made to maintain 130.24 ha greenbelt area in and around plant premises.

vii. *As proposed, Electrostatic precipitators (ESPs) to clinker, bag house to kiln / raw mill, coal mill and pulse jet bag filters to cement mill and slag mill shall be provided to control gaseous emissions within 50 mg/Nm³. Bag filters shall also be provided at transfer points. Water sprinklers shall be provided to control dust emissions in cement plant and mine area.*

Complied. Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE are in operation in TPP (Annexure – III).

- Electrostatic precipitators (ESPs) to clinker, bag house to kiln / raw mill, coal mill and pulse jet bag filters to cement mill and slag mill.
- All material transfer points are equipped with dust collection systems to control fugitive dust emissions.
- Agglomerative dust suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Water spray system is arranged around the coal stacker & reclaimer.
- Water fogging system is installed at limestone crusher hopper.
- Permanent water sprinkling system installed at mines haul road.
- In addition to this, water sprinkling is being done with truck mounted sprinklers on roads of cement plant and mines internal haul roads.

viii. *Ambient air monitoring shall be carried out in and around the project site and efforts shall be made to control and minimize the particulate matters to bare minimum. One ambient air quality monitoring station shall be*

installed in downwind direction. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the CPCB in this regard.

Being complied.

- Ambient air monitoring is being carried out by MoEF&CC approved external laboratory and efforts are being made that the ambient air quality parameters conform to the norms prescribed by the CPCB.
- Installed 2 Nos. of Continuous Ambient Air Quality Monitoring Stations at Time Office & at Mines Office respectively (one station is installed in downwind direction) and online data is being transmitted to APPCB & CPCB websites.
- Compiled data of ambient air quality monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period April 2017 to September 2017 is enclosed as Annexure - I.

ix. The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points, raw mill handling (unloading, conveying, transporting, stacking), vehicular movement, bagging and packing areas etc. Crusher shall be operated with high efficiency bag filters. All conveyers shall be covered with GI sheets.

Complied. Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE are in operation in TPP (Annexure – III).

- All material transfer points are equipped with dust collection systems to control fugitive dust emissions.
- High efficiency bag filters are provided for LS crusher and additive crusher.
- The dust collected from APCE is being totally recycled to the respective process / storage facility.
- All conveyers are covered with GI sheets.
- All packing machines are fitted with bag filters.
- To control fugitive emissions, dust extraction system with bag filter facility is provided at truck loading area.
- Closed sheds are provided for additive stacker & reclaimer, coal stacker & reclaimer and for gypsum storage.
- Fly ash and clinker being stored in silos and fly ash is unloaded / conveyed through pneumatic system. The entire fly ash generated from TPP is used in the manufacturing of cement.
- Water spray system arranged around the coal stacker & reclaimer.
- Agglomerative dust suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Water fogging system is installed at limestone crusher hopper.
- Permanent water sprinkling system installed at mines haul road.
- In addition to this, water sprinkling is being done with truck mounted sprinklers on roads of cement plant and mines internal haul roads.

X. Covered sheds for storage of raw materials and fully covered conveyers for transportation of materials shall be provided besides coal, cement, fly ash and clinker shall be stored in silos. Pneumatic system shall be used for fly ash handling. Regular water sprinkling shall be carried out in critical

areas prone to air pollution and having high levels of SPM and RPM particularly in mine area and other vulnerable areas.

- Closed sheds are provided for additive stacker & reclaimer, coal stacker & reclaimer and for gypsum storage.
- Cement, Fly ash and clinker being stored in closed silos.
- Fly ash and clinker being stored in silos and fly ash is unloaded / conveyed through pneumatic system. The entire fly ash generated from TPP is used in the manufacturing of cement.
- Agglomerative dust suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Water spray system is arranged around the coal stacker & reclaimer.
- Water fogging system is installed at limestone crusher hopper.
- Permanent water sprinkling system installed at mines haul road.
- In addition to this, water sprinkling is being done with truck mounted sprinklers on roads of cement plant and mines internal haul roads including critical areas prone to air pollution and other vulnerable areas.

xi. Data on ambient air quality, stack emissions and fugitive emissions shall be regularly submitted on-line to the Ministry's Regional Office at Bangalore, Central Pollution Control Board (CPCB) and A.P. Pollution Control Board (APPCB) as well as hard copy once in six months. Data on SPM, SO₂ and NO_x shall also be displayed outside the premises at the appropriate place for the general public.

Being complied.

- Compiled data of ambient air and stack monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – I & II respectively.
- Online data on ambient air quality and stack monitoring is linked up with APPCB & CPCB websites.
- Data on PM, SO₂ & NO_x for the stacks and PM₁₀, PM_{2.5}, SO₂ & NO_x data for ambient air quality respectively displayed outside the premises for the general public.

xii. Asphaltting / concreting of roads and water spray all around the critical areas prone to air pollution and having high levels of SPM and RPM shall be ensured.

Complied. All major roads of the plant are paved with concrete. Water sprinkling is being done with truck mounted sprinklers on critical roads prone to air pollution.

xiii. 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.

Being complied.

- All the material transfer points are equipped with dust collection systems to control secondary fugitive emissions.
- Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE in TPP are in operation.

- Water fogging system is installed at limestone crusher hopper.
- Agglomerative Dust Suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Air pollution control equipment details are enclosed as Annexure – III.
- Guidelines / code of practice issued by the CPCB in this regard are being followed accordingly.

xiv. *Efforts shall be made to reduce impact of the transport of the raw materials and end products on the surrounding environment including agricultural land. All the raw materials including fly ash shall be transported in the closed containers only and shall not be overloaded. Vehicular emissions shall be regularly monitored.*

Being complied.

- Major portion of raw materials, clinker (intermediate product) and cement (end product) is being transported through closed wagons to control dust on surrounding agricultural lands.
- Fly ash is being transported in the closed containers only.
- The entire fly ash generated from TPP is used in the manufacturing of cement.
- All the raw material containers are not being overloaded.
- It is ensured that vehicular emissions are being regularly monitored by respective transporters.

xv. *The wastewater from boiler blow down, DM plant regeneration waste water, UF & RO rejects shall be neutralized in neutralization tank and mixed with cooling tower blow down in a Central Monitoring Basin (CMB) and used for greenbelt development. All the treated wastewater shall be recycled and reused in the process and/or for dust suppression and greenbelt development and other plant related activities etc. No process wastewater shall be discharged outside the factory premises and 'zero' discharge shall be adopted.*

Being complied.

- Cement manufacturing will not generate process effluents.
- TPP effluent is being treated in effluent treatment plant.
- The wastewater from boiler blow down, DM plant regeneration, UF & RO rejects and cooling tower blow down of TPP are being neutralized in neutralization tank.
- Sewage treatment plant is in operation to treat domestic sewage from colony.
- Auto garage wash water is being treated at Oil & Grease Trap.
- These treated effluents are used for greenbelt, water sprinkling & partially for process activities and being maintaining 'zero discharge'.
- The excess waste water, if any, is being passed to pond in our own lands to uplift the water table nearby area.

xvi. *Permission for the drawl of ground water / mine pit water shall be obtained from the Central Ground Water Authority / State Ground Water Board (GGWA / SGWB) and a copy of the letter shall be submitted to the Ministry's Regional Office at Bangalore within 3 months of issue of the environment clearance.*

Complied. Permission obtained from GWD for 7000 m³/day vide Lr. No. 11/Hg/MC/2006 dated 29.03.2007 (enclosed as Annexure - IV). The copy of the same is submitted to the Ministry along with EIA report.

xvii. All the bag filter dust, raw meal dust, coal dust, clinker dust and cement dust from air pollution control devices shall be recycled and reused in the process and used for cement manufacturing. The sludge from sewage treatment plant (STP) shall be used as manure for greenbelt development. Organic wastes shall be subjected to vermin composting and used as manure for greenbelt. Inorganic wastes (papers and other wastes) shall be properly disposed off or sold to rag pickers / scrap dealers. Used oil and batteries shall be used in kiln as an alternate fuel and / or sold to authorized recyclers / reprocessors only.

Being complied.

- All the bag filter dust, raw meal dust, coal dust, clinker dust and cement dust from air pollution control devices are being recycled totally in the respective section and reused in the cement manufacturing process.
- The sludge from sewage treatment plant (STP) is being used as manure for greenbelt development.
- Organic wastes is subjected to vermin composting and used as manure for greenbelt.
- Inorganic wastes (papers and other wastes) are properly disposed off.
- Waste oil along with fresh fuel is being used for kiln firing while light up & for reclaimers lubrication and sold to APPCB authorized agents.
- Used lead acid batteries are sold to APPCB authorized agents.
- Waste lead acid batteries are being stored in closed shed and waste oil is stored in a tank of capacity 3.5 kL, till their disposal.

xviii. An effort shall be made to use of high calorific hazardous waste in the cement kiln and necessary provision shall be made accordingly.

Being complied.

- Hazardous Waste Authorization for handling various high calorific hazardous wastes obtained from APPCB and applied for regular permission from CPCB.
- CPCB has rejected our proposal for the specified list of materials.

xix. Efforts shall be made to use low-grade lime, more fly ash and solid waste in the cement manufacturing.

Being complied.

- About 15% low grade limestone is being used by blending activity.
- For production capacity of 3.65 million TPA cement, the total fly ash requirement is 1.11 million TPA and slag requirement is 0.287 million TPA respectively.

xx. 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 and slag maximum in making Pozzolona Portland Cement (PPC) and

Portland Slag Cement (PSC).

Being complied.

- The entire fly ash generated from TPP is used in the manufacturing of cement.
- For production capacity of 3.65 million TPA cement, the total fly ash requirement is 1.11 million TPA and total slag requirement is 0.287 million TPA respectively.

xxi. *Permission and recommendations of the State Forest Department regarding impact of proposed plant on surrounding reserve forests viz. Jaggayapeta Extension RT (0.2 - 10.5 km, E-S), Budavada RF (3.2 - 10.5 km, W), Ballusupadu R1 (6 - 11 km, WNW), (Grandrayi RF (8.5 - 11 km, NNW) and Kuntimaddi RF (8 km, SSE) shall be obtained and implemented. Further, Conservation Plan for the conservation of wild fauna in consultation with the State Forest Department shall be prepared and implemented.*

Complied.

- District Forest Officer, Vijayawada has accorded 'No Objection Certificate' for the modernization project, vide Lr. No. 712/2000-V6 dated 13.05.2009.
- Wild life conservation plan is not required as no wild life and schedule -1 species are present in the area as per the DFO Krishna Division, Vijayawada through Letter No. Rc. No. 712/95-V6 date 29.08.2008.

xxii. *The company shall provide housing for construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.*

Complied.

- Separate colony with permanent structures is constructed for contract workmen with all necessary infrastructure facilities such as toilets connected with septic tanks, safe drinking water, medical health care, etc.
- Potability certificates for RO plant inlet and outlet samples for the period October 2017 to March 2018 are enclosed as Annexure - XIII.

xxiii. *The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826 (E) dated 16th November, 2009 shall be followed.*

Being complied.

xxiv. *Gaseous emission levels including secondary fugitive emissions from all the sources shall be controlled within the latest permissible limits issued by the Ministry vide G.S.R. 414(E) dated 30th May, 2008 and regularly monitored. Guidelines / Code of Practice issued by the CPCB shall be followed.*

Being complied.

- Gaseous emission levels are being maintained within the specific limits. 2 Nos. of low NOx burners and 2 Nos. of low NOx calciners are installed for 2 Nos. of Kilns.
- All the material transfer points are equipped with dust collection systems to control secondary fugitive emissions.
- Total 88 Nos. of APCE in cement plant and 9 Nos. of APCE in TPP are in operation.
- Water fogging system is installed at limestone crusher hopper.
- Agglomerative Dust Suppression systems (water fogging) are installed at raw material hopper area, coal handling area and additive handling area.
- Guidelines / code of practice issued by the CPCB in this regard are being followed accordingly.

xxv. 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.

Being complied.

- No surface water is being used for cement plant, thermal power plant, mines and colony requirements.
- Influent mine seepage water is being analysed regularly. Compiled data of influent mine seepage water analysis data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure – XIV.
- The wastewater from boiler blow down, DM plant regeneration, UF & RO rejects and cooling tower blow down of TPP are being neutralized in neutralization tank and being used for greenbelt.
- Sewage treatment plant is in operation to treat domestic sewage from colony.
- Auto garage wash water is being treated at Oil & Grease Trap.
- Compiled data of STP, TPP ETP and Oil & Grease outlet samples analysis carried out by MoEF&CC approved agency on monthly basis being for the period October 2017 to March 2018 is enclosed as Annexure – V, VI & VII respectively.

xxvi. Proper handling, storage, utilization and disposal of all the solid waste shall be ensured and regular report regarding toxic metal content in the waste material and its composition, end use of solid / hazardous waste shall be submitted to the Ministry's Regional Office, SPCB and CPCB.

Being complied.

- The sludge from sewage treatment plant (STP) is being used as manure for greenbelt development.
- Organic wastes is subjected to vermin composting and used as manure for greenbelt.
- Inorganic wastes (papers and other wastes) are properly disposed off.
- Waste oil along with fresh fuel is being used for kiln firing while light up & for reclaimers lubrication and sold to APPCB authorized agents.
- Used lead acid batteries are sold to APPCB authorized agents.
- Waste lead acid batteries are being stored in closed shed and waste oil is stored in a tank of capacity 3.5 kL, till their disposal.
- Hazardous waste returns are being submitted to APPCB regularly and the

copy of the same is being submitted to the Ministry, along with half-yearly compliance reports.

xxvii. A time bound action plan shall be submitted to reduce solid waste generated due to the project related activities, its proper utilization and disposal.

Action plan to reduce / utilization / disposal of solid waste generated due to project related activities:

- All the metallic scrap, wooden / packing material is sold out to respective vendors.
- Dismantled concrete structures are used for land-filling.
- All the industrial fans / motors are kept separately for re-use.
- E-waste is kept separately in a designated place and will be sold to the authorized e-waste handlers.

xxviii. A Risk and Disaster Management Plan shall be prepared and a copy submitted to the Ministry's Regional Office, SPCB and CPCB within 3 months of issue of environment clearance letter.

Final EIA report covering Risk and Disaster Management Plan is submitted to Ministry's Regional Office, Chennai vide Lr. No. RCL/MoEF&CC/71/2016-17 dated 21st November 2016. Final EIA report is also submitted to SPCB at the time of submission of Consent for Establishment application.

As part of Occupational Health and Safety Management System (OHSMS), we are reviewing Risk Assessment on annual basis / any changes in the process or parameters.

xxix. All the commitments made to the public during Public Hearing / public consultation meeting shall be satisfactorily implemented and adequate budget provision shall be made accordingly.

In the public hearing meeting, it is proposed by Joint Collector to all nearby villagers to form Village Committees in their respective villages and submit their requirements. These requests will be fulfilled by necessary budgetary allocation in phased manner, in priority basis.

xxx. 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.

In the public hearing meeting, it is suggested by Joint Collector to all nearby villagers to form Village Committees in their respective villages and submit their requirements. These requests will be fulfilled by necessary budgetary allocation in phased manner, in priority basis.

Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social

responsibility. Details of CSR expenditure for the financial year 2017-18 are enclosed as Annexure – IX.

xxxi. The proponent shall prepare a detailed CSR plan for every year for the next 5 years for the existing-cum-expansion project, which includes village-wise, sector-wise (Health, Education, Sanitation, Health, Skill Development and infrastructure requirements such as strengthening of village roads, avenue plantation, etc) activities in consultation with the local communities and administration. The CSR Plan will include the amount of 2% retain annual profits as provided for in Clause 135 of the Companies Act, 2013 which 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.

Being complied. Earmarked funds so provided are not being diverted for any other purposes. Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility. Details of CSR expenditure for the financial year 2017-18 are enclosed as Annexure – IX.

xxxii. The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address

- (i) Standard operating process / procedure to bring into focus any infringement / deviation / violation of environmental or forest norms / conditions,*
- (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and*
- (iii) System of reporting of non-compliance / violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.*

Final EIA report covering:

- Integrated Management System Policy covering Environmental Management Policy towards Corporate Environment Responsibility
- Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions
- System of reporting of non-compliance / violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders

is submitted to Ministry at the time of processing of EC. The copy of the same report is also submitted to Ministry's Regional Office, Chennai vide Lr. No. RCL/MoEF&CC /71/2016-17 dated 21st November 2016.

xxxiii. 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.

We may explore the feasibility at our plant. Solar light systems are initiated on trial basis as street lights. The same will be extended in the near future.

xxxiv. The project proponent shall provide for LED lights in their offices and residential areas.

The details of LED lights by the end of March 2018 are as follows:

Total Qty of LED lights arranged 3480 Nos.	-
Total rating of LED lights 155163 W.	-
Total amount invested for LED lights -	Rs. 117.11 Lakh.

LED lights are being distributed to prize winners for all energy management system competitions to inculcate LED light usage in the residential areas located in colony as well as in nearby villages.

D. General Conditions:

i. The project authorities must strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board and the State Government.

Stipulations made in the corresponding Consent for Establishment order (No. 253/APPCB/CFE/RO-VJA/HO/2009 dated 24.10.2016) are being scrupulously followed. Consent for Operation order (No. APPCB/VJA/VJA/488/HO/CFO/2017) is issued to this project on 04.04.2017, which is valid up to 31st January 2022.

ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change (MoEFCC).

Noted and will be adhered to.

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 PM₁₀, PM_{2.5}, SO₂ and NO_x 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.

Being complied.

- 3 Nos. of ambient air quality monitoring stations are established near to plant boundary and 9 Nos. of ambient air quality monitoring stations are established in nearby villages.
- Ambient air monitoring is being carried out by MoEF&CC approved external laboratory and efforts are being made that the ambient air quality parameters conform to the norms prescribed by the CPCB.
- Installed 2 Nos. of Continuous Ambient Air Quality Monitoring Stations at Time Office & at Mines Office respectively (one station is installed in downwind direction) and online data (of PM₁₀, PM_{2.5}, SO₂ and NO_x) is being transmitted to APPCB & CPCB websites.

- Compiled data of ambient air quality monitoring data collected by MoEF&CC approved external laboratory on monthly basis for the period October 2017 to March 2018 is enclosed as Annexure - I.
- 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 from time to time. The treated wastewater shall be utilized for plantation purpose.*

Complied.

- Cement manufacturing will not generate process effluents.
 - TPP effluent is being treated in effluent treatment plant. The wastewater from boiler blow down, DM plant regeneration, UF & RO rejects and cooling tower blowdown of TPP are being neutralized in neutralization tank and being used for greenbelt.
 - Sewage treatment plant is in operation to treat domestic sewage from colony and plant.
 - Auto garage wash water is being treated at Oil & Grease Trap.
 - Compiled data of STP, TPP ETP and Oil & Grease outlet samples analysis carried out by MoEF&CC approved agency on monthly basis being for the period October 2017 to March 2018 is enclosed as Annexure – V, VI & VII respectively.
 - These treated effluents are used for greenbelt, water sprinkling & partially for process activities.
 - The excess treated waste water, if any, is being passed to pond in our own lands to uplift the water table nearby area.
- 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).*

Efforts are being made to achieve noise levels within norms.

- vi. *Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.*

Being complied.

- Occupational health checkup is being carried for all the employees, covering lung function and sputum analysis tests also.
- Occupational Health Centre (with qualified Occupational Health Specialist) is established with the following facilities:
 - X-ray
 - ECG
 - Spirometry (lung function test)
 - Audiometry
 - Semi-auto analyser to carryout bio-chemical tests
 - Clinical lab for micro-biological tests (including sputum test)

- Checking colour blindness
- Dental chair
- Ambulance

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.*

Being complied.

- 48 Nos. of rain water harvesting structures are made to recharge the ground water in the colony by March 2018. 4 Nos. of rain water harvesting structure are made to recharge the ground water in the plant by March 2018 (Annexure – VIII).
- Run-off and seepage water collected in mine pits is only being used for cement plant, thermal power plant and for domestic purposes.
- The excess treated waste water, if any, is being passed to pond in our own lands to uplift the water table nearby area.

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.*

- Environmental protection measures and safeguards mentioned in the EIA / EMP report submitted for the said project are being complied.
- Earmarked funds so provided are not being diverted for any other purposes. Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility. Details of CSR expenditure for the financial year 2017-18 are enclosed as Annexure – IX.

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 (MoEFCC) as well as the State Government. An implementation schedule for implementing all the conditions stipulated herein shall be submitted to the Regional Office of the Ministry at Chennai. The funds so provided shall not be diverted for any other purpose.*

Being complied. Earmarked funds so provided are not being diverted for any other purposes.

- Rs. 4.31 crore spent on new air pollution control equipment in the financial year 2016-17 as part of the Line – I expansion project.
- Whereas, Rs. 91.33 lakh spent on capital proposals in the financial year 2017-18.
- Rs. 12.35 crore spent as recurring cost in the financial year 2017-18, for various environmental protection measures associated with plant.
- Greenbelt expenditure in the financial year 2017-18 is Rs. 116.86 lakh with respect to plant, colony, mining lease areas and nearby areas.
- The expenditure details for various environmental protection measures in the

financial year 2017-18 are enclosed in Annexure - XII and the amount spent is around Rs. 16.30 crore.

- Spent about Rs. 105.30 lakh in the financial year 2017-18 for various socio-economic activities for the surrounding villages as part of corporate social responsibility.
- x. *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.*

Informed to local Panchayat. The clearance letter is uploaded to the company'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 MOFFCC at Chennai, The respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM₁₀, SO₂, 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.*

- The status of compliance of the stipulated environment clearance conditions, including results of monitored data is uploaded periodically to the company's website.
- The copies of the same are submitted to Regional Office, MoEF&CC, Chennai and State Pollution Control Board on regular basis.
- The criteria pollutant levels namely; PM₁₀, PM_{2.5}, SO₂, NO_x (ambient levels as well as stack emissions), indicated for the projects are monitored and displayed at main gate of the company in the public domain.

- 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 MOFFCC, the respective Zonal office of CPCB and the SPCB. The Regional Office of this Ministry at Chennai / CPCB / SPCB shall monitor the stipulated conditions.*

Regularly submitting six monthly compliance 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 MOFF&CC, CPCB and State PCB.

- 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.*

- Environment statement in Form – V is being submitted regularly within stipulated time to the APPCB.
 - Soft copy of the same is being submitted to Regional Office, MoEF&CC, Chennai.
 - Soft copy is also kept on the Company's website regularly.
- 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.*

Complied. Published the same in 05.10.2016 Eenadu (Telugu) & The Hindu (English) newspapers and copy submitted to Regional Office, Ministry vide Lr. No. RCL/MoEF&CC/60/2016-17 dated 05.10.2016.

- 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.*

Noted. Date of financial closure for this project is not required as total funding for this project is from own funds.