

ZCL/ENV/EC/MINES2020/ *May 08*

Date: 29.05.2020



Zuari Cement
HEIDELBERGCEMENT Group

To,
Ministry of Environment, Forests & Climate Change,
IA Division, Paryavaran Bhavan,
C.G.O. Complex, Lodhi Road,
New Delhi-110003.

Zuari Cement Limited
Kirshna Nagar - 516 311
Yerraguntla, Dist - Kadapa
Andhra Pradesh, India
Phone : +91 85 63 27 51 07 / 08
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www.zuaricements.com

Dear Sir,

Sub: Environmental Clearance Six monthly Compliance conditions Report of our Lime Stone Mine of M/s Zuari Cements Ltd, Yerraguntla, District Y.S.R Kadapa –A.P.

Ref: - Environment Clearance letter No. J-11015/523/2008-IA.II-(M) dated 06.07.2009.

With reference to the above subject and referred letter, we are submitting herewith the point wise compliance of conditions of above environmental clearance letter for the period from Oct 2019 to March 2020.

Thanking you,

Yours faithfully
For Zuari Cement Limited


V. Madhava Reddy
Sr. Manager -Environment

Encl: As above

Cc to: - Ministry of Environment and Forests & Climate Change,
Regional office (South Eastern zone), 1st & 2nd Floor, HEPC Building, No-34,
Cathedral Garden Road, Nungambakkam,
Chennai -600034

The Member Secretary
Andhra Pradesh Pollution Control Board,
D No:33-26-14 D/2, Near Sunrise Hospital,
Puspha Hotel Centre, Chalamavari Street,
Kasturibaipet, Vijayawada-520010

Registered Office :
Krishna Nagar - 516 311
Yerraguntla, Dist. - Kadapa
Andhra Pradesh, India
Tel : +91-85 63-27 51 02 / 07 / 08 / 95
Fax : +91-85 63-27 51 64.

Corporate Identity Number (CIN) :
U26942AP2000PLC050415



**COMPLIANCE OF CONDITIONS OF ENVIRONMENT CLEARANCE
LETTER NO. J-11015/523/2008-IA.II (M), dated 06.07.2009.**

Of M/s Zuari Limestone Mines, located in Krishnagar, Yerraguntla, District Y.S.R Kadapa –A.P.

(A) Specific Conditions

- i. *In the event simultaneous operation of more than one pit at a time is contemplated for any operational or quality homogenization reasons, it should be clearly indicated in the mine plan and year wise production scheduling. Before the second or subsequent pit commences production, the systematic and detailed reclamation action plan for the first or previous pit shall be kept in readiness to be implemented at the earliest point in time in the overall scheme of development of all the pits as outlined in the approved Mine plan/mine Closure Plan/Conceptual plan.*

Presently we are working in one pit only. Whenever second pit is proposed, the above specific conditions will be strictly adhered.



- ii *After exhausting first mine pit and before starting mining operation in next pit, reclamation and plantation work in exhausted pit shall be completed so as to ensure that reclamation, forest cover and vegetation are visible during first year of mining operation in the next pit. This process will follow till the last pit is exhausted. Adequate rehabilitation of the mine pit shall be completed before any ore bearing area is worked.*

Agreed Upon.

Presently we are working only one pit.

- iii Adequate buffer zone shall be maintained between two consecutive mineral bearing deposits.

Not applicable as it is only a single deposit.

- v *Hydro-geological study of the area shall be reviewed annually and results submitted to the Ministry and concerned agency in the State Govt. In case adverse effect on ground water quality and quantity is observed mining shall be stopped and resumed only after mitigating steps to contain any adverse impact on ground water is implemented. Specific hydro-geological shall be conducted at the end of mining plan period i.e. at the end of the 5th year of mining, before proceeding to undertake mining in the 6th year. The report shall be submitted to the Regional Office of the Ministry.*

**Hydro-geological study has been conducted and reviewed annually.
Report submitted.**

- vi *A 50 m barrier of no mining zone all along the sides of the Pedda Vanka nallah passing through the lease area shall be demarcated and thick vegetation of native species raised. Status of implementation shall be submitted to the Regional Office of the Ministry on half yearly basis. It shall be ensured that no silt originating from mining activity is transported in the nallah / surface water course.*

50 m barrier zone has been demarcated. Thick bushes have been grown. No discharge of water from quarry to Pedda Vanka Nalla. Hence, no silt is getting originated from the mining activity.



- vii *The company shall ensure that no silt originating due to mining activity is transported in the surface water course / nallah flowing in the area.*

No discharge of water from quarry to Pedda Vanka Nalla. Hence, no silt is getting originated from the mining activity.

- viii *Option for setting up of covered conveyor belt from crusher located in the lease to loading point shall be explored within a reasonable period. Adequate justification if not possible shall be submitted to the ministry within six months. Expansion beyond the exsisting capacity 4.5MTPA shall not be carriedout until the system is in place or until satisfactory justification as above is provided*

We got exemption for this point vide MOEF letter no J-11015/523/2008-IA-II(M)

Dated 12.4.2010. However we are installed water sprinklers to minimize the dust emissions.



WATER SPRINKLING SYSTEM ON HAUL ROAD

- ix *Need based assessment for the nearby villages shall be conducted to study economic measures which can help in upliftment of poor section of society. Income generating projects/tools such as development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provided separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs. Local employable youth shall be trained in skills relevant to the project for eventual employment in the project itself to the extent feasible.*

Noted.

Need base assessment has been conducted nearby villages and implemented self sustain income generating programmes candle making, Stitching & etc.

- x *Land-use pattern of the nearby villages shall be studied and action plan for abatement and compensation for damage to agricultural land / common property land (if any) in the nearby villages, due to mining activity shall be submitted to the Regional office of the Ministry within six months. Annual status of implementation of the plan and expenditure thereon shall be reported to the Regional Office of the Ministry from time to time.*

Complied.

Land-use pattern study has been conducted and report is submitted.

No damage to agricultural land / common property land due to mining activity.

- xi *Maintenance of village roads through which transportation of ores are undertaken shall be carried out by the company regularly at its own expenses. The roads shall be black topped.*

No village roads passing in mining area.

- xii *Rain water harvesting shall be undertaken to recharge the ground water source Status of implementation shall be submitted to the Regional Office of the Ministry within six months and thereafter every year from the next consequent year.*

Rain water harvesting is in practice. A sump of adequate capacity has been developed and rain harvested water is used for green belt development and for plant.

Mines Harvested Water





- xiii *Measures for prevention and control of soil erosion and management of silt shall be undertaken. Protection of dumps against erosion shall be carried out with geo textile matting or other suitable material, and thick plantations of native trees and shrubs shall be carried out at the dump slopes. Dumps shall be protected by retaining walls.*

Measures has been taken to soil erosion and plantation done on dumps with native plants.



- xiv *Trenches / garland drains shall be constructed at foot of dumps and coco filters installed at regular intervals to arrest silt from being carried to water bodies. Adequate number of Check Dams and Gully Plugs shall be constructed across seasonal / perennial nallahs (if any) flowing through the ML area and silts arrested. De-silting at regular intervals shall be carried out. Garland drain of appropriate size, gradient and length shall be constructed for both mine pit and for waste dump and sump capacity shall be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and de-silted at regular intervals.*

Rain water collected is used for watering the mine area, roads, green belt development and plant operations. Water so collected is not pumped out. Sump is of adequate capacity.

Garland Drains are made around the dump



- xv *Ground water in the core zone shall be regularly monitored for contamination and depletion due to mining activity and records maintained. The monitoring data shall be submitted to the regional office of the Ministry regularly. Further, monitoring points shall be located between the mine and drainage in the direction of flow of ground water shall be set up and records maintained.*

Mine working has not intersected water table. Ground water is monitored on Quarterly basis in core and buffer zone.

- xvi *Cultivable waste land (within 5km of the lease) shall be identified and fodder farming or other suitable productive use of waste land shall be taken up in phased manner. Status of implementation shall be submitted to the Regional Office of the Ministry.*

Waste land available in the area is being taken up with suitable plants.

- xvii *Shelter Belt i.e. Wind Break of 30 m width and consisting of at least 5 tiers around lease facing the school / agricultural fields / human habitation etc. (if any in the vicinity) shall be raised.*

Presently there is no habitation under the radius of 1.0 Km from present working pit. However we are developing wind break green belt around the lease area.



- xviii *Fugitive dust generation shall be controlled. Fugitive dust emission shall be regularly monitored at locations of nearest human habitation (including schools and other public amenities located nearest to sources of dust generation as applicable) and records submitted to the Regional Office of the Ministry.*

All precautionary measures like wet drilling, water sprinkling on haul road, muck pile wetting, etc are in force to control dust emission. Dust monitoring is on regular monthly basis. Report is enclose for your reference.



WET DRILLING



MUCK PILE WETTING



WATER SPRINKLING SYSTEM ON HAUL ROAD

- xix *Monitoring of soil samples for assessment of transformation to acidic state or contamination due to mining activity (as applicable) shall be regularly conducted and records maintained.*

Monitoring of soil is done on regular basis and maintained the records. Latest report is enclosed for your reference.

- xx *Dumpers used in the mine need not be covered with any tarpaulin but shall strictly follow the dust and sound mitigation measures prescribed inside the mine and or processing plants and loading points. However transport vehicles used for external transport over public places, habitations, forest areas etc as may be applicable in this case shall be covered with tarpaulin and proper maintenance and upkeep of these tippers or other types of trucks shall be done. No overloading of ores for transportation shall be carried.*

Dust and sound mitigation measures will be strictly followed, No overloading of ores for transportation shall be carried. Muck pile wetting is done before loading in to trucks

- xxi *Occupational health and safety measures for the workers including identification of work related health hazards, training on malaria eradication, HIV, and health effects on exposure to mineral dust etc. shall be carried out. The company shall engage a full time qualified doctor who is trained in occupational health. Periodic monitoring for exposure to respirable mineral dust on the workers shall be conducted and records maintained including health records of the workers. Awareness programme for workers on impact of mining on their health and precautionary measures like use of personal equipments etc. Shall be carried out periodically. Review of impact of various health measures undertaken (at interval of five years or less) shall be conducted followed by follow up action wherever required.*

Various trainings have been and are being organized for the workers, on regular basis, as a Occupational and health safety measures to identify work related health hazards, malaria eradication, HIV and effect of mineral dust exposure on health. A well trained full time doctor remains available round the clock inside colony premises. Periodic monitoring for exposure to respirable mineral dust is conducted and record herewith is maintained. Various awareness programme has been organized on impact of mining on health and use of personal protective equipment. Medical checkup is done as per the requirement of law.

- xxii *Top soil / solid waste shall be stacked properly with proper slope and adequate safeguards and shall be utilized for backfilling (wherever applicable) for reclamation and rehabilitation of mined out are. Top soil shall be separately stacked for utilization later for reclamation and shall not be stacked along with over burden.*

Presently top soil is being utilized for plantation and remaining quantity stacked separately in the earmarked location.



- xxiii *Over burden (OB) shall be stacked at earmarked dump site(s) only and shall not be kept active for long period. The maximum height of the dump shall not exceed 30 m, each stage shall preferably be of 10m and overall slope of the dump shall not exceed 28°. The OB dump shall be backfilled. The OB dumps shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests on six monthly basis.*

This mine does not produce any overburden. Presently there is no OB dumps. Active mining is under way and mine floor is yet to be fully exposed.

- xxiv *Slope of the mining bench and ultimate pit limit shall be as per the mining scheme approved by Indian Bureau of Mines.*

Slope of the mining bench and ultimate pit limit is maintained as per the mining scheme approved by Indian Bureau of Mines.

- xxv *Adequate plantation shall be raised in the ML area, haul roads, OB dump sites etc. Green belt development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO / Agriculture Department. Herbs and shrubs shall also form a part of afforestation programme besides tree plantation. The density of the trees shall not be less than 2500 plants per ha. The company shall involve local people with the help of self help group for plantation programme. Details of year wise afforestation programme including rehabilitation of mined out area shall be submitted to the Regional Office of the Ministry every year.*

Active mining is under way and mine floor is yet to be fully exposed. Mining activities has not reached to the ML boundary and thick bushes are there all along the mine boundary. Hence plantation work has been taken up outside of the mining lease area.

2019-20 –plantation: Plant:1200 & Mines:2275 NO's



- xxvi *Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year – pre – monsoon (April-May), monsoon (August), Post-monsoon (November) and winter (July) and the data thus collected shall be regularly sent to MoEF, Central Ground Water Authority and Regional Director, Central Ground Water Board.*

Piezometer bore wells established core zone and buffer zone and Ground water level is being carried out on quarterly basis, report is submitting regular basis.

- xxvii *Adequate air monitoring stations shall be installed in areas of human habitations near the mine and the results of ambient air quality shall be maintained and regularly submitted to the Regional Office of the Ministry. The monitored data of criteria pollutants shall be regularly uploaded on the company's website and also displayed at project site.*

Ambient air quality monitoring stations has been established and monitoring data is submitting regular basis. Data is displayed at main gate.

Latest Report is enclosed attached as Annexure-I.

- xxviii *The waste water from the mine shall be treated to conform to the prescribe standards before discharging in to the natural stream. The discharged water from the Tailing, Dam (if any) shall be regularly monitored and report submitted to the Ministry of Environment & Forests, Central Pollution Control Board and the State Pollution Control Board.*

No water discharge outside. Collected water is being for green belt and plant operations.

- xxix *Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of ores and others shall have valid permissions and prescribed under Central Motor Vehicle Rules, 1989 and its amendments. The number of shifts for mine operations could be as prescribed in the approved Mine plan .However the no.of shifts or hours permissible for external vehicular traffic shall not exceed the limits in vogue for the area under consideration or in the event of passage through forest roads or public places,as may be applicable in this case. The limits prescribed by the local authorities shall not be exceeded.If no such guidelines for time restrictions are applicable,then external transport shall be preferably confined to two shifts.*

All vehicles are equipped with Centrifuge in addition to normal filter to reduce emissions and to ensure extra life of the same oil before rejection. Pre-cleaner has been installed on the vehicles to improve the fuel efficiency of the engine to reduce emissions. Vehicles are used within mines premises. No overloading of transport vehicle is done. Vehicular emissions are being monitored regularly. We are taking care of all dust emissions during mining activities.

- xxx *Prior permission from the Competent Authority shall be obtained for extraction of ground water, if any.*

Andharapradesh state not comes under purview of CGWA and industries need to obtain permission from state government.

We have obtained state board permission.

- xxxi *Action plan with respect to suggestions / improvements and recommendations made during public consultation / hearing shall be submitted to the Ministry and the State Govt. within six months.*

Complied.

- xxxii *A final mine closure plan, along with details of Corpus Fund, shall be submitted to the Ministry of Environment & Forests, 5 years in advance of final mine closure off approval*

Will Comply.

B. General Conditions

- i *No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment & Forests.*

Noted and being complied.

There is no change in mining technology and scope of working.

- ii *No change in the calendar plan including excavation, quantum of mineral and waste shall be made.*

Noted and being complied.

There is no change in the Calendar Plan for the production of Quantum of Mineral Limestone and Waste

- iii *Fugitive dust emissions from all the sources shall be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points shall be provided and properly maintained.*

Adequate measures like water sprinklers, wet drilling, water spraying etc, are in use. Water sprinkling Arrangement has been made on hauls roads, loading and unloading and transfer points to avoid dust generation.



WATER SPRINKLING SYSTEM ON HAUL ROAD

- iv *Four ambient air quality-monitoring stations shall be established in the core zone as well as in the buffer zone for PM10, PM2.5, SO2, NOX monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.*

Ambient air quality monitoring stations have been established as per requirement and monitored on monthly basis.

- v *Data on ambient air quality (PM10, PM2.5, SO2 and NOX) should be regularly submitted to the Ministry including its Regional office located at Bangalore and the State Pollution Control Board / Central pollution Control Board once in six months. The monitored data of criteria pollutants mentioned above shall be regularly uploaded on the company's website and also displayed at project site.*

Ambient air quality is monitored on monthly basis and report submitting to concerned authority as per condition stipulated. Said data is displayed at the project site.

- v *Measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc., shall be provided with ear plugs / muffs*

Adequate measures like proper maintenance of vehicle, air conditioned cabin, etc has been provided to keep the noise level below prescribed limit. All workers engaged in operation of HEMM have been provided with ear plugs/muffs. Noise levels are monitored and maintained within the prescribed limits and reports enclosed for your reference.

- vi *Industrial waste water (workshop and waste water from the mine) should be properly collected treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended form time to time. Oil and grease trap shall be installed before discharge of workshop effluents.*

The workshop waste water is being collected in Oil and Grease trap (3 chamber tank) and after settling and clean water is utilizing for dust suppression over haulage road. No discharge of water from mine to outside

- vii *Personnel working in dusty areas shall be provided with protective respiratory devices and they shall also be imparted adequate training and information on safety and health aspects.*

All personnel working in mines are provided with protective and safety equipment. They are also provided adequate training and information on safety and health aspects. Health status also periodically monitored as per Mines/Act Rules. Occupational health surveillance is being carried periodically.

- Viii *Provision shall be made for the housing the laborers 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.

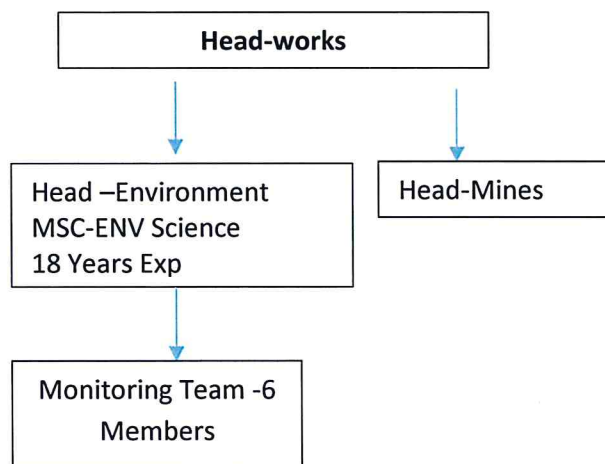
Necessary facilities are provided for work force.





- ix *A separate Environmental Management Cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.*

A separate Environmental Management cell is established under the control of senior executive and direct reporting to the head of the organization who is responsible for environmental management of Mines.



- x *The project authorities shall inform to the Regional Office of the Ministry located at Bangalore regarding data of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.*

Complied.

- xi *The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to the Ministry and its Regional Office located at Bangalore.*

A separate account for year-wise expenditure on environmental protection measures is maintained. 2019 Expenditure is attached as Annexure-II

- xii *The project authorities shall inform to the Regional Office of the Ministry located at Bangalore regarding data of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.*

Noted.

- xii *The Regional Office of the Ministry located at Bangalore shall monitor compliance of the stipulated conditions. The project authorities shall extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.*

Complied.

- xiv *The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forest, its Regional Office, Bangalore, Central Pollution Control Board and State Pollution Control Board. The Project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Bangalore.*

Complied.

Six monthly submitting Environment clearance point wise condition compliance report to ministry and APPCB. Data uploading on our company website and MOEF website. E- mail also sending to ministry and APPCB.

- xv *A copy of clearance letter will be marked to concerned Panchayat / Local NGO, if any, from whom suggestion / representation has been received while processing the proposal. The clearance letter shall also be put on the website of the company.*

Complied.

- xvi *State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office / Tehsildar's Office for 30 days.*

Complied

- xvii *The Project authorities shall advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same shall be forwarded to the Regional Office of the Ministry located in Bangalore.*

Complied.

ప్రజాసామాన్య విజ్ఞప్తి

లైమీస్టోన్ ఖనిజ ఉత్పత్తి సామర్థ్యాన్ని 4.5 MTPA నుండి 7.0 MTPAలకు పెంచేందుకు మినిస్ట్రీ ఆఫ్ ఎన్విరాన్మెంట్ & ఫారెస్ట్ వారిచే పర్యావరణ అనుమతిని (J-11015/523/2008-IA-II(M) - తేది. 06.07.2009) జవారి సిమెంట్ లిమిటెడ్ వారి జవారి లైమీస్టోన్ మైన్ ప్రాజెక్ట్ పొందియున్నది. అనుమతి పత్రాల కాపీలు ఎ.పి. పాల్యూషన్ కంట్రోల్ బోర్డ్ నందు లభ్యమవుతాయి మరియు MOEF యొక్క వెబ్సైట్ వద్ద <http://envfor.nic.in> వద్ద చూడవచ్చును.

జవారి సిమెంట్ లిమిటెడ్

క్రిష్ణానగర్ - కడప, యర్రగుంట మండలం, కడప జిల్లా, ఎ.పి.

APPEAL TO THE PUBLIC

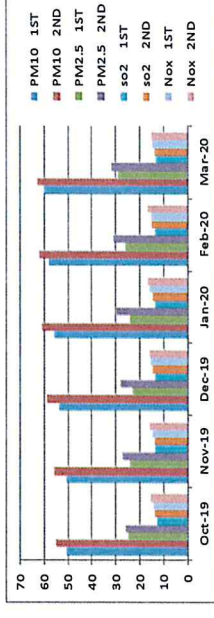
Zuari Limestone mine project of Zuari Cement Limited has been accorded Environmental clearance (J-11015/523/2008 – IA.II (M), Dated: 06-07-2009) by the Ministry of Environment & Forests, for the expansion of limestone ore mining capacity from 4.50 to 7.00 MTPA. Copies of the clearance letter are available with A.P. Pollution Control Board and can also be seen at website of the MOEF at <http://envfor.nic.in>

ZUARI CEMENT LIMITED

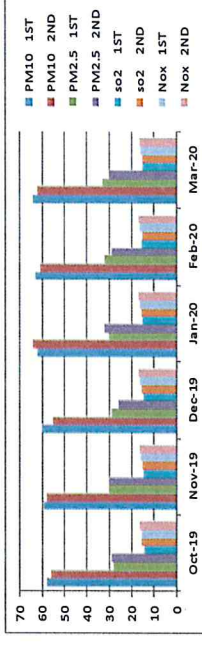
Krishna Nagar – 516311, Yerraguntla (Mandal), Kadapa (Dist), A.P.

Zuari Limestone Mines
Krishnagar, Yerraguntla, Kadapa –Dist -516311(A.P).
Ambient Air Monitoring Report October 2019 to March 2020

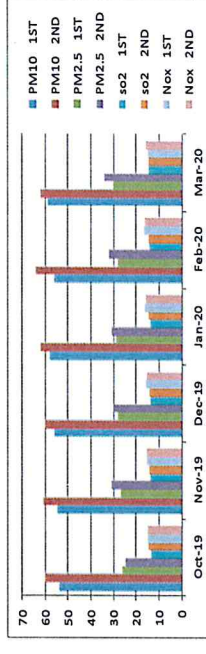
year WEEK	1 Mines Office[ug/m ³]				2ND				so ₂				Nox			
	PM ₁₀		PM _{2.5}		1ST		2ND		1ST		2ND		1ST		2ND	
Oct-19	51	55	25	26	13	13.6	14.1	14.5	15.6	15.9	16.1	16.6	14.5	15.8	16.4	16.8
Nov-19	51	56	24	27	13.6	14.8	15.6	16.1	16.6	17.1	17.6	18.1	15.6	16.8	17.4	17.9
Dec-19	54	59	23	28	13.8	14.8	15.6	16.1	16.6	17.1	17.6	18.1	15.8	17.0	17.6	18.1
Jan-20	56	61	24	30	13.5	14.9	15.2	15.8	16.3	16.8	17.3	17.8	16.0	17.2	17.8	18.3
Feb-20	58	62	26	31	13.6	15.2	15.8	16.4	16.9	17.4	17.9	18.4	16.2	17.4	18.0	18.6
Mar-20	60	63	29	32	13.2	14.2	14.8	15.1	15.6	16.1	16.6	17.1	16.4	17.6	18.2	18.7
Max	60	63	29	32	13.8	15.2	15.8	16.4	16.9	17.4	17.9	18.4	16.6	17.8	18.4	18.9
Min	51	55	23	26	13	14.1	14.5	15.1	15.6	16.1	16.6	17.1	15.8	17.0	17.6	18.1



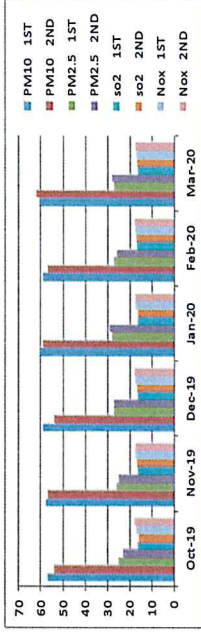
year WEEK	2 Near loading area[ug/m ³]				so ₂				Nox			
	PM ₁₀		PM _{2.5}		1ST		2ND		1ST		2ND	
Oct-19	58	56	28	29	14.6	15.9	16.2	16.8	15.8	16.4	17.0	17.6
Nov-19	59	58	30	30	14.9	15.5	16.2	16.8	16.2	16.8	17.4	18.0
Dec-19	60	55	29	26	15.1	15.6	16.2	16.8	16.2	16.8	17.4	18.0
Jan-20	62	64	30	32	15.3	15.7	16.2	16.8	16.2	16.8	17.4	18.0
Feb-20	63	61	32	29	15.8	15.5	16.2	16.8	16.2	16.8	17.4	18.0
Mar-20	64	64	33	30	15.2	15.3	16.2	16.8	16.2	16.8	17.4	18.0
Max	64	64	33	30	15.8	15.5	16.2	16.8	16.2	16.8	17.4	18.0
Min	58	55	28	26	14.6	15.3	16.2	16.8	15.8	16.4	17.0	17.6



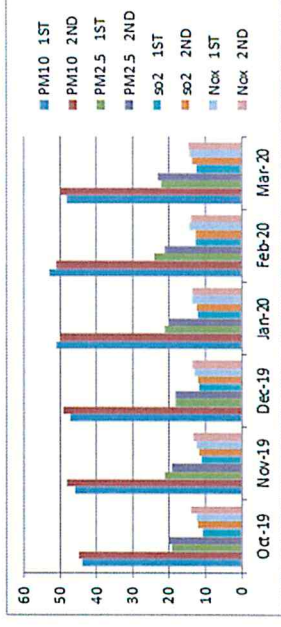
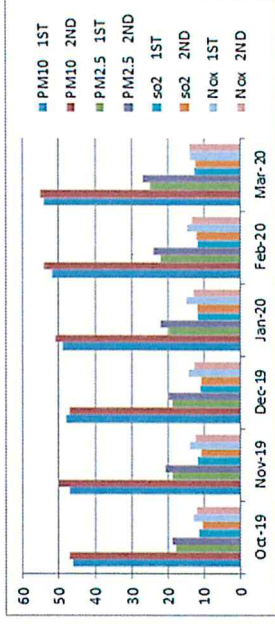
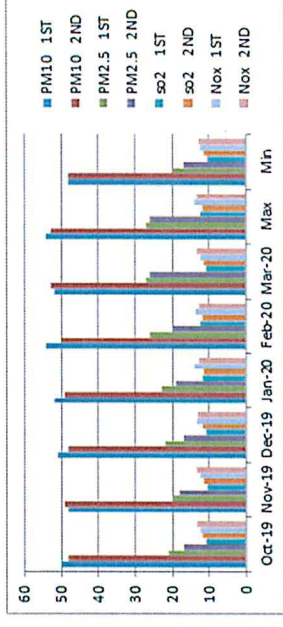
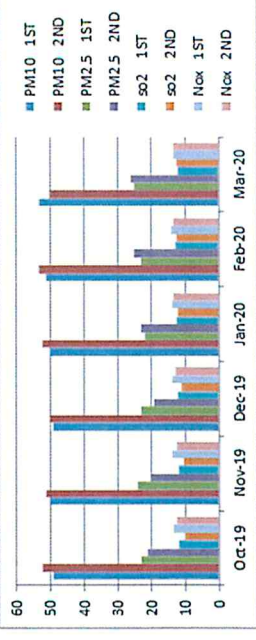
year WEEK	3 Near drilling area[ug/m ³]				so ₂				Nox			
	PM ₁₀		PM _{2.5}		1ST		2ND		1ST		2ND	
Oct-19	54	60	26	25	13.5	14.8	15.3	15.9	15	15.3	15.9	16.5
Nov-19	55	61	27	31	13.8	14.2	15.5	15.9	15.5	15.9	16.5	17.1
Dec-19	56	60	28	30	13.9	14.5	15.5	15.9	15.5	15.9	16.5	17.1
Jan-20	58	62	29	31	14	14.6	15.5	15.9	15.5	15.9	16.5	17.1
Feb-20	56	64	28	32	14.4	14.7	15.2	15.8	15.2	15.8	16.1	16.6
Mar-20	59	62	30	34	14.7	14.9	15.2	15.8	15.2	15.8	16.1	16.6
Max	59	64	30	34	14.7	14.9	15.2	15.8	15.2	15.8	16.1	16.6
Min	54	60	26	25	13.5	14.2	15	15.3	15	15.3	15.9	16.5



year WEEK	4 Haulage road[ug/m ³]				so ₂				Nox			
	PM ₁₀		PM _{2.5}		1ST		2ND		1ST		2ND	
Oct-19	57	54	25	23	16.1	16	17.2	17.8	17.2	17.8	18.4	19.0
Nov-19	58	57	26	25	16.3	16.6	17.7	18.3	17.7	18.3	18.9	19.5
Dec-19	59	54	27	27	16.2	16.8	17.5	18.1	17.5	18.1	18.7	19.3
Jan-20	61	59	28	26	16.4	16.5	17.4	18.0	17.4	18.0	18.6	19.2
Feb-20	59	57	27	26	16.6	16.6	17.2	17.8	17.5	18.1	18.7	19.3
Mar-20	61	62	27	28	16.3	16.6	17.1	17.7	17.1	17.7	18.3	18.9
Max	61	62	28	29	16.6	16.6	17.2	17.8	17.1	17.7	18.3	18.9
Min	57	54	25	23	16.1	16	17.2	17.8	17.1	17.7	18.3	18.9



5 Valasapalle Village[ug/m3]										
year	PM ₁₀		PM _{2.5}		SO ₂		NOx			
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND
WEEK	49	52	23	21	11.9	10.3	13.6	12.5		
Oct-19	50	51	24	20	11.8	10.5	13.9	12.7		
Nov-19	49	50	23	19	12.1	11.1	13.8	12.8		
Dec-19	50	52	22	23	12.6	12.1	13.9	13.5		
Jan-20	51	53	23	25	12.8	12.5	14.1	13.6		
Feb-20	53	50	25	26	12.1	12.5	13.6	13.5		
Mar-20	53	53	25	26	12.8	12.5	14.1	13.6		
Max	53	53	25	26	12.8	12.5	14.1	13.6		
Min	49	50	22	19	11.8	10.3	13.6	12.5		
6 Koduru Village[ug/m3]										
year	PM ₁₀		PM _{2.5}		SO ₂		NOx			
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND
WEEK	50	48	21	17	10.8	11.9	12.5	13.3		
Oct-19	48	49	20	18	10.6	11.6	12.6	13.5		
Nov-19	51	48	22	17	10.8	11.8	13.4	13.1		
Dec-19	52	49	23	19	11.8	11.6	14.1	12.9		
Jan-20	54	50	26	20	12.3	11.9	13.8	12.8		
Feb-20	52	53	27	26	10.8	11.4	12.3	13.5		
Mar-20	54	53	27	26	12.3	11.9	14.1	13.5		
Max	54	53	27	26	12.3	11.9	14.1	13.5		
Min	48	48	20	17	10.6	11.4	12.3	12.8		
7 Paddannapadu Village[ug/m3]										
year	PM ₁₀		PM _{2.5}		SO ₂		NOx			
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND
WEEK	46	47	18	19	11.5	10.4	13.1	12.1		
Oct-19	47	50	19	21	11.7	10.8	13.9	12.6		
Nov-19	48	47	19	20	11.1	10.9	14.3	12.7		
Dec-19	49	51	20	22	11.9	11.8	15.1	13		
Jan-20	52	54	22	24	11.7	12.1	14.6	13.3		
Feb-20	54	55	25	27	12.8	12.6	14.1	13.9		
Mar-20	54	55	25	27	12.8	12.6	15.1	13.9		
Max	54	55	25	27	12.8	12.6	15.1	13.9		
Min	46	47	18	19	11.1	10.4	13.1	12.1		
8 Thumalapalli Village[ug/m3]										
year	PM ₁₀		PM _{2.5}		SO ₂		NOx			
	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND	1ST	2ND
WEEK	44	45	19	20	10.7	12	12.3	13.9		
Oct-19	46	48	21	19	10.9	11.7	12.4	13.4		
Nov-19	47	49	18	18	11.6	12	13	13.6		
Dec-19	51	50	21	20	12	12.4	13.6	13.7		
Jan-20	53	51	24	21	12.6	12.8	14.3	13.9		
Feb-20	48	50	22	23	12.3	13.6	14.4	14.5		
Mar-20	53	51	24	23	12.6	13.6	14.4	14.5		
Max	53	51	24	23	12.6	13.6	14.4	14.5		
Min	44	45	18	18	10.7	11.7	12.3	13.4		



Zuari Limestone Mines

Krishnagar, Yerraguntla, Kadapa –Dist -516311(A.P).

Noise Monitoring Report October 2019 to March 2020

	Oct-19		Nov-19		Dec-19		Jan-20		Feb-20		Mar-20	
	D	N	D	N	D	N	D	N	D	N	D	N
N-1 Mines Boundary - East	62.2	57.3	63.4	58.1	64.2	59.3	65.8	60.1	62.8	59.8	65.2	57.1
N-2 Mines Boundary – West	70.4	63.5	69.6	51.2	70.2	52.6	71.5	53.6	70.2	58.6	70.5	64.2
N-3 Mines Boundary – North	71.3	52.8	70.3	52.7	67.3	53.7	68.5	54	69.3	60.2	69.7	53.6
N-4 Mines Boundary - South	69.6	58.1	68.7	57.4	69.2	56.1	69	55.5	70.2	58.3	68.1	58.8
N-5 Mines Office	63.0	55.4	64.1	55.3	63.9	54.9	62.5	53.9	60.5	54.1	65.3	53.9

D-DAY TIME
N-NIGHT TIME

AMBIENT AIR QUALITY STANDARDS w.r.t NOISE	DAY TIME	NIGHT TIME
	75	70

Environmental Cost:

S.No	Particulars	Expenses (Rs in Lakhs)
	Environmental Monitoring	1.12
	Health	33.09
	Socio Economics	47.87
	Green Belt	10.0
	Total	92.08