MEGHALAYA CEMENTS LIMITED

CIN- U26942ML2003PLC007125

TOPCEM CEMENT
Mazbooti ka bharosa...hamesha

Ref: MCL/ENV/MSPCB/Compliance-II/2018-19/17 Date:-02/05/2019

To,

The Member Secretary,
Meghalaya State Pollution Control Board,
'ARDEN' LUMPYNGNGAD,
Shillong, Meghalaya.

Sub: - Submission of half yearly compliance report for the period of Oct'18 to March'19

Dear Sir,

We are hereby furnishing the half yearly compliance report (hard copy and soft copy) for the period from **Oct'2018 to March'2019** on Environmental Stipulation for Expansion of Cement Plant (from 900 TPD to 2600 TPD) along with 10MW Captive Power Plant at Village-Thangskai, East Jaintia Hills District, Meghalaya, vide your Environment Clearance letter no SEIAA/PROJECT-2/2007/18 dated: 25th March'2009.

This is for your kind information and perusal. You are requested to kindly acknowledge the receipt of the same.

Thanking You,

Yours Faithfully.

For MEGHALAYA CEMENTS LIMITED

R.K Pareek
(President)

Encl: As stated above

Copy to:

1) **The MoEF, North Eastern Regional Office, Shillong, Meghalaya.**
2) **The Member Secretary, State Environment Impact Assessment Authority, Shillong.**

Half yearly Compliance Report (for the period Oct'18 to March'19) on Environmental Stipulations for Expansion of Cement Plant (from 900 TPD-2600 TPD), along with 10 MW Captive Power Plant at Thangskai, East Jaintia Hills District by M/s Meghalaya Cements Ltd. – Environmental Clearance Letter No. SEIAA/PROJECT-2/2007/18; Dated 25th March 2009.		
Sl. No. as per letter dated 25.03.2009 of State Environment Impact Assessment Authority		**Compliance Status**
SPECIFIC CONDITIONS		
(i)	A stack of 100 m height shall be provided with continuous on-line monitoring system in respect of Thermal Power Plant [TPP] The data collected shall be analyzed and submitted regularly to the Meghalaya State Pollution Control Board.	**Complied with.** A stack of required height is provided and opacity meter for continuous online monitoring (CEMS) is provided. The data transmission of online data to MsPCB and CPCB are being done through the system.
(ii)	High efficiency Electrostatic Precipitators [ESPs] of not less than 99.98% efficiency shall be installed in the TPP to limit particulate emission to 50 mg/Nm^3	**Complied with.** ESP is provided for thermal power plant and it is working effectively.
(iii)	Sorbent limestone shall be fed (12% of coal by weight) along with coal in the boiler of the TPP to reduce formation of Sox and thus help neutralize the impact of sulphur in coal.	**Complied with.** Provision has been made for lime feeding in boiler through over bed feeding system to reduce the formation of Sox. Project proponent is using limestone for above purpose, as per requirement of the process.
(iv)	Space provision shall be made for Flue Gas De-sulphurisation [FGD] unit of requisite efficiency for removal of SO2 when required at a later stage.	**Complied with.** Provision for flue gas De-sulphurisation has made.

(v)	Dust extraction and suppression system along with water sprinklers shall be provided for controlling fugitive dust during transportation, in coal storage area and other vulnerable area of the TPP.	**Complied with.** Water sprinkling is being carried out on daily basis in plant premises on the places where fugitive dust particles are present. Provision of water sprinklers system has made at coal storage area and other vulnerable area of TPP.
(vi)	Water requirement for the Thermal Power Plant shall be met from the existing water source. No ground water shall be extracted for the power plant at any stage.	**Complied with.** No extraction of ground water for Thermal Power plant is being done.
(vii)	Closed Cycle Cooling system with induced draft cooling towers shall be provided in the Thermal Power Plant.	**Complied with.** Closed cycle cooling system has been adopted and recirculation of cooling water is being practiced
(viii)	Fire protection system shall be made in coal stock yard and other vulnerable areas of the TPP. Fire protection equipment and machinery should be tested periodically and shall always be kept in operational mode. Mock drills shall be conducted regularly.-	**Complied with.** Regular safety training is being provided. Fire protection system along with fire extinguisher of various types is already installed within the entire premises as well as other vulnerable areas of TPP. The fire protection equipments and machineries are being tested periodically and kept in operation mode. Mock drills are being conducted every year by our Safety & Vigilance Department. Details of Mock drills and trainings are attached herewith. ***Annexure-I***
(ix)	The treated effluents shall be re-circulated and reused within the plant area. There shall be no waste water discharge outside the plant boundary.	**Complied with.** The treated water is being utilized for greenbelt development around the plant and colony. Also a surface water sump is made for recycle/Treatment.
(x)	Rain water harvesting shall be practiced. A detailed scheme for rain water harvesting to recharge the ground water aquifer shall be prepared in consultation with Central Ground Water Authority/State Ground Water Board within six months of receipt of Environmental Clearance.	**Complied with.** The PP has upgraded the existing system. Scheme for rain water recharging pit has been made, the lay out copy is submitted earlier. The rain water collection and reuse also being practiced to fulfill the requirement of cooling water as well as drinking purpose during monsoon period.

(xi)	Permission for drawl of water of the required quantity from the streams in favor of the Cement – Thermal Power Plant complex shall be secured from the competent Authority within 6 (six) months of receipt of Environmental Clearance.	**Complied with.** Permission for drawing of water has been obtained from Executive Engineer (Irrigation), Jaintia, Hills Dist; vide letter no.AID (J) 223/2007-2008, Dated Jowai 24/03/08 was enclosed earlier.
(xii)	Noise level in the Thermal Power Plant premises shall be limited to 75 dB and regular maintenance of equipment should be undertaken. For personnel working in high noise areas, personal protection devices like earplugs /ear muffs, etc. should be provided. Workers engaged in noisy areas such as turbine area, air compressors, etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss apart from exercising option of shifting to non noisy/less noisy areas when necessary.	**Complied with.** Noise level in TTP premises is under limit. Necessary PPEs to employee are being provided. We have fully automated system for operation of turbine, so the exposure of employee to the high noise is minimum. The PP has provided an acoustic covered screw air compressor to maintain the noise level within the acceptable limit. The regular routine testing is been carried out as per the manufacturers' manuals and, by using the necessary PPE's. (Half yearly report is enclosed). ***Annexure-II***
(xiii)	Acoustic hoods shall be provided in respect of all equipment that has potential to contribute towards noise pollution and additionally technical improvement measure detailed in Para 4.3.2 of the EIA/EMP report of the project proponent shall be adopted in the TPP towards noise attenuation.	**Complied with.** The project proponent has provided acoustic hoods in the Thermal Power Plant.
(xiv)	Dry ash collection system shall be provided in the Thermal Power Plant. 100% ash utilization shall be ensured from the very first day of commissioning of the Thermal Power Plant.	**Complied with.** Fly ash generated in Captive Power Plant is completely collected silo through ESP and it is being loaded into tankers for feeding to cement mill hoppers pneumatically. Hence 100% consumption of the ash generated is achieved in our cement plant.

(xv)	The stack emission from various sources shall not exceed 50 mg/Nm3	**Complied with.** (Six month's report is enclosed) as an ***Annexure- II***
(xvi)	The project proponent shall get the optimum functioning of the environmental protection equipment certified by a technical institution of repute.	**Complied with.** Performance assessment has been conducted as per as the norms by the NCCBM, New Delhi. The test results are submitted earlier. Further the project proponent is continuously maintaining the pollution control devices to maintain the efficiency.
(xvii)	Bag House/Filters shall be provided to control the fugitive emission during loading and unloading of raw materials/intermediate and finished products.	**Complied with.** Nuisance bag filters has been provided to control fugitive emission at Raw Mill, Coal Mill, Kiln and Cement mill. Water sprinkler has also installed at transportation area, Coal storage area and other vulnerable area of the plant.
(xviii)	The project proponent shall store all the raw materials except limestone in covered sheds to control fugitive emission. The coal storage facility should have water sprinkling facility in order to arrest fire hazard, if any.	**Complied with.** Proper water sprinkling on the places of fugitive dust generation is implemented and controlled.
(xix)	The ambient air quality monitoring stations shall be set up as per statutory requirement in consultation with the Meghalaya State Pollution Control Board **(MsPCB)** and additional stations shall be installed, in the downwind direction as well as where maximum Ground level concentrations are anticipated.	**Complied with.** Ambient Air Quality monitors – Installed as required having one point at crusher area where maximum concentration is anticipated. (Six month's report is enclosed) ***Annexure-II***

(xx)	Quarterly reports on emission levels, surface and ground water quality shall be submitted to Meghalaya State Pollution Control Board, Chromium (VI) level in nearby surface water bodies flowing in the eastern site of the Plant, and ground water shall be monitored and reported to the MSPCB. Water in the Common Effluent Pit of the TPP shall be monitored monthly for Chromium (VI) toxicity and ensured that its level dose not rise beyond 0.05 mg/t.	**Complied.** Monitoring of surface water from River pumped to CPP and surface water from water harvesting pit near primary crusher is being tested and reports are being submitted to MsPCB, Chromium (VI) level testing from the effluent is also been tested on monthly basis and reports are attached herewith. ***Annexure- III***
(xxi)	Total water requirement shall not exceed 2000 cum/day [inclusive of the water requirement of the TPP]. The project proponent shall install sewage treatment plant of minimum 120 m^3 /day capacity employing suitable and appropriate technology to treat domestic sewage and treated sewage shall be utilized for green belt development. No waste water shall be discharged outside the premises and zero discharge shall be ensured. No surface runoff from the factory premises shall either reach/contaminate Um-lunar River or any other stream flowing near the industrial location.	**Complied.** Total water requirement will not exceed 2000cum/day including TPP. The PP has install the STP to treat and reuse the residential waste water and ETP to treat and reuse the waste water generated from HEMM workshop to ensure zero discharge.STP treated water is being used for greenbelt development and sprinkling purpose. ETP treated water is reuse for vehicle washing. ***Annexure-II***
(xxii)	The project proponent shall make all out effort to use high calorific value hazardous waste in the kiln towards which necessary provision shall be made.	**Complied with.** The project proponent has made a mechanical arrangement for feeding of plastic waste in pre-calciner at pre- heater and using the waste as alternative fuel on availability basis.
(xxiii)	The project proponent shall transport raw materials and industrial products through covered means.	**Complied with.** Raw materials like coal and industrial products like clinker are being transported from one location to other location by properly covered with tarpaulin to avoid any spreading of fugitives.

(xxiv)	Thirty three percent of the core project area i.e. 20.143 Ha of land shall be developed as green belt by the project proponent as per the guidelines of Central Pollution Control Board to mitigate the effect of fugitive emission, incurring the expenditure as stated by the project proponent. The program ought to be completed within 5 years from the date of issue of prior Environmental Clearance. Suitable species in respect of the same for the stated area shall be approved by the project proponent from the DFO (Territorial) of Jaintia Hills District.	**Complied with.** Development of Green belt had been started in the Year 2009 and 100% of the project area **(i.e. 20.44 Ha)** plantation has been completed. Suitable local species are being planted as per the suggestions given by the Sr. Engineer, (CPCB) & DFO (Territorial); East Jaintia hills Dist, Jowai. The details are enclosed herewith for your kind reference. Additional 03 numbers of blocks having total area of 2.79 ha has been planted with local species around the project area. Total plantation including project area and around the project area is 22.835 ha. ***Annexure - IV***
(xxv)	The project proponent shall provide a Health Care Center with all emergency medicines and ambulance along with regularly serving doctors complete with emergency unit that would function round the clock. Occupational health surveillance of the workers shall be carried out on a regular basis and records shall be maintained in compliance of provisions contained on Chapter III and V of the Factories Act, 1948.	**Complied with.** The Health Care Centre is functioning under qualified Doctor, Nurses and staffs. The company has also an Ambulance facility to meet up the emergency.
(xxvi)	The salaries of the Cleaners shall be raised by 30% from the present Rs.2500/- p.m. as assured by the project proponent at p.0.15 of the EIA/EMP report in response to concern raised during the Public Hearing.	**Complied with.** The salaries of Cleaners are being reviewed on the yearly basis. The details are already submitted earlier.
(xxvii)	Measures shall be taken to prevent impact of particulate emission/fugitive emission, if any, from the proposed plant on the surrounding private forest areas depicted in their land use study.	**Complied with.** Necessary measures such as bag filter maintenance, Dust suppression is being practiced. The firm is in process for Ambient Air Quality Analysis nearby plant area to verify the air quality.

(xxviii)	The project proponent shall take all such measures as are necessary in the matter of utilization of limestone towards ensuring that no unscientific extraction of limestone is encouraged in the process.	**Complied with.** During the renewal of mines lease, the project proponent practice with to verify the environmental clearance.
(xxix)	Meghalaya has been recognized as a cradle for several endemic species and an important constituent of the biodiversity hotspots spread over North East India. Therefore, as a measure of protection of rich biodiversity of the region, the project proponent shall cover an area of not less than 2 ha where would be located green house, mist chamber etc. (within the green belt area already stipulated above), locate conservation plots in respect of at least two of the following species of endangered and endemic plants reported to have been occurring within the region: i) *Pteracanthus griffithianus,* Acanthaceae ii) *Nepenthes Khasiana,* Nepenthaceae iii) *Argostemma khasianum,* Rubiaceae iv) *Fimbristylish nigrobrunnea,* Cyperaceae v) *Trivalvaria kanjilali,* Annonaceae vi) *Begonia rubrovenia,* Begoniaceae vii) *Ceologyne ovalis,* Orchidceae A scheme /conceptual plan of raising such threatened species shall be prepared in consultation with a reputed institution such as Botanical Survey of India complete with cost and activity schedule within one year from date of issue of prior Environmental Clearance.	**Complied with.** The company has started the work in co-ordination with Environment Department of North Eastern Hill University, Shillong. The NEHU, officials have already appointed a Project fellow for the Project and he is now working at our site on Biodiversity Conservation Plan with focus on conservation of the schedule –I species in the area. The green house has developed and conservation of three flora species namely: *Fimbristylish nigrobrunnea,* Cyperaceae, *Begonia rubrovenia,* Begoniaceae and *Ceologyne ovalis,* Orchidceae has been initiated ***Annexure –V***

(xxx)	The project proponent shall sponsor research and development for conservation of threatened category of species occurring locally such Hedychium dekianum, [Zingiberaceae], Cymbidium eburneum (Orchidceae), or Dendrobium denonianum (Orchidceae) which would be carried out by an appropriate research or academic institution located in Meghalaya within a year of issue of prior Environmental Clearance. The research project shall be instituted at an expenditure of a minimum of Rs.5 lakh per year spread over at least 3 years.	**Complied with.** The Project proponent has started the work in co-ordination with Environment Department of North Eastern Hill University, Shillong. The NEHU, officials have already appointed a Project fellow for the Project and he is now working at our site on Biodiversity Conservation Plan with focus on conservation of the schedule –I species in the area. The green house has developed and conservation of three flora species namely: *Fimbristylish nigrobrunnea,* Cyperaceae, *Begonia rubrovenia,* Begoniaceae and *Ceologyne ovalis,* Orchidceae has been initiated ***Annexure –V***
(xxxi)	A Conservation Plan for conservation of wild fauna in consultation with a reputed institution such as Wildlife Institute of India, Dehradun shall be prepared and implemented. Such conservation plan drawn in respect of wild life shall be completed within a maximum of 1 year from the date of issue of prior Environmental Clearance and implemented thereafter by the project proponent.	**Complied with.** Questionnaire survey to account for the existing fauna in the project area and its surrounding has been completed and the list of fauna has provided by NEHU. Further, camera traps have been installed near the project area and final report on existing fauna in the project area will be prepared by NEHU on the basis of data acquired by camera traps. Plantation of fruit plan bearing species in the project area has done as per Central Pollution Control Board guideline, so as to encourage the increase visitation and roosting of avian species. ***Annexure –V***
(xxxii)	A sum of Rs.2109.52 lakh shall be spent towards capital expenditure as stated by the project proponent towards environment protection and a further sum of Rs.501.60 lakh as recurring cost annually shall be spent by the project proponent towards environmental protection.	**Complied with.** An expenditure detail is enclosed herewith. ***Annexure -VI***

(xxxiii)	A sum of Rs.50 lakh shall be utilized annually by the project proponent till the project subsists towards socio-economic/eco-development activities in the area part of which shall be spent towards distribution of free medicines, malaria eradication program etc. in the nearby villages. A portion of the sum (5%) shall be set apart annually towards creation of employees' welfare fund. Details of expenditure incurred under this Para shall form part of the compliance report to be submitted to the SEIAA/SEAC. Further, a comprehensive long term eco-development plan shall be prepared by the project proponent within six months of receipt of prior Environment Clearance.	**Complied with.** Implementation done and the expenditure details are enclosed herewith. ***Annexure -VII***

A. GENERAL CONDITIONS

In respect of the Cement Plant – Thermal Power Plant project the following general conditions shall be adhered to by the project proponent:

(i)	The project proponent shall strictly adhere to the stipulations of the MSPCB/State Government or any other statutory body as framed/modified from time to time.	**Complied.** Following the stipulation of MSPCB.
(i)-a	The Project Proponent shall not violate applicable provisions of any Acts, Rules Orders of the Government and judicial orders issued by the Hon'ble Supreme Court/High Courts/NGT, applicable to the project.	**Agreed for compliance.** The Project Proponent will implement all applicable provisions of any Acts, Rules Orders of the Government and judicial orders issued by the Hon'ble Supreme Court/High Courts/NGT, applicable to the project.
(ii)	At no point of time, either the clinker production or cement production of either PPC or OPC type shall exceed the limit of 2600 tons per day.	**Agreed for compliance.**

(iii)	No further expansion or modification in the plant shall be carried out without prior approval of the Ministry of Environment & Forests or their nominated authority as the case may be. In case of deviation or alteration in the project proposal from those submitted to the Committee for clearance, a fresh reference shall be made to the SEAC through SEIAA to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	**Agreed for compliance.** No further expansion or modification will be carried out without prior clearance.
(iv)	The gaseous emissions (SO_2, NO_x) and particulate matter levels from various process units shall conform to the standards prescribed by the concerned authorities from to time. At no point of time, the emissions shall exceed the prescribed limits. Interlocking system of equipment shall be chosen such that in the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	**Complied.** ABB make SCADA based Interlocking is in system to control SO_2, NO_x levels in case of failure and working effectively
(v)	The project authorities should adhere to the provisions stipulated in the fly ash notification of September, 1999 as amended in August, 2003 with regard to fly ash utilization.	**Complied with.** Fly ash generation in our Captive Thermal Power Plant is completely collected by the ESP to its hoppers and it is being loaded into tankers for feeding to cement mill hoppers pneumatically. Hence 100% consumption of the ash generated is achieved by our cement plant.

(vi)	The industry shall undertake the following waste minimization measures: • Reuse of by-products from the process as raw materials or as raw material substitutes in other process. • Use of closed pneumatic system for transport of fine material. • All venting systems shall be connected with dust or particulate arresting equipments. • Dust/particulate matter collected in pollution control equipments shall be reused.	**Complied with.** The Project Proponent is not generating any kind of bi-product of process. Closed pneumatic system is installed for transport of the fine material in the manufacturing process. All venting systems are connected with dust or particulate arresting equipments such as Bag Filters.
(vii)	Fugitive emissions in the work zone environment, product and raw materials storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution Control Boards/Central pollution Control Board.	**Complied with.** Monitoring of fugitive emission is already been under taken and the tests were conducted in-house with our team and also by the third party. The Project Proponent is submitting monthly report to MsPCB which is generated by the third party as well as our laboratory team.
(viii)	Dust/particulate matter collected in pollution control equipments shall be reused. Spares would be maintained in respect of all pollution control equipment. Maintenance and optimum functioning of the pollution control equipment shall be ensured by the project proponent.	**Complied with.** The Project proponent has provided different types of Environmental Protection Equipments for collection of dust/particulate matter and to reuse the same in our process. The required spares parts are also maintaining for optimum functioning of the said equipments.
(ix)	The project proponent shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, as amended from time to time. Authorization from the MSPCB shall be obtained for collection, treatment, storage and disposal of hazardous wastes.	**Complied with.** Authorization letter No (ADDENDUM). MPCB/ATH-21/2007/ 2018-2019/14; dated 5th July 2018 for 2600 TPD cement manufacturing plant, valid up to 30th November, 2020 and Authorization letter No (ADDENDUM). MPCB/ATH-46/2017/2018-2019/2; dated July 2018 for 10 MW CPP, valid up to 31st August,2022 obtained from MSPCB.

(x)	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Environmental Quality Monitoring functions. A state of the art Chromium testing kit shall be maintained in the laboratory.	**Complied with.** Dedicated environmental Management Cell is functioning and Environmental quality functions like Ambient Air Quality Monitoring, Stack Monitoring Emission, Drinking Water Quality and Waste Water quality are being regularly monitored. Chromium testing for CPP blow down water is also being carried out regularly.
(xi)	All pollution control equipment in STP of the type specified by the project proponent shall be duly installed and manned full time by trained personnel appointed for the purpose.	**Complied with.** The Sewage Treatment Plant (STP) has been installed and the capacity of the same is 100m³/Day, and the treated water being utilized for suppresses the fugitive dust of our internal roads. The Effluent Treatment Plant (ETP) has been installed near Vehicle Work Shop and the treated water is being recycled for the same purpose. The capacity of the ETP is 25 kL/Day. The Neutralization Pit has been also installed at CPP. Rejected water generates through De-mineralization of water is being neutralized in the neutralizing pit and then used for green belt development. Drainage system and STP, ETP and NPT map are submitted earlier.
(xii)	A six monthly compliance status report shall be submitted to SEIAA/SEAC and Regional Office, Ministry of Environment & Forests, Govt. of India, Shillong apart from posting the same on the website of the Company.	**Complied with.** Half yearly compliance reports along with monitoring data are being submitted to concerned officials on the regular basis and posting the same data on the website also. .

(xiii)	Implementation of the project vis-à-vis environmental action plans shall be monitored by the Regional Office, Ministry of Environment & Forests duly assisted by the SPCB. The Regulatory Authority may revoke or suspend the clearance on the recommendation of the SEAC, if implementation of any of the above conditions is not satisfactory. The Regulatory Authority may on the recommendation of SEAC reserve the right to stipulate additional conditions, if found necessary. The company in a time bound manner shall implement these conditions too. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management & Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and Rules.	**Agreed for compliance.**

INTERNAL FIRE MOCKDRILL & EMERGENCY PROGRAMME

DATE: 31/12/2018

THEME: MOCKDRILL ON FIRE

CONDUCTED BY	: Safety deptt for Emergency activation of CPP employees and security staff.
VENUE	: CPP
DATE	: 31/12/2018
TIME	: 3:13 PM – 3:55 PM
NUMBER OF ATTENDED PERSONS	: 29 Persons.
NAME OF INFORMER	: Boiler operator
ALARM RAISED BY	: CCR Desk operator (after got the information)
FIRE CAUGHT	: At around 3:13 PM.
FIRE-FIGHTING & RESCUE TEAM REACHED	: At around 3:17 PM
TOTAL LIVING PERSONS	: In Fire caught area 05 persons.
PERSONS EVACUATED TO	: Safe zone within 8 minutes.
LAST PERSON EVACUATED	: At around 3:26 PM.
'FALLING THREE' PROCESS	: Head counting started during evacuation Simultaneously.
TOTAL RESCUER	: 04 persons
DECLARATION	: After getting everyone in counting as well as Extinguished the fire, the area was declared safe and total 04 persons were safely evacuated.

On 31st Dec'2018 **at around 3:13 PM to 3:55 PM at CPP Boiler area** "Mock Drill on Fire" was held total 29 persons were involved from CPP & Security staff.

Main Motto of the training programme was, in case of any fire emergency how to fight and control & extinguish the fire and how to handle the situation and rescue the persons from fire area to safe zone, as well as practically shown the Drill to involved persons along with rescue systems of casualties. We shown to participants about rescue procedure, if found senseless due to fire accidents then immediately how to rescue the injured persons (casualties) & also shown its procedure.

Mock Drill - Suddenly a siren was raised by CCR desk operator after got the information from Boiler operator Boiler house, according to siren & information by Boiler operator a Fire fighting team along with Fire & Emergency Van & Tanker reached the spot within 3 minutes, workers were evacuated from Hot Zone to Cold zone i.e. safe zone, one person at around 3:26 PM he evacuated from there he was last men. As per information of our 1st responders team Fire caught in bad materials. During rescue simultaneously head counting also continued at safe zone by helping of 'Falling Three' procedures and finally observed total casualties were

moved from Fire caught area. After safely evacuation of workers immediately Fire extinguishing process had started, due to major fire it was extinguished by Fire Fighting Tanker,

Medical team also in ready position during emergency for help and further first-aid of causalities, after extinguished and controlled, Safety officer observed & investigated the area and taken the report of property lost & damage as well as after mitigation Safety officer had declared that it is now safe.

1) TURN OUT: Employees were taught how to fight with fire at the time of Emergency and given knowledge about evacuation process & First Aid knowledge also imparted them.
2) SAFE ZONE ASSEMBLY: Employees were taught about why and how gathered at assembling point also introduced "COLD / SAFE ZONE".
3) VICTIMS: Demonstrations for treating victims & shown to everyone. All the victims were treated & transported for Medical Aid to the nearby facility by the employees of MCL and they were aided by the Medical staff.
4) ATTANDANCE & CHECKING OF DAMAGE PROPERTY & LIVES LOST AND REPORTING. After the drill Safety officer with his team visited the area & estimated the damages.
5) COMMUNICATION: Safety officer makes the communication to concern as well as informed to unit head about the incident and for further action.

CONCLUSION: Training is important part for help to educate of employees for make potential and competent in this regards the Fire Mock drill was held which help to spread knowledge to our employees as well as participants also can understand and gain the knowledge about Fire mock drill, it was observed most of the workers activated while siren rang and every involved persons learned the lesson and became active.

Safety Officer

DGM Safety

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ANNEX-I

SILICOSIS AWARENESS CAMPAIGN REPORT

Date: 12.03.2019

- **THEME: Taught about Prevention of Silicosis, Elimination of Dust, Control Air borne dust, Medical Examination etc.**
- **TRAINER'S NAME:** - DGMS (Shri K. Ravinder)
- **VENUE:** - Community Hall
- **DATE:** - 12.03.2019
- **TIME:** - 10:AM TO 12: 30 PM & 2 PM to 5 PM
- **DURATION:** - 5. 5 HOURS
- **NUMBER OF PARTICIPANTS:** - 45 persons were attended.

On 12th March'2019 we have conducted "SILICOSIS AWARENESS PROGRAMME" By DGMS Shri Ravinder Reddy at Community Hall at time 10 AM to 5 PM, total 45 persons were participated from each various department workers, staff, officers/Engineers & Managers. At the time of working in Mining area or in industry / crusher area & coal yard what precautions to be taken to avoid of occupational hazards like 'SILICOSIS' and its introduction etc..

SILICOSIS

- Disease of lungs caused by breathing dust containing crystalline silica particles
- Dust causes fibrosis (scar tissue) in the lungs which reduce the ability of the lung to extract oxygen from the air

✓ Early stages of disease may go unnoticed, Continued exposure may result in –
- shortness of breath, possibly fever.
- Occasionally blucing of skin at ear lobes and lips due to reduction in circulation
- More susceptible to infectious diseases (particularly tuberculosis)

✓ Progression of disease leads to-
- Fatigue, extreme shortness of breath
- Loss of appetite
- Pain in chest
- Respiratory failure which may cause death

✓ **Diagnosis of Silicosis-**
- Normally detected in Periodic Medical Examination
- Lung functions are or mild Restrictive or Mixed pattern, till late stage.
- Chest X-ray shows typical fine granular opacities initially and large shadows only in case of PMF.

✓ Broad based actions required to be taken for control –
- Early diagnosis of Chest ailments
- Periodic Medical Examination of all employees once in every three years for employees above 45 years, once in five for employees below 45 years.
  (Mines Rule 29 B of 1955 & Recommendation of Tenth Safety Conference)
- PME once in every year for employees of all categories above 60 yrs of age. (Cir Tech 7/2011)
- More emphasis to be given on Pulmonary Function Test & ILO Classification of Chest X-rays in Medical Surveillance of Mines employees as per the modified Statutory Form 'O' used for PME. (Cir Tech 5/2011)

✓ Specific actions taken by the Directorate on NHRC recommendations –
- DG's Tech Circular been issued to all Managers, Agents and Owners of Mines in regards to Respirable Dust Measurements and Control to Prevent Pneumoconiosis in Mines which specified:
- Exposure limits

ANNEX – I

- Occupational Health survey and Monitoring.

✓ WHY THE AWARENESS PROGRAMME? –

- The persons working therein are liable to be affected by an incurable lung disease called silicosis.
- Silicosis is caused by inhaling silica dust over a period of time.
- Silica (sio_2) dust is generated during mining, crushing and grinding of minerals such as sand stone, slate, granite, limestone and qurtzite are and also during construction activity involving concrete and clay bricks, glass manufacturing and sand blasting
- The disease often has fatal consequence
- There is lack of awareness amongst the people in general about the cause, consequence and preventive measures of the diseases.
- Minerals containing free silica are being mined in every state of our country
- These mines are largely in unorganised sectors
- Most of the mining/crushing/grinding is done without effective dust control
- No advanced technology is adopted
- Mine/plant operators are either unaware of their statutory obligations or deliberately ignore health care issues of their workers
- Medical examination of workers is not done periodically.
- There is dearth of doctors trained in diagonising silicosis/dust pneumoconiosis
- Very few states have constituted dust pneumoconiosis boards to check and monitor this disease
- Hence the disease go undetected and to the extent of fatality
- There is an urgent need to focus on this issue

HENCE THE AWARENESS PROGRAMME IS NECESSARY.

✓ **SOCIO ECONOMIC ASPECTS –**

- In unorganised sectors, proper record of employment is seldom maintained
- As such, affected work-persons do not get medical aid, compensation etc.
- Due to reduced lung capacity and continued ailment the work-person is rendered jobless
- Ultimately a family & the society suffer
- The industry also suffers due to loss of skill.

✓ PREVENTION OF SILICOSIS

- Elimination of Dust, Dust suppression by water sprinkling and water spraying to be strictly ensured in Haul roads, man ways as well as working phases.
- Dry Drilling in mines to be completely stopped
- Dust suppression by approved wetting agent.

✓ Control of dust during drilling - Dust control can be done by :-

- By using sharp bits
- Wet drilling by using water.
- By using dust extractors
- By providing air tight enclosed cabins on drills rig and mobile equipment.

- By using personal protective equipments like respirators as the last resort

✓ **Dust control in Handheld Jackhammer drills.**

- Jack hammers are most common in small and medium quarries/industry
- Drill steels have central annulus for water flow to the bit.
- The cuttings flush out as sludge through the gap between wall of holes and steel.
- Apart from wet drilling use of dust mask is a must, as
  - Small amount of air leaks piston and collects dust which comes out with sludge.
  - deollaring, drillers avoid to open water

✓ **DUST CONTROL AT LOADING AND DUMPING POINTS:**

- Blasted muck prior to loading to be completely drenched with water. Spray loaded vehicles with water.
- No overloading of vehicles to prevent spillage and crushing on haul road, adequate water spraying at all dumping points.
- The height of fall at tipping or transfer points must be optimized
- Enclose the transfer point tightly to exhaust the dust-laden air.
- Inactive top and slopes of all dumps to be planted.

Conclusion: As a civilized society, it is the duty of all stake holders be it the state, regulatory bodies, mine /plant operators, workers, local administration, media, society and ngos) to protect and preserve our valuable human resources.

Asst. Manager [Safety]

DGM [SAFETY]

ANNEX-I

SILICOSIS Awarness Programme
Conducted by DGMS, Guwahati Region
M/s Meghalaya Cements Ltd
Date: 12.03.2019.

Sl No	Name	Designation	Signature
1	Shri K. Ravinder	DDMS	
2	Shri R.K. Pareek	Unit Head	
3	Shri N. Narayana Reddy	Manager	
4	A. M. Barbhyuiya	Asstt. Manager	
5	Dr. Gautam Sharma	Doctor	
6	Amit Kumar	Asstt. Manager	
7	Sudarsha Dasgupta	Mines Foreman	
8	Ashok Kumar	Mines Foreman	
9	Ashok Kr. Pandey	Mines Foreman	
10	S.A. Choudhary	Asstt. Surveyor	
11	Ram Pada Patra	Surveyor	
12	Sanjay Kr. Singh	Mining Mate	
13	Nilupam Borah	Register Keeper	
14	Nabajit Nath	Supervisor	
15	Rakesh Sharma	Mining Mate	
16	Vakil Pandit	Mining Mate	
17	Dileep Kr Tripathi	Mining Mate	
18	Uday Kr Jha	Blaster	
19	Manmohan Jha	Supervisor	
20	Bikki Kumar	Supervisor	
21	Bidyut Baidya	Supervisor	
22	Ajay Kr. Thakur	Drill Opt	
23	Arun Kr. Swargiyari	Drill Opt	
24	David Tiru	Drill Opt	

ANNEX-I

SILCOSIS Awarness Programme
Conducted by DGMS, Guwahati Region
M/s Meghalaya Cements Ltd
Date: 12.03.2019

Sl No	Name	Designation	Signature
25	Hansraj Pal	Blaster	[signature]
26	Upendra Prassad	ROC Opt	[signature]
27	Balwant Pal	Blaster	[signature]
28	Hemanta Borah	ROC Opt	[signature]
29	Ranjit Swansi	Supervisor	[signature]
30	Mintu Malakar	Supervisor	[signature]
31	Pankaj Prassad	Engineer	[signature]
32	Pankaj Yadav	Engineer	[signature] 12/03/19
33	Brijlal Kumar	Mining Mate	[signature]
34	N.I Laskar	Mechanic	[signature]
35	V.K. Thakur.	Sr. Supervisor	[signature]
36	Krishna Chetry	Surveying dept	[signature]
37	[illegible]	[illegible]	[signature]
38	Ajibul Laskar	Mines	Ajibul
39	Ajeet Basmy	Mines	[signature]
40	Kasim	Mines	MD-KASIM
41	Joynal Uddin	Mines	[signature]
42	pabitradainary	Mines	[signature]
43	Brijlal Kr Kumar	Asst Mgr-Safety	[signature]
44	B Bhagawan Singh	DGM SSV	[signature]
45	Nasir Rahman	Assistant - IT	[signature]
46			
47			
48			
49			
50			

ANNEX - I

FIRE FIGHTING TRAINING REPORT

Date: 16.11.2018

- **THEME: Taught Fire Fighting procedure, Classification of fire, Types of fire extinguisher & its operation and** various rescue process as well as studied emergency preparedness & response plan.
- **TRAINER'S NAME**: - Mr. Ganesh Quila
- **VENUE**: - Vocational Training Center
- **DATE**: - 16.11.2018
- **TIME**: - 3: 30 PM TO 5:30 PM
- **DURATION**: - 2 HOURS
- **NUMBER OF PARTICIPANTS**: - 10 persons were attended.

On 16th Nov'2018 we have conducted "FIRE FIGHTING TRAINING" at VTC(Vocational Training Center) at time 3:30 PM, total 10 persons were participated from MCL Security Fire responder team. At the time of any Fire emergency how to fight with fire & what precautions to be taken during that situation those were discussed as well as explained 'EMERGENCY PREPAREDNESS' code of practice i.e. Siren alarming system, how to activate or rush to assembling point after hearing the siren. Taught about operation of available Fire Extinguishers and sand bucket.

Classification of Fire: Fire is five (5) types.

A class Fire: Fire involving combustible materials of Organic nature.

- Example: wood, paper, rubber plastic etc.
- For extinguishing fire involving this class we can use Water, Foam, ABC, DCP, CO_2 type Fire Extinguisher.

B class Fire: Fire involving Flammable liquids.

- Example: diesel, petrol, kerosene, etc.
- For extinguishing fire involving this class we can use Foam, ABC, DCP, CO_2 type Fire Extinguisher.

C class Fire: Fire involving flammable Gases.

- Example: LPG etc.
- To extinguish the fire we should close down the supply of gas by closing the valve and simultaneously for cooling Co_2, DCP & ABC type Extinguisher can be used.

D class Fire: Fire involving combustible metals.

- Example: magnesium, aluminum, zinc etc.
- For extinguishing fire involving this class we can use ABC & DCP type Fire Extinguisher.

E class Fire: Fire involving on Electrical appliances.

- Example: Computer, motor, switch etc.
- For extinguishing fire involving this class we can use CO_2, ABC & DCP type Fire Extinguisher.
- ✓ For Electric Fires switch of the power supply before attempting extinguish the fires. & it is **Dangerous if use water or Foam type fire extinguisher on live Electrical Equipments**

ANNEX-I

- Which type of Fire extinguishers can to use on what type of Fire.
- Classification of Fire and according to it explanation of types of fire.
- Explanation of Emergency preparedness as per the reference of MCL Emergency preparedness.
- Firstly know where we kept our Fire extinguishers that explanation as per reference of extinguishers report.
- Communication procedure during emergency.
- During Fire what can do or do not.
- Operating procedure of Fire extinguishers.

- Rescue process – Demonstrate rescue process to all participants & one by one they practiced rescue process. Following rescues are shown & demonstrate.
  - **One casualty – one rescuer** (Pick on back, Reverse pick on back, man crown, man catch, down stair).
  - **One casualty two rescuers** (Two Hand Seat & Four Hand Seat).
  - **Stretcher Rescue.**

Finally I shown a demo on Fire how to use Fire Extinguisher for extinguish of fire safely each and every one operated the extinguishers and understood fire fighting process.

ANNEX - I

Meghalaya Cements Ltd.

Vill: Thangskai,P.O.Lumshnong, East Jaintia Hills, Meghalaya-793210

Attendance Sheet for IMS/EnMS/External Agency Training

Doc.No: MCL/IMS&EnMS/HR& A/TAF/019
Rev No.:01
Date: 01.04.2018

Training Details : **Fire Fighting Training**

Agency : **In-house.**

Date : **16.11.18**

Time : **3:30 PM onwards**

Name of Trainers : Mr. Ganesh Gurla

Attendance Record:

Sl. No.	*Emp Code*	*Employee Name*	*Department*	*Designation*	*Signature*
1		[illegible]	HR & Securt	Sy [illegible]	[signature]
2		Salahuddin Khan	HR&A	Security	[signature]
3		Tajendra [illegible]	"	"	[signature]
4		[illegible]	"	"	[signature]
5		[illegible] Nath	"	"	[signature]
6		Prof P Borah	"	"	P. Borah
7		Amal Lahkar	"	"	[signature]
8		Montu Kr Borah.	"	"	[signature]
9		Nirmal chand	"	"	NC

9...

ANNEX-I

10		Kolkata	HRBA	Sr Supervisor	
11					
12					
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HOD

ANNEX-I

Meghalaya Cements Ltd.

Thangskai, P.O Lumshnong East Jaintia Hills, Meghalaya - 793210

Evaluation of Training

Doc. No.: MCL/IMS&EnMS/HR&A/ET/020
Rev. No. :01
Date:01.04.2018

Dept:

Trainer Evaluation Format by trainees

Training Details: IMS/EnMS :

Trainer: [signature]

Training Subject: FIRE FIGHTING TRAINING.

Training Date: 16-11-18

Evaluation Date: 16-11-18

Trainees Feedback after training:

SL. NO.	EMP. CODE	NAME OF TRAINEES & DESIGNATION	DEPTT.	TRAINEES FEED BACK ABOUT TRAINERS	SIGNATURE OF TRAINEES	*OUTCOMES OF TRAININGS LEARNING*
1		[illegible] - Security [illegible]		Good.	[signature]	
2		Salah uddin Khan - Security		Good.	[signature]	
3		[illegible] Chettri - Security	HR & A	Good.	[signature]	
4		Nizam uddin [illegible] - Security		Good	[signature]	
5		[illegible] Nath - Security		Good.	[signature]	
6		[illegible] Basak Security.		Good.	[signature]	
7		Amal Lahkar Security.		Good.	[signature]	
8		[illegible] Kr. Bora - Security.		Good.	[signature]	
9		Nirmal Chandra - Security.	HR&A	Good.	[signature]	

[signature]

ANNEX-I

10		Leadership & Supervision	HR	Good		
11						
12						
13						
14						

Signatures:

Training organizer	HOD (HR)	HOD (Concern)	M.R.

ANNEX - II

MEGHALAYA CEMENTS LIMITED

Six Monthly Reports: Stack Emission Report, 2018-2019

Chimney		Suspended Particulate Matter (PM):mg/Nm^3							
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	Concentration not to exceed, in mg/Nm^3
Pr. Crusher		20.35	21.52	19.7	20.8	19.60	21.80	**20.628**	30
Sec. Crusher		18.20	20.42	17.4	19.67	18.46	13.00	**17.858**	30
Coal mill 1		29.96	28.89	25.8	26.96	26.96	28.80	**27.895**	30
Coal mill 2		28.90	29.56	27.2	28.41	28.41	28.20	**28.446**	30
RABH 1	PM	18.20	19.20	18.40	11.90	16.40	17.00	**16.85**	30
	SO_2	921.30	801.10	734.85	623.10	617.30	863.46	**760.185**	1000 (Based on pyritic sulphur presence in limestone)
	NOx	334.20	534.90	404.84	416.10	389.20	260.37	**389.935**	600
RABH 2	PM	13.90	14.60	17.20	10.90	14.80	14.80	**14.366**	30
	SO_2	890.70	788.90	719.24	798.90	696.40	752.26	**774.40**	1000 (Based on pyritic sulphur presence in limestone)
	NOx	295.20	420.10	321.29	425.40	361.40	232.41	**342.633**	600
ESP 1		29.40	26.10	23.4	28.2	23.80	27.60	**26.41**	30
ESP 2		27.70	26.90	24.70	24.30	20.40	28.10	**25.35**	30
Cement Mill No-1		24.12	23.42	25.8	26.4	22.92	20.90	**23.926**	30
Cement Mill No-2		20.30	19.58	21.4	26.53	25.53	19.20	**22.09**	30
Packing House-1		23.10	24.58	23.4	25.32	21.59	20.80	**23.131**	30
Packing House-2		23.86	24.66	16.1	18.28	19.82	16.00	**19.786**	30

Regd. Office and Works: Village Thangskai, P.O. Lumshnong, Dist Jaintia Hills, Meghalaya Pin-793200 Ph.:03655-278324/363/364
Corporate Office: BE-77, Salt Lake City, Sector – 1, Kolkata – 700 064, Ph.:033 23340666/0004, Fax: 03655 278327

ANNEX-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Ambient Air Quality Report,2018-2019

Location		Ambient Air Quality (AAQ): µg/m^3							
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	MoEF notification G.S,R 826(E), dated 16.11.2009, Concentration not to exceed,
DG House	PM_{10}	64.57	67.57	43.82	55.93	57.64	56.26	**57.631**	100
	$PM_{2.5}$	47.28	49.31	28.76	39.62	41.32	39.19	**40.913**	60
	SO_2	31.76	33.85	31.42	29.64	31.44	34.68	**32.131**	80
	NOx	23.59	24.74	23.47	21.51	23.11	25.26	**23.613**	80
Guest House	PM_{10}	49.59	52.58	37.54	61.54	63.42	61.77	**54.406**	100
	$PM_{2.5}$	37.65	39.52	27.67	31.54	33.23	31.42	**33.505**	60
	SO_2	39.42	41.57	22.38	19.36	21.16	24.96	**28.141**	80
	NOx	19.96	20.49	16.24	15.82	17.97	19.58	**18.343**	80
Crusher	PM_{10}	72.48	75.88	48.67	59.61	61.28	58.52	**62.74**	100
	$PM_{2.5}$	49.38	51.57	30.51	42.26	45.24	43.68	**43.773**	60
	SO_2	38.88	39.81	34.29	31.25	33.48	36.48	**35.698**	80
	NOx	16.55	18.92	20.15	18.54	19.67	21.48	**19.218**	80

NOTE: - ND = Note detected due to less concentration.

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

ANNEX-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Noise Intensity and Water Consumption, From Oct'2018 to March'2019

Location		Noise Intensity: dB (A) Leq							
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	Noise Level not to exceed, in dB (A) Leq
DG House	Day	73	72	71	72	71	73	**72.00**	75
	Night	68	65	67	66	64	69	**66.50**	70
Guest House	Day	53	49	53	54	53	54	**52.67**	75
	Night	46	42	48	44	41	46	**44.50**	70
Crusher	Day	73	59	63	74	71	72	**68.67**	75
	Night	68	54	49	66	52	59	**58.00**	70

NOTE : Day Time (6:00AM to 9:00PM), Night Time (9:00PM to 6:00AM)

Location	Water Consumption(Monthly) : M³							
	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	Water Consumption not exceed
Domestic	3471	3632	3578	3371	2814	3601	**3411.167**	**1236 m³/Day**
Industrial	11392	14115	14763	11152	12442	13843	**12951.14**	

Hence, the water consumption 545.41 m3/Day, for cement plant.

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

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Corporate Office: BE-77, Salt Lake City, Sector – 1, Kolkata – 700 064, Ph.:033 23340666/0004, Fax: 03655 278327

ANNEX-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report (CPP): PM & AAQ Report, 2018-19

Location: CPP		Suspended Particulate Matter (PM):mg/Nm^3							
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	Concentration not to exceed, in mg/Nm^3
Chimney	PM	33.80	31.40	33.80	34.70	30.4	35.70	**33.30**	50
	SO_2	458.90	483.00	525.73	515.60	421.20	584.29	**498.12**	600
	NOx	262.30	267.50	228.21	285.50	229.40	263.81	**256.12**	300
Ambient Air Quality (AAQ):µg/m^3									MoEFnotification G.S,R 826(E), dated16.11.2009, Concentration not to exceed,
S↔E	PM_{10}	76.35	71.55	76.85	65.89	70.26	74.58	**72.58**	100
	$PM_{2.5}$	49.35	45.26	57.24	51.64	53.44	55.18	**52.018**	60
	SO_2	15.64	11.89	10.55	11.88	10.65	12.89	**12.25**	80
	NOx	21.44	22.49	25.35	27.65	18.76	26.48	**23.695**	80
S↔W	PM_{10}	71.35	68.25	79.37	71.56	76.76	77.24	**74.088**	100
	$PM_{2.5}$	46.32	42.42	49.81	42.58	46.88	48.54	**46.092**	60
	SO_2	12.85	17.19	11.97	10.62	14.25	13.67	**13.425**	80
	NOx	22.68	27.66	21.85	22.72	28.55	25.49	**24.825**	80
N↔E	PM_{10}	69.24	64.41	71.54	68.32	72.92	75.21	**70.273**	100
	$PM_{2.5}$	41.24	37.54	41.49	39.52	41.12	43.59	**40.182**	60
	SO_2	10.88	16.98	10.56	11.58	12.66	11.67	**12.532**	80
	NOx	22.42	25.77	24.44	20.47	21.72	23.48	**22.564**	80

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

ANNEX-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report (CPP): Water Consumption Report, 2018-19

	Water Consumption(Monthly) :M^3							
	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Avg.	Water Consumption not exceed
	29315.00	20609.00	12378.00	28463.00	27912.00	31374.00	**25008.50**	**2000 m^3/Day**

Hence, the water consumption is 833.61 m3/day.

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

ANNEX-II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Noise Intensity from Oct'2018 to March' 2019

Location		Noise Intensity: dB (A) Leq							
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	March 2019	Avg.	Noise Level not to exceed, in dB (A) Leq
TG Area	Day	72	70	69	70	71	73	70.83	75
	Night	67	68	67	68	69	67	67.66	70
Boiler Area	Day	70	71	69	67	72	73	70.33	75
	Night	69	64	63	66	67	65	65.67	70
Coal Crusher Area	Day	73	71	72	70	72	73	71.83	75
	Night	64	66	67	65	69	68	66.50	70
NOTE : Day Time (6:00AM to 9:00PM), Night Time (9:00PM to 6:00AM)									

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

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ANNEX-II

MEGHALAYA CEMENTS LIMITED

Location		Meteorological Data (Monthly Avg.)					
		Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019
Temperature	Min	10.40	14.45	5.47	11.86	9.68	6.09
	Max	29.00	27.68	23.28	24.15	23.65	27.06
	Avg.	21.46	19.55	16.90	17.22	17.75	19.62
Humidity	Min	37.30	26.50	23.45	16.35	10.14	18.61
	Max	91.16	91.14	91.12	91.08	91.27	91.32
	Avg.	79.61	67.75	63.61	50.64	67.27	55.95
Rain Fall	MTD	131.00	19.00	58.50	0.00	11.00	2.00
	YTD	5956.00	5975	6033.50	6033.50	6044.50	6046.50

Analyzed by

Singh

Arti Singh

Verified by

Sunil Kumar Choudhary

ANNEX - III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 12.10.2018

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM.	MEAS URED	NORM.	MEAS URED	NORM	MEAS URED	NORM.	MEAS URED	NORM	MEAS URED	NORM.	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.04	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	32	5		5		5					
3	TDS	ppm	3		5		100	19.2	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						"										
6	Mg Hardness	ppm						"										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.12	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	6.90										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1	-							-					-
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.015										

MEGHALAYA CEMENTS LTD. THANGSKAI

ANNEX - III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 10.11.2018

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.0	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	30	5		5		5					
3	TDS	ppm	3		5		100	18	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						〃										
6	Mg Hardness	ppm						〃										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.21	<0.02		<0.02		<0.02					
10	Phiosphate	ppm					<10	6.98										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1							-						-
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.014										

MEGHALAYA CEMENTS LTD. THARGSKAI

ANNEX-III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date: 22.12.2018

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.04	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	21	5		5		5					
3	TDS	ppm	3		5		100	12.6	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						"										
6	Mg Hardness	ppm						"										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.18	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	4.24										
11	Iron	ppm																
12	Hydrazine	ppm		-	<0.1						-						-	
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.017										

MEGHALAYA CEMENTS LTD. THARIYOKKA

ANNEX-III

TOPCEM CEMENTS

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 10.01.2019

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.06	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	27	5		5		5					
3	TDS	ppm	3		5		100	16.2	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						"										
6	Mg Hardness	ppm						"			^							
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.20	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	4.42										
11	Iron	ppm																
12	Hydrazine	ppm	-		<0.1					-						-		
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.016										

MEGHALAYA CEMENTS LTD. THANGSKAI

ANNEX-III

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 11.02.2019

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT STEAM		SH STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.12	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	26	15		5		5					
3	TDS	ppm	3		5		100	10.6	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						"										
6	Mg Hardness	ppm						"										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						17										
9	Silica	ppm	<0.02		<0.02		<5	0.16	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	4.46										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1				-							-		
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.013										

MEGHALAYA CEMENTS LTD. SHILLONG

ANNEX-III

TOPCEM

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 14.08.2019

SL NO	PARAMETER	UNIT	DM WATER		FEED WATER		CBD		SAT. STEAM		S.H. STEAM		CONDENCER		RAW WATER	COOLING WATER		
			NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	NORM	MEAS URED	MEAS URED	NORM	MEASURED (Shift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.16	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	28	5		5		5					
3	TDS	ppm	3		5		100	16.8	3		3		3					
4	Total hardness	ppm						nil										
5	Ca Hardness	ppm						"										
6	Mg Hardness	ppm						"										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.18	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	4.94										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1			-										
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.012										

MEGHALAYA CEMENTS LTD. THANGSKAI

Annexure: - IV

YEAR WISE PLANTATION DETAILS
MEGHALAYA CEMENTS LIMITED

Date: - 17- 04 - 2019

Year	Saplings planted (Nos.)	Area covered (Hect.)	Saplings Survive (Nos.)	Survival Rate	Remarks
2009-10	10630	1.063	6909	65.00%	Planted near Office Campus, Residential Blocks, Children Park, Guest House, Temple and Road side.
2010-11	4485	0.4485	3304	73.67%	CPP Campus,
2011-12	1425	0.1425	1271	89.19%	CPP Campus.
2012-13	1725	0.1725	1609	93.28%	CPP Campus, Lawn of residential blocks & Dispensary.
2013-14	1793	0.1293	1365	7612.94%	Planted in the Topcem Public School Campus, Children Park & Approach Road side.
2014-15	7904	0.8	5532	69.99%	CPP Campus, Along Plant Boundary & Crusher Road side.
2015-16	12905	1.7	9290	71.99%	Approach Road side, CPP Campus, Along Plant Boundary & Dispensary Campus.
2016-17	52700	1.79	42149	79.98%	Along Plant Boundary & Behind Scrap Yard near Civil Office by **'Akira Miyawaki'** Method.
2017-18	3820	0.545	3094	80.99%	Planted in the Topcem Public School Campus and CPP Campus & Interspaces in plant boundary and road side. Residential colonies,
2018-19	4750	0.27	3620	76.21%	Planted near crusher side & Interspaces in plant boundary and road side.
Total	**102137**	**7.0608**	**78143**	**76.50%**	

Note: - 1. We have naturally grown green belt area of 2.45 hectares and 10.5 hectares situated at north eastern and south-eastern part of the plant area and we are maintaining the said area regularly. Therefore, the total area under green belt is 20.01 hectares.

2. Another Three Blocks such as near main Gate no-1 (0.26 ha), behind Main Gate no-1 (1.33 ha) and in between Khliehjeri and South Khliehjeri mines (1.2 ha) = **2.79 Hectares.**

Total Plantation as on 31.03.2019 = 22.80 hectares.

MEGHALAYA CEMENTS LTD. THARSKHAI

ANNEX - V

Biodiversity inventorization and conservation through assisted regeneration of RET species in limestone mining area of Meghalaya Cements Ltd.

HALF YEARLY REPORT (November 2018 -March 2019)

Work Components:

1. Survey and inventorization of project area : An intensive survey of the project area will be conducted to create an inventory of the flora (tree species) and fauna (mammals).
2. Setting up of nursery for propagation of species as per TOR and recommendations of SEIAA.
3. Afforestation / regeneration / gap filling of the project area as allocated by MCL.
4. Planting and conservation of bird and mammal food plant species (grasses wild fruit trees etc.) based on assessment of camera trap data
5. Formulation of Eco Development Plan and recommendations for medium/ long term upkeep of project area.

Reporting period : **April 2018-September 2018**.

Work component 1 : Work component 1 has been completed as detailed in earlier report.

Work omponent 2 : The fabrication of nursery has been completed. The soil preparation in the nursery is also in progress.

The selection of species as per the TOR and recommendations of SEIAA was initiated. The Meghalaya Biodiversity Board was approached for permission to collect Nepenthes khasiana but the same was denied. Therefore natural populations of other selected species in accordance to the list provided in TOR is being undertaken. One species has been selected and collected samples are being kept in the nursery for further propagation.

Specimens of *Fimbristylis nigrobrunnae* were collected from Dainthlen, Sohra, East Khasi Hills after detailed reference from the herbarium of Botanical Survey of India,Shillong.The species was then transferred to TOPCEM for plantation and rejuvenation and the specimens are being nursed by the concerned Department of Meghalaya Cement limited for acclimatization, before transplanting in the designated area in the project site.

Orchids species were collected from Moopun falls, Mukhaialong, East Jaintia Hills, Meghalaya and Mawsawa, Sohra,Meghalaya. The collected species were then brought to TOPCEM for re-

ANNEX-V

plantation in green house.Jack fruit seedlings for plantation were also collected from Umsning, Ribhoi, Meghalaya but failed to survive.

***Phyllanthus emblica* seeds extraction.**

Material and methods.

Amla fruits were collected from local market. The seeds are extracted by alternate boiling and drying .The amla fruits were thoroughly cleaned under tap water to remove dust, it was then boiled for about 15 min for easy removal of fleshy parts.

After removing the fleshy pulp, the seeds were then sun dried for 2-3 days. When the seed coat broke along the ridges, seed coat and seeds were separated out manually. Seeds were then collected and stored for planting.

A Survey was carried out in Nongwet village,Pynursla and Nonthymmai,Tyrna village East Khasi Hills for locating natural populations of two of the listed rare and endangered species i.e *Argostemma khasianum* and *Begonia rubrovenia*. *Begonia rubrovenia* was spotted in both the surveyed sites and specimens have been collected for replantation in the project area (TOPCEM). However, during the current years monsoon, stormy weather damaged the greenhouse. The same is under repair. The species that were being nursed and hardened in the greenhouse have survived, and appropriate nursery operations are being undertaken. *Begonia rubrovenea* is being propagated through stem cutting outside green house. Orchids were also transplanted from green house to a trees outside the green house.

Work Component 3. The following species (Table 1) are recommended for plantation and gap filling in the project area (as reported earlier).

Table.1 Some of the tree species that are proposed for planting in the project area.

Sl.no	Scientific name
1.	*Alnus nepalensis*
2.	*Syzygium cumini*
3.	*Rhus javanica*
4.	*Schima wallichi*
5.	*Syzigium formosum*
6.	*Grevellia robusta*
7.	*Daubanga grandiflora*
8.	*Phyllanthus emblica*
9.	*Saplum baccatum*
10.	*Actinodaphne obovata*
11.	*Lithocarpus fenestratus*
12.	*Castonopsis tribuloides*

ANNEX-V

200 saplings of indigenous tree species and fruit species were introduced in the project area. The saplings were collected from the Forest Department Social Forestry, Jowai Range. These saplings were propagated by planting out nursery raised seedlings at a spacing of 1M*1M in 30 cm deep pits. The plantation area has been fenced to ensure that the seedlings/saplings are established without disturbance. Some of the species that were introduced are listed below (Table 2)

Table2. List of species introduced in the project area for gap filling

Sl.no	Scientific name	Family	Common name
1	*Alnus nepalensis* D.Don	Betulaceae	Alder
2	*Chukrasia tabularis* A.Juss	Meliaceae	Indian mahogany
3	*Castanopsis tribuloides* (Sm.) A.DC.	Fagaceae	
4	*Syzygium.sp*	Myrtacea	
5	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn	Combretaceae	Arjun tree
6	*Grevillea robusta* A.Cunn. ex R.Br.	Proteaceae	Silver oak
7	*Exbucklandia populnea* (R.Br. ex Griff.) R.W.Br.	Hamamelidaceae	Pipli tree
8	*Azadirachta indica* A.Juss.	Meliaceae	Neem

Work component 4. The questionnaire survey to account for the existing fauna in the project area and its surroundings has been completed and is presented in Table 3. In addition to the questionnaire survey, Camera traps have been installed in the project area to document the presence of different faunal elements.

Table 3. List of fauna in the project area generated through questionnaire survey

Sl.no	Scientific name	Vernacular name	Remarks
1	*Bambusicola fytchii hokinsoni*	Chyng-Kiar	Aves
2	Black drongo	Larwat	Aves
3	*Bubo flavipes*	Dhoh	Aves
4	*Bufoides meghalayana*	Khroh Chyrtob	Amphibian
5	*Calotes versicolor*	Chieh Cherko	Reptile
6	*Cannomys badius*	Khnae Piahlang	Mammal
7	Indian pangolin	Rbae	Mammal
8	*Callosciurus erythraeus*	Rasang	Mammal
9	*Herpestes edwardsii*	Mongoose	Mammal
10	Himalayan black bear	Dngiem	Mammal
28	*Hoolock gibbon*	Hulu	Mammal
11	Indian muntjac	Skae	Mammal
12	*Kalij pheasant*	Syiar Khloo	Aves
29	Indian Squirrel	Rasang stem kpoh.	Mammal
13	*Mus booduga*	Khne Lum	Mammal
14	*Opheodrys vernalis*	Psain Rngam	Reptile
15	*Panthera pardus*	Krong	Mammal
16	*Passer domesticus*	Chyrkia	Aves
17	*Hystrix sp.*	Ynkhet	Rodentia
18	*Presbytis pileatus*	Chrieh	Mammal
19	*Psarisomus dalhousiae*	Purong	Aves
20	*Rana clamitans*	Khroh Rngam	Amphibian

ANNEX - V

Sl.no	Scientific name	Vernacular name	Remarks
21	*Rana danieli*	Khroh	Amphibians
22	*Rattus rattus*	Khne iung	Mammals
23	Red-vented bulbul	Riah Blong	Aves
24	*Rhinolopus pearsoni*	Labit	Mammal
25	*Suncus murinus griffithi*	Khnae Jit	Mammal
26	*Sus scrofa*	Sniang Bri	Mammal
27	*Varanus bengalensis*	Tyrpit	Reptile
28	*Milvus migrans lineatus*	Khlein	Aves
29	Indian woodpecker		Aves

It is advised to plant more fruit bearing species in the project area so as to encourage the increase visitation and roosting of avian species. Open/ sparsely vegetated locations within the project area should be subjected to gap filling with fodder and fruit bearing plants and grasses to encourage visitation of mammals for grazing. The greenhouse should also be repaired and used for generating more seedlings/saplings for future plantation programmes in the project area. Cultural operations should be undertaken intermittently in the locations where new plantations have been made so as to ensure survival and proper growth of the seedlings/saplings.

Shillong
23rd April, 2019

D. Paul, PI

MEGHALAYA BIODIVERSITY BOARD
THANGSKAI

Annex- VI

MEGHALAYA CEMENTS LIMITED

Village –Thangskai, P.O.-Lumshnong, District- East Jaintia Hills,
Meghalaya, PIN – 793210.

The revenue expenditure incurred on an environmental protection equipments / Machineries,
from **01st Oct' 2018 to 31st March'2019.**

Sl.No	Type	Heading	Amount in Rs.
1.	Revenue	Bag Filters (Cement mill, Raw mill, Coal mill & Crusher)	525,790.64
2.		ESP	1,496,509.12
3.		RABH	271,923.68
4.		Sewage Treatment Plant & Neutralization Pit	31,584.88
5.		SOX Reduction System	140,221.86
		Gross Total	**Rs. 2,466,030.18**

For MEGHALA CEMENTS LIMITED

R.K. Pareek
(Authorized Signatory)

MEGHALAYA CEMENTS LTD. THANGSKAI

Annex- VII

MEGHALAYA CEMENTS LIMITED

Village –Thangskai, P.O.-Lumshnong, District- East Jaintia Hills,
Meghalaya, PIN – 793210.

Expenditure Incurred for Socio-Economic Development under CSR activities
from **01st Oct' 2018 to 31st March'2019.**

Sl.No	Heading	Amount in Rs.
1.	Emphasis on Education	198,000.000
2.	Encouraging/Felicitation program for Students.	79,000.000
3.	Polio Immunization Camps, family planning, etc.	872,677.00
4.	Infrastructure development of Hospitals / Schools	503,817.00
5.	Cement Distribution Programme.	2,528,400.00
6.	Plant Distribution programme	53,085.00
7.	Donation to Churches, Road & House Repairing etc.	284,000.00
8.	Drinking water supplying scheme.	351,579.00
9.	Village development funds.	300,000.00
	Gross Total	**5,170,558.00**

For MEGHALA CEMENTS LIMITED

R.K. Pareek
Authorized Signatory

MEGHALAYA CEMENTS LTD. THANGSKAI