MEGHALAYA CEMENTS LIMITED

CIN- U26942ML2003PLC007125

TOPCEM CEMENT
Mazbooti ka bharosa...hamesha

Ref: MCL/ENV/MoEF&CC/Compliance-II/2019-20/29

Date: 30/05/2020

To,

The Addl. Director General (Central),
Ministry of Environment Forest & Climate Change,
North Eastern Regional Office, Shilling,
Meghalaya.

Sub: - Submission of half yearly compliance report for the period of October'19 to March'2020.

Dear Sir,

We are hereby furnishing the half yearly compliance report (hard copy and soft copy) for the period from **October'19 to March'2020** 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 Member Secretary, Meghalaya State Pollution Control Board, Shillong.**
2) **The Member Secretary, State Environment Impact Assessment Authority, Shillong.**

Received
03/06/20

Half yearly Compliance Report (for the period October'2019 to March'2020) 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.

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(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 and also on internal roads. 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.** Water requirement for the Thermal Power Plant is meeting from rain water during rainy season and from existing source during non rainy season. 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 on regular basis by our Safety & Vigilance Department. Details of Mock drills and trainings are attached herewith. ***(Annexure-i)***
(viii) (a)	The PP is prohibited to use high sulphur local coal in its thermal power plant.	**Complied with.** PP is not using high sulphur local coal in its thermal power plant.
(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 collects in 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.
(xviii) (a)	The storage of the coal dump shall be housed by permanent sheds open on all sides and stacked on impervious floor, preferably cemented to prevent Acid Mine Drain (AMD).	**Agreed for compliance.** Construction of permanent shed for storage of coal with cemented flooring has been completed for storage of coal and to prevent Acid Mine Drain (Acid Mine Drain).
(xviii) (b)	The project proponent shall construct garland drains along with Acid Mine Drains Nuetralisation tanks, in consultation with and approved by	**Agreed for compliance.** Garland drain is provided along the shed and shed is covered from all side to avoid any contamination of surface water due to storage of

	the state pollution control board.	coal.
(xviii) (c)	No direct discharge of AMD into any drains/natural drains shall be allowed; proper treatment of AMD shall be done by the Project Proponent in the Nuetralisation Tank before releasing the water to the drain/natural drain, which shall be duly approved by the Meghalaya State Pollution Control Board.	**Agreed for compliance.** Garland drain is provided along the shed and shed is covered from all side to avoid any contamination of surface water due to storage of coal. No direct discharge of AMD will be assured by the PP.
(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 Tertiary Air Duct (TAD) at pre- heater and using the waste as alternative fuel on availability basis. NOC for utilization of high calorific waste has been obtained from MsPCB. Annex
(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	**Complied with.** Development of Green belt had been started in the Year 2009 and 100% of the project area **(i.e. 20.22 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 23.01 ha. ***(Annexure-iv)***

	Hills District.	
(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. With all emergency medicine and ambulance 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. ***(Annexure-v)***
(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. Ambient Air Quality Analysis nearby plant area is being done on regular basis. ***(Annexure - vi)***
(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.** The Project proponent ensures that no unscientific extraction of limestone is encouraged in the process.
(xxix)	Meghalaya has been recognized as a cradle for several endemic species and an important constituent of the	**Complied with.** The Project proponent has started the work in co-ordination with Environment Department of

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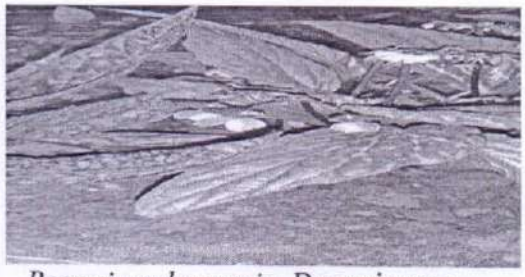
	biodiversity hotspots spread over North East India. Therefore, as a measure of protection of rich biodiversity of the region, the project proponent shall cover an area of not less than 2 ha where would be located green house, mist chamber etc. (within the green belt area already stipulated above), locate 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,* Orchideae 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.	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,* Orchideae has been initiated ***(Annexure - vii)***  *Ceologyne ovalis,* Orchideae  *Begonia rubrovenia,* Begoniaceae
(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	**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,* Orchideae has been initiated ***(Annexure - vii)***

	lakh per year spread over at least 3 years.	
(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 - vii)***
(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 - viii)***
(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-	**Complied with.** Implementation done and the expenditure details are enclosed herewith. ***(Annexure - ix)***

	development plan shall be prepared by the project proponent within six months of receipt of prior Environment Clearance.	

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 is not violating 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.** 1. Project Proponent confirms that the gaseous emissions (Sox, NOx &PM) level confirmed to standard prescribed by the concerned authorities from time to time at no point of time. The emission will exceed the prescribed limit. 2. 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 Project proponent .	**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	**Agreed for compliance.**

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	Project proponent 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.	

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Annex - I

FIRE FIGHTING TRAINING REPORT

Date: 17/10/2019

THEME: Fire fighting training conducted with the MCL Fire responders/securities, Bombay security along with other employees of depts. Topics based on studied of Emergency preparedness or activation, sirens code of practice distinguish the type of fire & Fire extinguishers using process etc.

- **TRAINER'S NAME**: - B. Bhagavan Singh - DGM-Safety
- **VENUE**: - Community Hall.
- **DATE**: - 17/10/2019
- **TIME**: - 3:30 PM TO 6:30 PM
- **DURATION**: - 3:00 HOURS.
- **NUMBER OF PARTICIPANTS:** - [31] Thirty one participants were attended.

On 17th October '2019 from 3:30 PM to 6:30 PM at community hall we have conducted "FIRE FIGHTING TRAINING" along with studied emergency preparedness function and accident indicator siren alarming procedure" i.e. accident indicator siren alarming procedure also thought the classification of fire & using of different extinguishers. Training was conducted in phase-1 including campus area along with MCL securities or fire responders with BSS securities total 31 persons were participated in the training. Our motto is about to educate all & knowing about using procedures of fire extinguishers during any fire emergency.

Methods of Fire Extinction: Following methods are used for extinguishing fire according to fire Triangle.

1) Starvation: In this method we discussed & shown how to remove un-burnt materials from surroundings of fire occurrence area & to control the fire.
2) Blanketing: In this method we discussed & shown how to cut oxygen from the fire by using of extinguishers & wet blanket to stop the fire by blanketing process:
   - Foam, ABC, DCP extinguishers are used for blanketing.
3) Cooling: In this method we bring down temperature of fire below auto ignition temperature of fuel & fire extinguishers.
   - Foam, Water, CO_2 extinguishers are used for cooling

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

- **A class Fire**: Fire involving combustible materials of Organic nature.
- **B class Fire**: Fire involving Flammable liquids.
- **C class Fire**: Fire involving flammable Gases.
- **D class Fire**: Fire involving combustible metals.
- **E class Fire**: Fire involving on Electrical appliances.

- At the time of any Fire emergency how to fight with fire & what precaution to be taken during that situation.
- Which type of Fire extinguishers can to use on what type of Fire.
- Classification of Fire and according to it explanation & types of fire.
- Communication procedure during emergency.

Annex- I

- During Fire what can do or do not.
- Explanation of locations where Fire can catch at our factory premises & in vehicles.
- Introduction and function of Fire fighting tanker along with Fire equipments.
- During fire accident siren alarming procedure.
- Operating procedure of Fire extinguishers & Fire fighting tanker if necessary
- Practical Demonstration.

Finally we have conducted practical demo program on fire by use of fire fighting equipments like Fire extinguishers, Fire fighting tanker & given the training to all participants, observed each and every one can operate the extinguishers and understood fire fighting process. Finally we have seen most of the persons learnt well & satisfactory as practice training will be continued for further progress.

SAFETY OFFICER

DGM [SAFETY]

MEGHALAYA CEMENTS

Annex - I

1/13

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/MR/G10
Rev No.:00
Date:

Training Details : Fire fighting Thaining conducted for the participants of each shift of various department with studied of emergency preparedness accord activation, siren, alarming procedure, code of practice how to extinguish fire classification of fire & rescue process.

Agency : Safety Department

Duration : 03 Hour

(a) Date/s From: 17/10/2019 To: ——

(b) Time From: 3:30 PM To: 6:30 PM

Names of Trainers :

1. Shri B. Bhagwan Singh (DGM-S&R) 2. Mr. P. Rajkumar Asst. Mgr - Safety 3. Mr. G. Quila Asst. Fire Fighting officer.

Attendance Record:

Sl.	Employee Name	Department	Designation	Signature
1	MD Shahid	Production	Pettrolor	Shahid
2.	Miraj Alam	"	"	Miraj
3.	Lakhi Nath	"	"	Lakhi
4.	Ganesh Malakar	"	"	Ganesh
05.	Sujit Kumar	Mechanical	Fitter	Sujit
06	Jyoti Prakash Panda	Mining	Asst. Mgr	JP
07.	Sanjay Kr. Singh.	"	J. officer.	SS
5	Bhaban Nath	HR	S/G	Bhaban
09	Rakesh Malakar	mines	Helper	R
10.	Apon Das	E.I.M.S	Safaiwalla	A
11	Ashok Kumar Pande	Mining	Foreman	AK
12	Shumanshu Rai	Despatch	Supervisor	Shumanshu
13	Brijesh Kr. Upadhyay	Despatch Ex Assistant	Jr Assistant	Brijesh
14	Jagkishor Mahto	Despatch	Officer	

MEGHALAYA CEMENTS LTD. THANGSKAI

HOD

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/MR/G10
Rev No.:00
Date:

Training Details : Fire fighting Training conducted for the participants of each shift of various department with studied of emergency preparedness according activation, siren alarming procedure, code of practice, how to extinguish fire classification of fire & rescue process.

Agency : Safety Department.

Duration : 03 Hour

(a) Date/s From: 17/10-2019 To: —

(b) Time From: 3:30 PM To: 6:30 PM.

Names of Trainers :

1. Shri-B. Bhagavan Singh 2.
DGM-SBV

Attendance Record:

Sl.	Employee Name	Department	Designation	Signature
15	Ramkan Bar	Instrumet	Jr. Technician	
16	Tabla Kr Singh	Despatch	Sr. Asst.	
17	Mukesh Sharma.	Despatch	Asst.	
18	Montu K.R Borah.	"	H/R	
19	Nejaruddin Zapadar	HR	Security	
20	Sanjit	mines	Sefor	
21	Pandit Bhandari	mines	~~Driver~~ Driver	
22	Sudip Das	Q.C	Supervisor	
23	Raju Yadav	Mines	Welder	Rydav
24	V.K. Thakur.	ATV	Supervisor	
25.	Tejendra. Chutia	H-R.	security	
26.	Gambhir Kumar	Mines	mechanic	
27.	Rupal Borah.	HR.	Supervisor	
28	Prakash Mishra	Q.C	Sr. Supervisor	

HOD

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/MR/G10

Rev No.:00

Date:

Training Details : Fire fighting conducted for the participants of each shift of various department with studied of emergency prepared role accordingly activation siren alarming procedure, code of practice, how to extinguish fire classification of fire & Rescue process.

Agency : Safety Department.

Duration : 03 Hour

(a) Date/s From: 17/10/2019 To: ——

(b) Time From: 03:30 PM To: 06:30 PM

Names of Trainers :

1. Shri B. Bhagavan Shing (DGM - SSV) 2. Mr. P. Rajkumar Asst. Mgr-Safety 03. Mr. Ganesh Quila Asst. Fire Fighting officer

Attendance Record:

Sl.	Employee Name	Department	Designation	Signature
29.	Rajesh Pandey	O.C	Staff	
30.	Arun Singh	mechanical	Foreman	
31.	Balanja Bora	HR & A	House Keeping	

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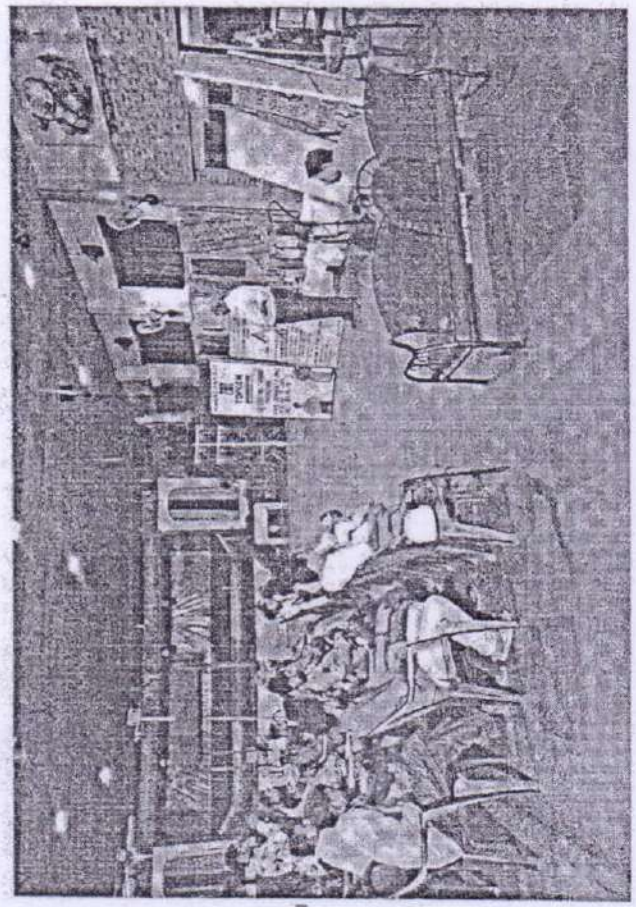
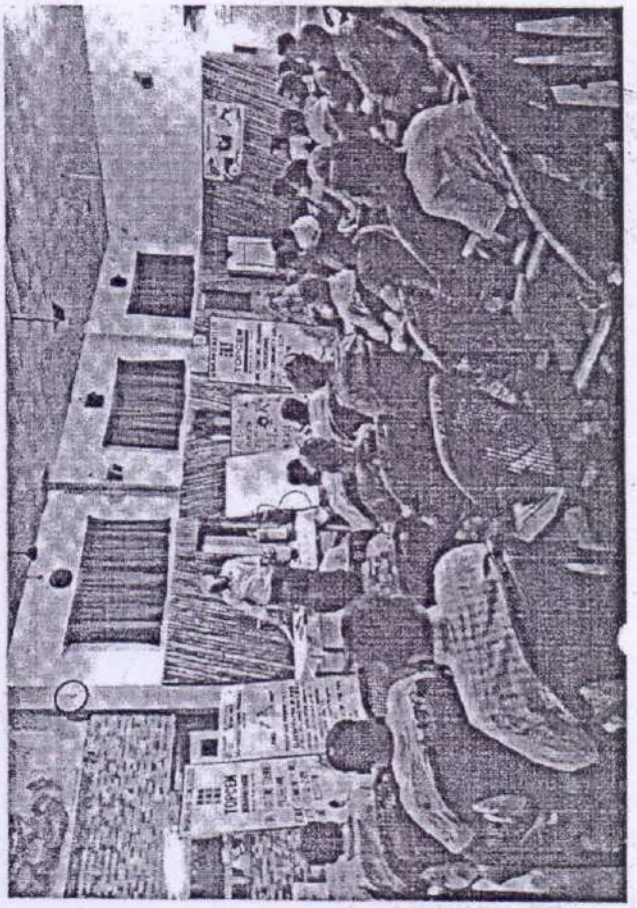
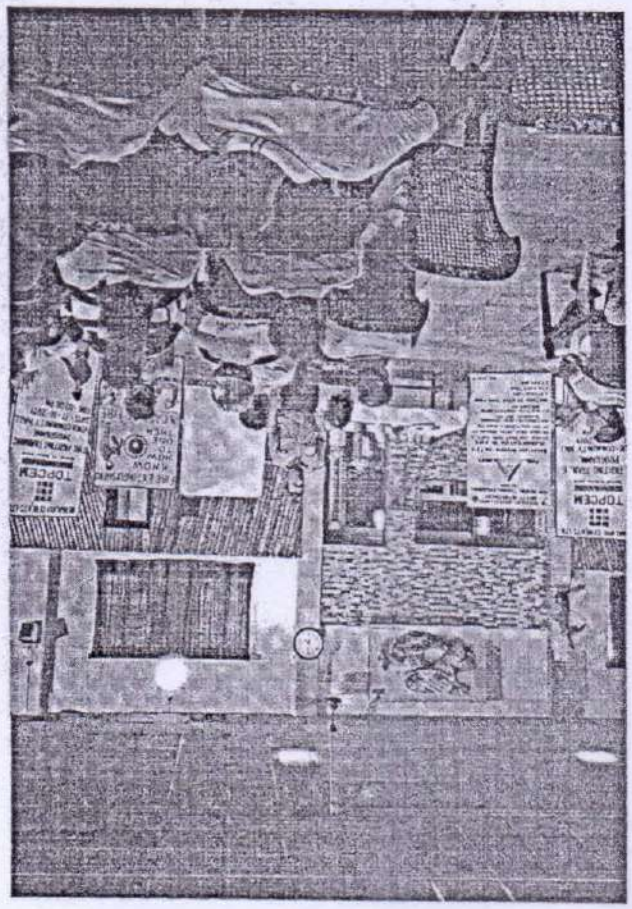
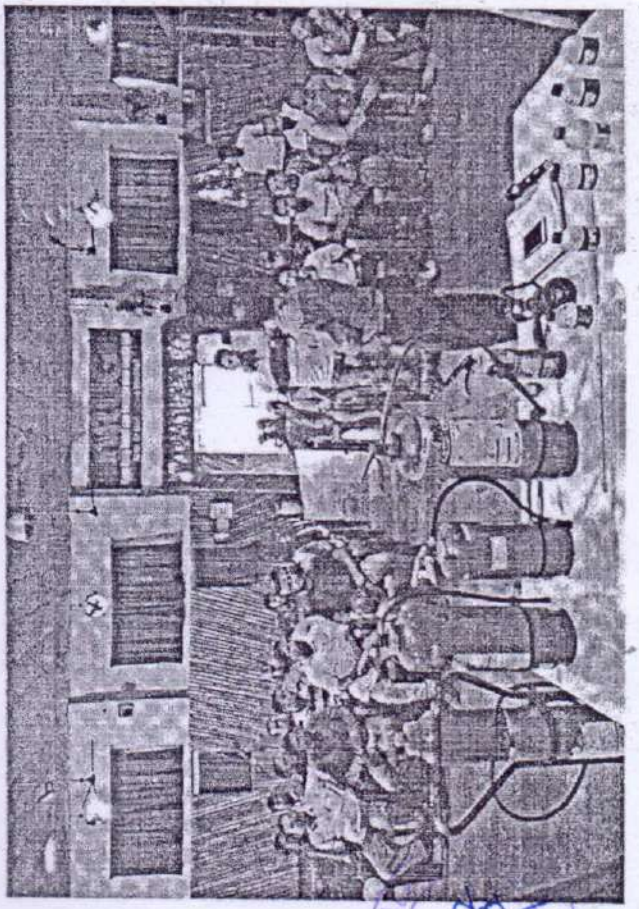


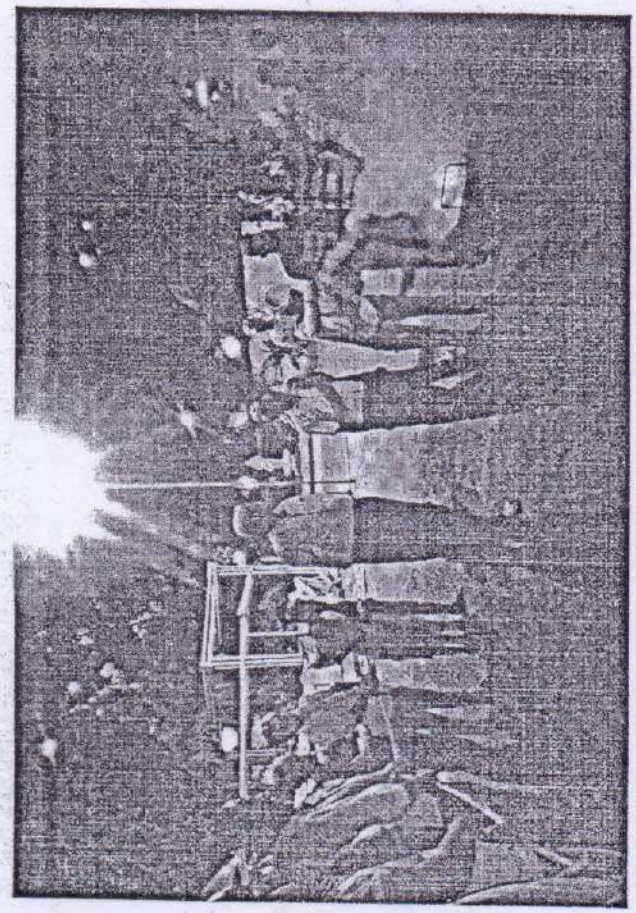


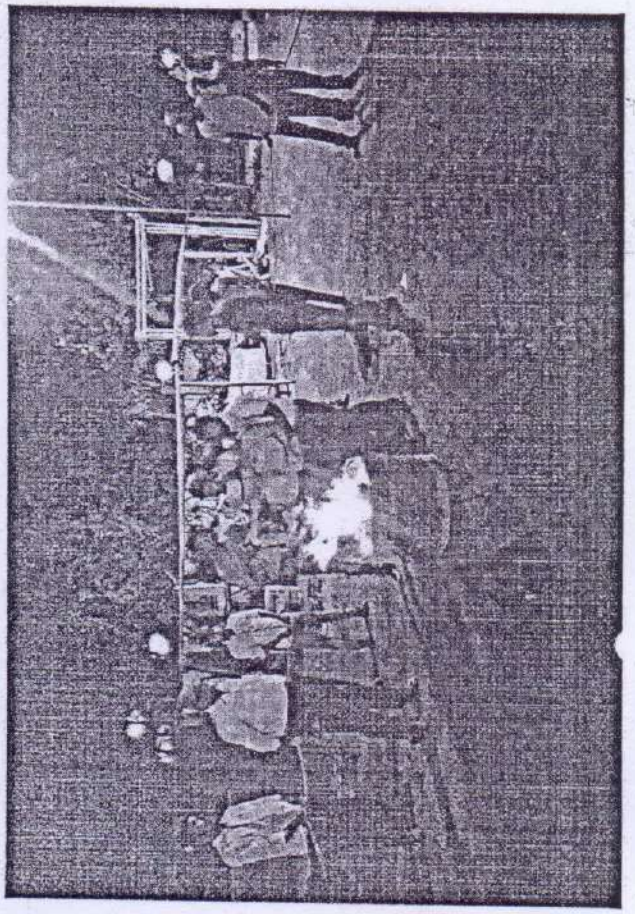


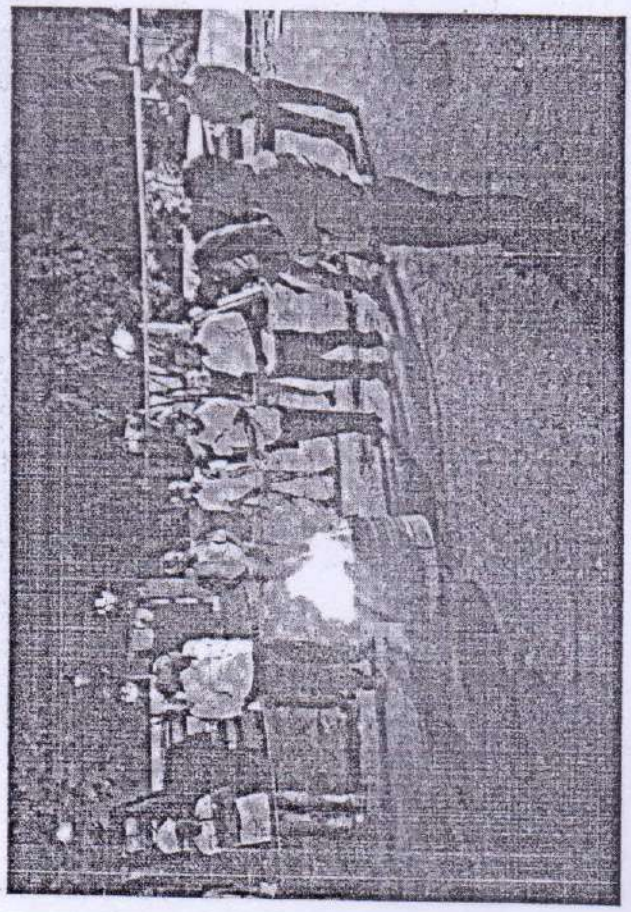


MEGHA THANGSKAI S LTD

Annex-I







Annex -I

FIRE MOCK DRILL & EMERGENCY PROGRAMME IN MINE AREA

DATE: 27th December'2019

THEME: FIRE MOCKDRILL & RESCUE PROCESS

CONDUCTED BY	: SAFETY DEPARTMENT
VENUE	: SOUTH KHLIEHJERI MINE
DATE	: 27/12/2019
TIME	: 1:58 PM – 2:40 PM
TRAINERS NAME	: Mr. B. B. SINGH-DGM, Mr. P Rajkumar – Asst. Mgr & Mr. G Quila- AFFO

NUMBER OF PARTICIPANTS: Twenty five [25] participants

NAME OF INFORMER	: Shift In-charge
ALARM RAISED BY	: CCR Security (after got the information)
FIRE CAUGHT	: At around 1:58 PM.

FIRE-FIGHTING & RESCUE TEAM REACHED: At around 2:02 PM

TOTAL WORKING PERSONS	: In Excavator – 02 persons
PERSONS EVACUATED TO	: Safe zone within 4 minutes.
LAST PERSON EVACUATED	: At around 2:08 PM.
'FALLING THREE' PROCESS	: Head counting started during evacuation simultaneously.
DECLARATION	: After getting everyone in counting as well as after extinguished the fire, the area was declared safe and total 02 persons are safely Evacuated.

On 27th **December'2019 at Mine area** we have conducted "Fire Mock Drill Training total twenty five participants were attended from Mine departments.

Main Motto of the training programme was, in case of Fire burning how to fight and extinguish the fire, discussions about fire fighting procedures to various classes of fires and how to know which type of fire & which type of extinguishers will use to extinguish the Fire. As well as we shown to participants about rescue procedure, if found senseless due to fire accidents then immediately how to rescue the persons? We have shown its procedure during the programme also discussed about Disaster precaution.

Mock Drill - Suddenly Alarm was raised by CCR security person after got information from CCR. At

within 4 minutes workers were evacuated from Fire Zone to Safe zone i.e. (Assembling point), one worker at around 2:08 PM he evacuated from there he was last men. As per information of our 1st responder team fire caught at Pock land Machine in HSD Tank. During rescue in safe Zone at assembling point head counting also continued by helping of 'Falling Three' procedures. Inside the Fire caught area total 02 persons were worked there. In cabin –1 person & outside of excavator 01 person. Finally observed total causalities were removed from fire caught place.

After got the information & heard of Alarm as per code of practice immediately Fire Fighting Tanker and Fire Fighting team had reached the spot place. According to procedure of Emergency Preparedness activated to Medical team also for ready position. After extinguished and controlled Safety officer observed all workers/employees were evacuated safely total 02 persons 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 "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.

Rescue procedure:

a) Fire Man's lift:

Fire man's lift is a technique allowing one person to carry another person without assistance, by placing the carried person across the shoulders of the carrier. The technique was commonly used by fire fighters to carry injured or unconscious people away from danger, but has been replaced in fire fighting due to the drawback that smoke and heat are greater higher up and may be fatal to the person being carried.

b) Two hand seat carry:

When man get leg injured then this rescue procedure is very essential to remove from accident place to reach to doctor very quickly. For this carry process requires two people and it can be used for any injured person.
Put the arm behind the person's things and the across the person's back.
Then interlock your arms with those of a second responder behind the person's legs and across his or her back.

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c) Human Crutch :

The human crutch carry is a method of transport whereby the casualty lean on two rescuers side by side with the casualty's arms around both persons shoulders. This enables the casualty to experience support from the rescuer and allow him to walk with a minor injury.

d) Pick-a-back:

The rescuer and casualty stand back to back. The rescuer passes both his hands backwards and grips around the waist of the casualty. He then leans forward and lifts the casualty off the feet and upon his back.

CONCLUSION: Training is important part for help to educate of employees for make potential and competent in this connection the Fire Mock drill and the disaster programme knowledge spread to our employees as well as they can understand & gain the knowledge about Fire mock drill and Disaster also it was observed most of the workers can learnt the lesson and became activate.

Asst. Mgr-Safety

DGM- Safety

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Annex-I

FIRE FIGHTING TRAINING REPORT

Date: 15.02.2020

- **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. Prajjal Rajkumar – (Safety officer) & Mr. Ganesh Quila - AFFO
- **VENUE**: - Community Hall
- **DATE**: - 15.02.2020
- **TIME**: - 3:30 PM TO 5:30 PM
- **DURATION**: - 2 Hours.
- **NUMBER OF PARTICIPANTS**: - 23 persons were attended.

On 15th Feb'2020 conducted "FIRE FIGHTING TRAINING" at Community Hall at time 3:30 PM, total 23 persons were participated from each shift of various department workers, staff, security staff & Engineers. 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. Training given about operation of available Fire Extinguishers and Fire sand buckets also given knowledge about operation of FIRE EMERGENCY SERVICE VAN (FIRE FIGHTING TANKER)

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**

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Annex-I

During Fire duties:

- 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 we 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. Finally we have seen all school staff got knowledge well & for practice periodic training can be conducted.

Asst. Manager-Safety

DGM [SAFETY]

MEGHALAYA CEMENTS LTD. THANGSKAI

Annex-I

INTERNAL FIRE MOCKDRILL & EMERGENCY PROGRAMME

DATE: 09/03/2020

THEME: MOCKDRILL ON FIRE

CONDUCTED BY	: Safety deptt for Emergency activation of CPP employees and security staff.
VENUE	: CPP
DATE	: 09/03/2020
TIME	: 3:21 PM – 4:10 PM
NUMBER OF ATTENDED PERSONS	: 19 Persons.
NAME OF INFORMER	: Boiler operator
ALARM RAISED BY	: CCR Desk operator (after got information)
FIRE CAUGHT	: At around 3:21 PM.
FIRE-FIGHTING & RESCUE TEAM REACHED	: At around 3:24 PM
TOTAL LIVING PERSONS	: In Fire caught area 04 persons.
PERSONS EVACUATED TO	: Safe zone within 6 minutes.
LAST PERSON EVACUATED	: At around 3:30 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 9th March'2020 **at around 3:21 PM to 4:10 PM at CPP Boiler area** "Mock Drill on Fire" was held total 19 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, along with necessary First-Aid procedure.

Mock Drill - Suddenly a siren was raised by CCR desk operator after got the information from Boiler operator of Boiler house, according to siren & information by Boiler operator 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 3:30 PM had evacuated from there & he was a last men. As per information of our 1st responders team Fire caught in bad materials discharge chute. During rescue simultaneously head counting also continued at safe zone by helping of 'Falling Three' process and finally observed total casualties were removed from Fire caught area. After safely evacuation of workers immediately

Annex-I

Fire extinguishing operation 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

MEGHALAYA CEMENTS LTD.

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Annex – II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Stack Emission Report,2019-2020

Chimney		Suspended Particulate Matter (PM):mg/Nm^3							
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	Concentration not to exceed, in mg/Nm^3
Pr. Crusher		16.85	16.32	16.50	15.90	18.58	19.24	17.23	30
Sec. Crusher		15.60	14.66	17.10	18.60	14.45	13.08	15.58	30
Coal mill 1		24.70	25.72	25.30	27.26	28.20	19.27	25.08	30
Coal mill 2		29.50	28.36	27.90	28.96	25.35	22.16	27.04	30
RABH 1	PM	17.80	16.90	18.60	18.60	18.80	19.30	18.33	30
	SO_2	624.70	894.24	598.90	654.07	813.06	822.37	734.56	1000 (Based on pyritic sulphur presence in limestone)
	NOx	329.20	335.32	292.50	343.74	335.10	314.09	324.99	600
RABH 2	PM	17.20	17.90	17.20	19.20	18.20	16.84	17.76	30
	SO_2	623.50	835.78	603.80	631.92	799.62	826.28	720.15	1000 (Based on pyritic sulphur presence in limestone)
	NOx	312.80	313.96	310.03	276.36	302.83	339.21	309.19	600
ESP 1		21.40	22.80	20.40	21.90	23.70	25.40	22.60	30
ESP 2		22.70	21.50	28.90	22.40	22.40	24.19	23.68	30
Cement Mill No-1		22.80	21.99	20.90	21.57	26.62	28.35	23.70	30
Cement Mill No-2		20.40	19.35	24.90	22.57	27.37	24.17	23.13	30
Packing House-1		24.30	20.42	25.80	23.48	20.89	21.07	22.66	30
Packing House-2		17.10	21.57	16.90	17.59	14.50	16.80	17.41	30

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Ambient Air Quality Report,2019-2020

Location		Ambient Air Quality (AAQ): µg/m^3							
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	MoEF notification G.S,R 826(E), dated 16.11.2009, Concentration not to exceed,
Near CCR Building	PM_{10}	70.36	68.27	62.34	68.17	74.28	76.49	69.98	100
	$PM_{2.5}$	54.91	49.12	47.87	54.48	58.48	57.39	53.71	60
	SO_2	17.64	19.67	18.24	8.66	7.68	6.34	13.04	80
	NOx	14.29	15.31	14.06	13.41	13.11	12.08	13.71	80
Guest House	PM_{10}	54.26	56.33	58.31	60.42	56.14	58.26	57.29	100
	$PM_{2.5}$	30.60	32.08	35.24	39.27	35.48	36.24	34.82	60
	SO_2	13.87	12.59	14.94	06.38	5.64	4.99	9.74	80
	NOx	15.05	14.77	15.16	16.18	11.68	11.27	14.02	80
Crusher	PM_{10}	67.50	56.33	73.15	79.47	81.24	84.07	73.63	100
	$PM_{2.5}$	36.10	32.08	52.11	57.25	55.25	57.61	48.40	60
	SO_2	23.71	12.59	22.19	10.24	8.39	9.62	14.46	80
	NOx	17.57	14.77	18.31	19.52	13.56	11.24	15.83	80
DG House (Downwind direction)	PM_{10}	66.30	69.24	65.40	72.34	76.30	77.80	71.23	100
	$PM_{2.5}$	49.20	51.94	48.28	53.34	56.34	58.62	52.95	60
	SO_2	21.53	20.67	22.25	9.59	7.35	6.51	14.65	80
	NOx	16.93	15.94	16.27	17.64	12.23	10.86	14.98	80

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report: Noise Intensity and Water Consumption, From Oct'2019 to Mar' 2020

Location		Noise Intensity: dB (A) Leq							
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	Noise Level not to exceed, in dB (A) Leq
DG House	Day	71	73	72	71	71	73	71.83	75
	Night	63	60	59	57	56	61	59.33	70
Guest House	Day	47	52	57	51	56	50	52.17	75
	Night	40	41	44	46	45	43	43.17	70
Crusher	Day	69	71	72	70	74	71	71.17	75
	Night	48	59	64	57	68	64	60	70

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

Location	Water Consumption(Monthly) : M^3							
	Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg. (m^3/Day)	Water Consumption not exceed
Domestic	10771	9990	10224	9290	9202	11306	332.148	1236 m^3/Day
Industrial	6717	6592	6968	7358	5524	6236	215.273	

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

MEGHALAYA CEMENTS LTD. THANGSKAI

II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report (CPP): PM & AAQ Report, 2019-20

Chimney : CPP	Suspended Particulate Matter (PM) & Gaseous Emission: mg/Nm^3								
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	Concentration not to exceed, in mg/Nm^3
	PM	32.60	38.50	28.40	28.60	32.80	30.67	**31.93**	**50**
	SO_2	463.50	515.60	458.80	464.40	461.79	483.05	**474.52**	**600**
	NOx	262.70	248.90	190.90	237.48	191.84	231.34	**227.19**	**300**

Location: CPP		Ambient Air Quality (AAQ): µg/m^3							
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	MoEF notification G.S,R 826(E), dated 16.11.2009, Concentration not to exceed,
S↔E	PM_{10}	62.67	65.84	69.24	76.18	82.09	85.34	**73.56**	**100**
	$PM_{2.5}$	55.13	58.20	56.58	61.47	57.37	58.01	**57.79**	**60**
	SO_2	12.59	11.67	12.07	12.60	14.29	13.98	**12.86**	**80**
	NOx	14.27	12.64	15.01	14.57	15.04	13.26	**14.13**	**80**
S↔W	PM_{10}	53.80	57.34	61.47	69.94	73.46	76.64	**65.44**	**100**
	$PM_{2.5}$	41.22	43.73	40.50	47.58	52.24	53.42	**46.44**	**60**
	SO_2	11.44	12.01	12.88	10.25	13.98	14.52	**12.51**	**80**
	NOx	14.24	15.73	13.37	11.78	14.26	15.24	**14.10**	**80**
N↔E	PM_{10}	64.29	67.21	58.08	62.24	67.38	64.18	**63.89**	**100**
	$PM_{2.5}$	32.78	35.89	32.27	36.24	41.64	39.47	**36.38**	**60**
	SO_2	11.94	12.04	10.48	12.65	14.96	11.03	**12.81**	**80**
	NOx	13.69	13.31	11.08	13.77	15.41	12.84	**13.35**	**80**

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

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

II

MEGHALAYA CEMENTS LIMITED

Six Monthly Report (CPP): Water Consumption Report, 2019-20

Location: CPP	Water Consumption(Monthly) :M^3							
	Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg. (m^3/Day Cons.)	Water Consumption not exceed
	23,596	28,591	22,091	27,556	25,024	22,660	817.038	2000 m^3/Day

Analyzed by

Arti Singh

Verified by

Sunil Kumar Choudhary

II

MEGHALAYA CEMENTS LIMITED

Location		Meteorological Data (Monthly Avg.)					
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020
Temperature	Min	16.64	16.47	9.42	9.95	10.71	18.20
	Max	29.56	29.36	25.71	20.95	26.68	32.70
	Avg.	23.23	21.24	16.60	14.60	17.78	21.70
Humidity	Min	33.81	15.52	12.61	16.27	8.25	34
	Max	91.33	91.27	91.22	91.27	91.21	84
	Avg.	81.45	64.25	57.28	63.37	42.24	60.44
Rain Fall	MTD	204.50	8.50	2.50	28.50	2.50	8.84
	YTD	5777.5	5780	5808.5	5811	5819.84	6024.34

II

MEGHALAYA CEMENTS LIMITED

Six Monthly Reports: Noise Intensity from October'2019 to March'2020

Location	Period	Noise Intensity: dB (A) Leq							
		Oct' 2019	Nov' 2019	Dec' 2019	Jan' 2020	Feb' 2020	Mar' 2020	Avg.	Noise Level not to exceed, in dB (A) Leq
TG Area	Day	72	71	70	69	71	72	**70.83**	**75**
	Night	69	67	69	68	66	67	**67.67**	**70**
Boiler Area	Day	71	70	71	69	71	70	**70.33**	**75**
	Night	64	65	63	65	68	62	**64.50**	**70**
Near ID Fan	Day	70	69	70	68	70	71	**69.67**	**75**
	Night	63	64	62	64	67	65	**64.17**	**70**
Near FD Fan	Day	72	71	71	68	70	71	**70.5**	**75**
	Night	65	64	64	66	67	64	**65**	**70**
Compressor Area	Day	70	71	72	69	70	72	**70.67**	**75**
	Night	65	66	62	66	67	63	**64.83**	**70**
Coal Crusher Area	Day	72	70	69	70	71	69	**70.17**	**75**
	Night	63	65	64	64	66	63	**64.17**	**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

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 - III

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 10.10.2019

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 (Shfift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.02	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	29	5		5		5					
3	TDS	ppm	3		5		100	17.4	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
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	9.35										
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 THANGSKAI

III

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 12.11.2019

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 (Shfift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.08	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						NIL										
6	Mg Hardness	ppm						NIL										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.16	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	5.10										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.123										

MEGHALAYA CEMENTS LTD. THANGSKAI

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 12.12.2019

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 (Shfift 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	32	5		5		5					
3	TDS	ppm	3		5		100	19.2	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
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	5.82										
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 THANGSKAI

III

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 11.01.2020

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 (Shfift A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.10	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	37	5		5		5					
3	TDS	ppm	3		5		100	18.6	3		3		3					
4	Total hardness	ppm						nil										
5	Ca Hardness	ppm						nil										
6	Mg Hardness	ppm						nil										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.17	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	9.69										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.023										

MEGHALAYA CEMENTS LTD. THANGSKAI

III

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 14.02.2020

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 (Shfit A)	MEAS URED (shift B)
1	pH		8.5 - 8.8		8.8 - 9.2		9.8-10.2	10.08	8.8-9.2		8.8-9.2		8.8-9.2					
2	Conductivity	µs/ cm	5		10		200	29	5		5		5					
3	TDS	ppm	3		5		100	17.4	3		3		3					
4	Total hardness	ppm						nil										
5	Ca Hardness	ppm						nil										
6	Mg Hardness	ppm						nil										
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	5.47										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.020										

MEGHALAYA CEMENTS LTD. TRANGSKAI

TOPCEM CEMENT

MEGHALAYA CEMENTS LIMITED

CAPTIVE POWER PLANT - 10 MW

WATER ANALYSIS REPORT

Date:- 12.03.2020

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 (Shfift 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	30	5		5		5					
3	TDS	ppm	3		5		100	18	3		3		3					
4	Total hardness	ppm						NIL										
5	Ca Hardness	ppm						NIL										
6	Mg Hardness	ppm						NIL										
7	P- Alkalinity	ppm						7										
8	M- Alkanity	ppm						12										
9	Silica	ppm	<0.02		<0.02		<5	0.19	<0.02		<0.02		<0.02					
10	Phosphate	ppm					<10	5.80										
11	Iron	ppm																
12	Hydrazine	ppm			<0.1													
13	Chloride	ppm																
14	FRC	ppm																
15	Turbidity	NTU																
16	Cr^{+6}							0.019										

MEGHALAYA CEMENTS LTD. THANGSKAI

Annexure: - IV

YEAR WISE PLANTATION DETAILS
MEGHALAYA CEMENTS LIMITED

Date: - 09- 10 - 2019

Year	Saplings planted (Nos.)	Area covered (Ha.)	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	76.12%	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.
2019-20	1200	0.21	1026	85.50%	Planted near HSD pump side, DG House site & Interspaces in plant boundary and road side.
Total	**103337**	**7.2708**	**79169**	**76.61%**	

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 20.22 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 30.09.2019 = 23.01 hectares.

MEGHALAYA CEMENTS LTD. THANGSKAI

Annex- V

SALARY DETAILS OF CLEANER FOR THE MONTH OF MARCH 20

S.N.	NAME	CODE NO.	SEX	D.O.J.	GRADE	DEPT	DESIG	SALARY
1	DISWONLANG BAREH	2260	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12899
2	EDEN LALOO	3323	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12155
3	PRAS BAREH	2261	FEMALE	01.04.2011	WKM	HR&A	CLEANER	15006
4	SABINA SYIH	2262	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11010
5	KHALMISS SUTING	2263	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12654
6	PHINIAL DHAR	2264	FEMALE	01.04.2011	WKM	HR&A	CLEANER	10849
7	TNGENMON SYIH	2266	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12513
8	IBASHISHA KHARSATI	2267	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11748
9	ESTAR PUSIEN	2268	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11516
10	DIL PHAWA	2270	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9769
11	PHIMAI SUTNGA	2271	FEMALE	01.04.2011	WKM	HR&A	CLEANER	12374
12	HILDIS SYRTI	2272	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9052
13	LILY POHBAN	2273	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9316
14	KYRSOI SYIH	2275	FEMALE	01.04.2011	WKM	HR&A	CLEANER	11644
15	PHYRNAI SYRTI	2276	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9296
16	RIDAMON SUCHEN	2277	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9416
17	JUBLI LAPASAM	2307	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9583
18	METHILDA SYIEMLIEH	2315	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
19	SPELBHA SUCHIANG	2322	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9193
20	WONDERFUL PALE	2330	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
21	RANCHI PUSSEIN	2343	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
22	SAPHA SIANGSHAI	2344	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
23	EMLI DHAR	2345	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
24	MARGRED KHONGLAM	2348	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
25	TALITHA RYMBAI	2349	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
26	SHANIAHLANG SHYLLA	2352	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
27	PRIN SALAHE	2354	FEMALE	01.04.2011	WKM	HR&A	CLEANER	9000
28	CHEBARIMA BAREH	2362	FEMALE	02.06.2011	WKM	HR&A	CLEANER	9734
29	MINU RAI	2269	FEMALE	01.04.2011	WKM	HR&A	CLEANER	10569
30	NILDIS KHLUNG	3288	FEMALE	07.08.2012	WKM	HR&A	CLEANER	9000
31	LUTMON LAMARE	3030	FEMALE	03.08.2012	WKM	HR&A	CLEANER	9000
32	SHIBA SUMER	3249	FEMALE	01.05.2013	WKM	HR&A	CLEANER	9000
33	SHIDA SUTNGA	3316	FEMALE	01.07.2013	WKM	HR&A	CLEANER	9000
34	HEL PAJAT	3244	FEMALE	03.08.2013	WKM	HR&A	CLEANER	9000
35	PALDIS SUTING	3247	FEMALE	01.08.2013	WKM	HR&A	CLEANER	9000
36	SABITRI PUSEIN	3248	FEMALE	03.10.2013	WKM	HR&A	CLEANER	9000
37	RIMAIA SHADAP	4014	FEMALE	01.12.2014	WKM	HR&A	CLEANER	9000
38	KEEPHIM SYMPLI	5436	FEMALE	13.08.2018	WKM	HR&A	CLEANER	9000

Annex -VI

M/s MEGHALAYA CEMENTS LIMITED

AMBIENT AIR QUALITY SURVEY

MCL/ENV/PB-AAQM/2019-20/40

Location of sampling	Forest Area (Near by plant boundry)
Date duration of sampling	12.03.2020 to 13.03.2020
Time Duration of sampling	48 hours
Weather	Clear
Total Rain Fall, mm (On Date)	0.00 mm
Ambient Temperature (°C) :	Max. - 22.80°C, Min. - 19.95°C
Relative Humidity (%) :	Max. - 67.0%, Min. - 53.00%
Wind direction	→W(247.00°)

Pollutants	Analysis Results			Permissible Limits for Rural Areas (By MSPCB 24 hrs Monitoring)
	Village Name & Air Quality Survey No.			
	A1. Near Wahiajer Village **V/10/19-20**	A2. Near Shiehrvphi Village **V/11/19-20**	A3.Near Thangskai Village **V/12/19-20**	
	48 hrs.	48 hrs	48 hrs	
Particulate Matters PM10 ($\mu g/m^3$)	49.09	46.34	43.38	100
Particulate Matters PM2.5 ($\mu g/m^3$)	35.89	31.28	32.82	60

Remarks : The Parameters analysed were found to be within the permissible Limits of Ambient Air Quality Standards (National) for Rural Areas as per EPA Notification GSR 176, April 1996.

Analyzed by
(Arti Singh)

Verified By
(Sunil Kumar Choudhary)

Annex-VI

M/s MEGHALAYA CEMENTS LIMITED

AMBIENT AIR QUALITY SURVEY

MCL/ENV/PB-AAQM/2019-20/40

Location of sampling	Forest Area (Near by plant boundry)
Date duration of sampling	04.12.2019 to 05.12.2019
Time Duration of sampling	48 hours
Weather	Clear
Total Rain Fall, mm (On Date)	0.00 mm
Ambient Temperature (°C) :	Max. - 24.80°C, Min. - 14.46°C
Relative Humidity (%) :	Max. - 91.15%, Min. - 20.03%
Wind direction	→W(252.05°)

Pollutants	Analysis Results			Permissible Limits for Rural Areas (By MSPCB 24 hrs Monitoring)
	Village Name & Air Quality Survey No.			
	A1. Near Wahiajer Village **V/07/19-20**	A2. Near Shiehrvphi Village V/**08/19-20**	A3.Near Thangskai Village V/**09/19-20**	
	48 hrs.	48 hrs	48 hrs	
Particulate Matters PM10 ($\mu g/m^3$)	48.39	47.61	41.09	100
Particulate Matters PM2.5 ($\mu g/m^3$)	34.69	29.34	30.67	60

Remarks : The Parameters analysed were found to be within the permissible Limits of Ambient Air Quality Standards (National) for Rural Areas as per EPA Notification GSR 176, April 1996.

Analyzed by
(Arti Singh)

Verified By
(Sunil Kumar Choudhary)

Annex- VII

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

HALF YEARLY REPORT (May2019-September 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

Formulation of Eco Development Plan and recommendations for medium/ long term upkeep of project area.

Reporting period : **May2019-September 2019**

Work component 1 : In continuation of the Survey and inventorization of the plants of the project area, some more species were added to the list of earlier identified plants and is detailed in Tables listed below :-

MEGHALAYA CEMENTS LTD. THANGSKAI

Annex- VII

Table .1. Tree species in and around the project site

Sl.no	Name	Family	Vernacular name
1.	*Actinodaphne obovata* (Nees) Blume	Lauraceae	Dieng-lakrao (K)*
2.	*Aesculus assamica* Griff.	Sapindaceae	Dieng-dula(K)
3.	*Alchornea tiliifolia* (Benth.) Müll.Arg.	Euphorbiaceae	
4.	*Asplenium phyllitidis* D. Don.	Aspleniaceae	
5.	*Bauhinia khasiana* Baker.	Leguminosea	
6.	*Callicarpa arborea* Roxb.	Verbanaceae	Dein-lakhoit(J)**
7.	*Caryota urens* L.	Arecaceae	
8.	Caseria sp		
9.	*Castanopsis echinocarpa* Mig.	Fagaceae	Dien-sning(J)
10.	*Castanopsis indica* (Roxb. ex Lindl.)	Fagaceae	
11.	*Castonopsis purpurella*	Fagaceae	Dein-sohtap (J)
12.	*Castonopsis tribuloides* (Sm.) ADC	Fagacea	Dien sa-ut (J)
13.	*Cinnamomum bejolghota* (Buch.-Ham.) Sweet	Lauracea	Dieng-pathi (K)
14.	*Duabanga grandiflora* (DC.) Walp.	Lythraceae	Dieng-bai (K)
15.	*Elaeagnus pyriformis* Hook. f.	Elaeagnaceae	Sashang
16.	*Eurya accuminata* DC.	Theacea	Dienpyrchin(J)
17.	*Ficus hirta subsp. roxburghii* (King) C.C.Berg	Moraceae	Spunae (J)
18.	*Ficus semicordata* Buch.-Ham. ex Sm.	Moraceae	
19.	*Lithocarpus elegans* (Blume) Hatus. ex Soepadmo.	Fagaceae	Sarangkhlo (J)
20.	*Lithocarpus fenestratus* (Roxb.) Rehder.	Fagaceae	
21.	*Litsea citrata* Blume.	Lauraceae	Soh-sying (J)
22.	*Litsea laeta* Wall. ex Nees.	Lauraceae	
23.	*Litsea lancifolia* (Roxb.ex Nees.)	Lauraceae	
24.	*Litsea monopetala* (Roxb.) Pers.	Lauraceae	
25.	*Litsea thomsonii* Hook.f.	Lauraceae	
26.	*Macaranga sp.*		Lakhar (j)
27.	*Macropanax disperma* (Bl.) O.	Analiaceae	Dieng-ia-rasi
28.	*Mallotus nepalensis* Müll. Arg.	Euphorbiaceae	Sla-lakhar khian (J)
29.	*Melastoma nepalensis* Lodd.	Melastomaceae	Dien-slidong(J)
30.	*Micromelum integerrimum* (Roxb.)Wight &Arn.	Rutaceae	Dieng-tyrpei (J)
31.	*Morinda angustifolia* Roxb.	Rubiaceae	
32.	*Ostodes paniculata* Blume	Euphorbaceae	Dein-lashitkhlow(J)
33.	*Persea kingii* Hook f.	Lauraceae	
34.	*Phyllanthus glaucus* Wall.		Samatan(J)
35.	*Pithecellabium montanum* Benth.	Mimosaceae	
36.	*Pierospermum lancifolium* Roxb.	Sterculiaceae	Dieng-khoh(K)
37.	*Quercus serrata* Roxb.	Fagaceae	
38.	*Rhus javanica* (L) Merr.	Anarcardiaceae	Dien-sama (J)
39.	*Sapindus attentuate/erecta* Wall.	Sapindaceae	
40.	*Sapium baccatum* Roxb.	Euphorbiaceae	Dieg-jalongeh (K)
41.	*Sarcosperma griffithii* Hook.f. ex C.B.Clarke	Sapotaceae	Dein-pai (K)
42.	*Schima wallichi* (DC.) Korth.	Theaceae	Shyrngan (J)
43.	*Solanum melongena* Linn.	Solanaceae	
44.	*Solanum torvum* Sw.	Solanaceae	
45.	*Styrax serrulatum* Linn.	Styracaceae	Deing-jalatpai (K)
46.	*Symplocus glomerata* King ex Cl.	Symplocaceae	Tiewdiengpeiiong (K)
47.	*Symplocus sp*	Symplocaceae	
48.	*Syzigium formosum* (Wall) Mas.	Myrtaceae	Soh-slidong (J)
49.	*Syzigium macrocarpum* (Roxb.) Balak.	Myrtaceae	
50.	*Syzygium cumini* (L.) Skeels.	Myrtaceae	
51.	*Syzygium tetragonum* (Wt.) Kurz.	Myrtaceae	Dien-sohsyrle (J))
52.	*Trevesia palmate* (Roxb.) Vis.	Araliaceae	Dienglakor (K)
53.	*Vernonia volkameriifolia* DC.	Asteraceae	
54.	*Wendlandia tinctoria* (Roxb.) DC.	Rubiaceae	Chamot (J)

***K=Khasi,**J=Jaintia**

MEGHALAYA CEMENTS LTD THANGSKAI

Annex- VII

Table.2. Shrubs,Herbs, and climbers in and around the project site

Sl.no	Name	Family	Vernacular name	Habit
1.	*Acacia oxyphylla* Graham ex Craib.	Leguminosae	Mei-suai(K)	Climber
2.	*Acacia pennata* (Linn.) Willd.	Leguminosae	Jermai-sheih-lyngkshiah (K)	Climber
3.	*Ageratina adenophora* (Spreng.) R.M.King & H.Rob.	Compositae	Sla-barma(J)	Shrub
4.	*Ageratina riparia* (Regel) R.M.King & H.Rob.	Compositae		Shrub
5.	Amorphophallus			
6.	*Ardisia nerifolia* DC.	Myrsinaceae		Shrub
7.	*Artemisia nilagirica* (Cl.) Pamp.	Compositae		Shrub
8.	*Asplenium phyllitides* D.Don.	Aspleniaceae		
9.	*Boehmeria glomerulifera* Mig.	Urticaceae	Diengsohkhar (K)	Shrub
10.	*Boehmeria macrophylla* D.Don.	Urticaceae		Shrub
11.	*Beaumontia grandiflora* Wall.	Apocynaceae		Climber
12.	*Calamus erectus* Roxb.	Arecaceae		Shrub
13.	*Caryota urens* Linn.	Arecacea		
14.	*Citrus maxima* (Blume) Merr	Rutaceae	Soh-syrman (J)	
15.	*Derris thysiflora*	Fabaceae		Climber
16.	*Desmodium trifolium* (L.) DC	Fabaceae		
17.	*Desmos longiflorus* (Roxb.) Safford	Annonaceae		Shrub
18.	*Dicranopteris linearis var. alternans* (Mett.) Holttum	Gleicheniaceae	Tyrkhang (J)	
19.	Dioscorea	Dioscoreaceae		Climber
20.	*Fissistigma verrucosum* (Hook.f. &Th.) Merr.	Annonaceae	Jyrmi soh-ram khlaw (K)	Liana
21.	*Gourphandra tetrandra* (Wall.) *Sleumer*	Stemonuraceae		
22.	Jasminium	Oleaceae		
23.	*Lantana camara* Linn.			
24.	*Leea alata* Edgew.	Leeaceae		Under shrubs
25.	*Leea indica* (Burm.f.) Merr.	Leeaceae	Riu-khongpieng (K)	Shrub
26.	*Lycopodium paniculatum* Desv. ex Poir.	Lycopodiaceae	Tmain-khla (J)	
27.	*Lypodium hexuosum* (L.) SW	Lygodiacea		
28.	*Melastoma nepalensis* Lodd.	Melastomaceae	Dien-slidong (J)	Shrub
29.	*Maesa indica* (Roxb.) Wall.	Myrsinaceae	Dien-pyllein dacha(J)	Shrub
30.	*Paedera foetida* L.	Rubiaceae	Rme-sma ait(J)	Climber
31.	*Pandanus odoratissimus* (Lamk) Linn.	Pandanaceae	Chlain (J)	Screwpine
32.	*Pericampylus incanus* (Colebr.) Miers.	Menispermaceae		Climber
33.	*Phlogacanthus thyrsiflorus* (Roxb.) Nees.	Acantheceae		Shrub
34.	*Pothos scandens* L.	Araceae		
35.	*Phyrnium pubineria* Blume	Marantaceae	Sla-met(K)	
36.	Pittosporum	Pittosporaceae		
37.	*Prinsepia utilis* Royle.	Rosaceae		Shrub
38.	Pteris	Pteridaceae	Tyrkhang (J)	
39.	*Rhaphidophora calophylla* Scott.	Araceae		
40.	*Rourea minor* (Gaertn.) Leenh.	Connaraceae		Shrub
41.	*Sarcanda glabra* (Thunb.) Nakai.	Chloranthaceae	Soh-kristmas(J)	Shrub
42.	*Smilax roxburghiana* Wall. Ex A.DC.	Smilaceae	Soh-krot (J)	Shrub
43.	*Stemona tuberose* Lour.	Stemonacea		Climber
44.	*Tabernaemontana diversicata* (Linn) R. Br.	Apocynacea		Shrub
45.	*Tetrastigma obovatum* (Laws.) Gagnep.	Vitaceae	Soh-sarpung (J)	Climber
46.	*Tetrastigma bractatum*	Vitaceae		Climber
47.	*Thysanolaena maxima*	Poaceae	Saro (J)	Grass
48.	*Triumfetta pilosa* Roth.	Liliaceae	Soh-byrthid (K)	Shrub
49.	*Uncaria sessilifructus* Roxb.	Rubiaceae		Climber
50.	*Urena lobata* L.	Malvaceae	Sohbyrthit (J)	Shrub

(K- Khasi and J - Jaintia)

MEGHALAYA ... LTD. THANGSKAI

Work omponent 2 : The nursery which was damaged during the monsoons has been repaired . 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. A second lot was again collected in August and is being raised in the nursery.

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-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 of amla/gooseberry fruits, 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

MEGHALAYA CEMENTS LTD THANGSKAI

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).

Work Component 3. The following species (Table 3) are recommended for plantation and gap filling in the project area. Seedlings are being procured and gap filling process is being carried out.

Table.3 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.	*Sapium baccatum*
10.	*Actinodaphne obovata*
11.	*Lithocarpus fenestratus*
12.	*Castonopsis tribuloides*

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Annex- VII

Work Component 4.

A questionares survey was carried out in the villages around the project area to identify the fauna inhabiting the area. The scientific and local names of the fauna are listed in Table 4

Table.4

Sl.no	Scientific name	Vernacular name	
1	*Bambusicola fytchii hokinsoni*	Chyng-Kiar	Bird
2	Black drongo	Larwat	Bird
3	*Bubo flavipes*	Dhoh	Bird
4	*Bufoides meghalayana*	Khroh Chyrtob	Amphibian
5	*Calotes versicolor*	Chieh Cherko	Reptile
6	*Cannomys badius*	Khnae Piahlang	Mammal
7	*Chinese pangolin*	Rbae	
8	*Collosciurus 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	Birds
29	Malayan Giant Squirrel	Rasang stem kpoh.	Mammals
13	*Mus booduga*	Khne Lum	Mammals
14	*Opheodrys vernalis*	Psain Rngam	Reptiles
15	*Panthera pardus*	Krong	Mammal
16	*Passer domesticus*	Chyrkia	Birds
17	*Porcupine sp.*	Ynkhet	Mammal
18	Presbytis pileatus	Chrieh	Mammals
19	Psarisomus dalhousiae	Purong	Birds
20	*Rana clamitans*	Khroh Rngam	Amphibians
21	*Rana danieli*	Khroh	Amphibians
22	*Rattus rattus*	Khne iung	Mammals
23	Red-vented bulbul	Riah Blong	Birds
24	*Rhinolopus pearsoni*	Labit	Mammals
25	*Suncus murinus griffithi*	Khnae Jit	Mammals
26	*Sus scrofa*	Sniang Bri	Mammal
27	*Varanus bengalensis*	Tyrpit	Reptiles
28	*Milvus migrans lineatus*	Khlein	Birds

Installation of camera traps: Camera traps were installed in different locations in the project area but failed to document movement and visitation of any wild animals. It is advised that the camera traps are kept installed and the data monitored regularly.

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Formulation of Eco Development Plan and recommendations for medium/ long term upkeep of project area :

Management and use of mine spoils:

Overburden generated during mining should be properly managed and stacked to discourage erosive losses. Topsoil and/or subsoil should be evenly spread out in areas where plantation activity can be undertaken. Mulches should be provided so as to ensure enrichment of soil fertility, insulates of soil against extreme temperature fluctuations and erosive losses due to impact of rainfall. Mulches also ensures accelerated growth of micro organisms and reduce evaporative losses. Spoils of larger size dimensions should be crushed so as to generate soil.

Reforestation of barren/open areas:

The listed native species should be propagated in the greenhouse and used for reforesting open areas and/or those affected by mining. Roads used more movement of mining equipment/ heavy vehicles should be subjected to avenue plantations/shelter breaks so as to reduce the movement of dust.

It is also 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 be used for generating more seedlings/saplings on a continuous basis for future plantation programs 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

10th November, 2019

D. Paul, PI

Annex- VIII

MEGHALAYA CEMENTS LIMITED

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

The capital expenditure & revenue expenditure incurred on an environmental protection equipments / Machineries.

From **01st October' 2019 to 31st March'2020.**

Sl.No	Type	Heading	Amount in Rs.
1.	Capital	Bag Filter	504,522.81
2.		Rain Water Harvesting	347,919.85
		Gross Total	**Rs. 852,442.66**

Sl.No	Type	Heading	Amount in Rs.
1.	Revenue	Bag Filters (Cement mill, Raw mill, Coal mill & Crusher)	1,375,355.91
2.		ESP	1,198,625.68
3.		RABH	11,957,622.39
4.		Sewage Treatment Plant & Neutralization Pit	17,032.20
5.		SOX Reduction System	17,311.63
6.		Rain Water Harvesting	23,075.53
		Gross Total	**Rs. 14,589,023.34**

For MEGHALA CEMENTS LIMITED

R.K. Pareek
(President)

Annex- IX

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 October' 2019 to 31st March'2020.**

Sl.No	Heading	Amount in Rs.
1.	Emphasis on Education	132,000.000
2.	Encouraging/Felicitation program for Students.	79,000.000
3.	Polio Immunization Camps, family planning, etc.	740,742.00
4.	Infrastructure development of Hospitals / Schools	214,499.00
5.	Cement Distribution Programme.	2,965,880.00
6.	Plant Distribution programme	27,500.00
7.	Donation to Churches, Road & House Repairing etc.	11,000.00
8.	Drinking water supplying scheme.	157,808.00
9.	Village development funds.	375,000.00
	Gross Total	**4,703,429.00**

For MEGHALA CEMENTS LIMITED

R. K. Pareek
(President)

MEGHALAYA CEMENTS LTD THANGSKAI