



F.No.J-11015/17/2019-IA.II(M)
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division

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New Delhi-110003

Date: 8th June, 2021

To

M/s Star Cement Meghalaya Ltd
Village Lumshnong
Tehsil Khliehriat
District East Jaintia Hills
Meghalaya – 793 210

Sub: Proposal for Environmental Clearance for Brishyrnot Limestone Deposit-I with proposed production of limestone capacity of 2.507 Million TPA and proposed shale production capacity of 0.217 Million TPA in the MLA 42.051 Ha by M/s Star Cement Meghalaya Limited located at Village Brishyrnot, Tehsil-Khliehriat, District-East Jaintia Hills, Meghalaya - Environmental Clearance (EC)- reg.

Sir,

This has reference to proposal no.IA/ML/MIN/90354/2019 for Brishyrnot Limestone Deposit-I with proposed production of limestone capacity of 2.507 Million TPA and proposed shale production capacity of 0.217 Million TPA in the MLA 42.051 Ha located at Village Brishyrnot, Tehsil Khliehriat, District East Jaintia Hills, Meghalaya by M/s Star Cement Meghalaya Limited. The mine lease area falls under the Survey of India Toposheet No. 83C/8 (Restricted). It is bounded by latitude 25°10'05.27" to 25°10'28.39" N, and longitude 92°24'49.56" to 92°25'55.23" E. The mine lease area falls under seismic zone - V [as per IS 1893 (Part-1): 2002].

2. As per EIA Notification dated 14th September, 2006 as amended from time to time, the project falls under Category A or Activity 1(a) as the project attracts general condition. The mine lease area is at a distance of 1.46 km from Narpuh Wildlife Sanctuary and at a distance of 0.25 km from Eco Sensitive Zone (ESZ) of Narpuh Wild Life Sanctuary.

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M/s Star Cement Meghalaya Ltd, Meghalaya

3. The Project Proponent submitted that the proposal for Terms of Reference (ToR) was considered in the EAC meeting held during February 20-21, 2019 and the Ministry granted ToR vide letter No. J-11015/17/2019-IA.II (M) dated 22.04.2019 in the name of M/s Star Cement Meghalaya Limited. Project proponent applied for Environmental Clearance vide online proposal no. IA/ML/MIN/90354/2019 on 01.03.2021 and submitted the Form2 and EIA report.

4. The Project Proponent submitted that the Prospecting License (PL) over the area of 427 ha was granted by the Government of Meghalaya vide grant letter No.MGS/2008/33, dated 09.09.2009. The Prospecting License (PL) deed was executed on 09.10.2009. Further, the PP applied for Mining Lease (ML) over an area of 42.051 Ha on 04.02.2011 within the afforested PL area. The Letter of Intent (LoI) vide order no MG.63/2012/128 dated 4th May, 2018 was issued by Department of Mining & Geology, Government of Meghalaya, under sub-section 2(b) of section 10A of the Mines and Minerals (Development and Regulation) Amendment Act, 2015. The total mining lease is 42.051 Ha and area to be excavated is 23.557 Ha. There is no forest land involved in the Mine lease area. PP also reported that the Um Lunar River is adjacent to Eastern boundary, Umso Nallah (adjacent to Northern boundary, Ludha River is located at 1.38 km in SE direction from the mine lease area.

5. The Project Proponent submitted that the Mining plan of "Brishyrnot Limestone Deposit I" over an area 42.051 Ha has been approved by IBM vide letter no. IBM/GHY/MEG/EJH/LST/MP-88 dated 28.07.2020.

6. The Project Proponent submitted that mining will be fully mechanized open cast mining with drilling and blasting. The mineable reserves are estimated to be 17.341 Million Tonnes for limestone and 0.535 Million Tonnes for Shale. The life of mine is approximately 50 years (Note: After first five year of plan period, the limestone will be mined @2.12 Lakh ton per annum as by then other mines of group will supply the balance quantity). PP also reported that no overburden will be generated during the mining period, and about 21563.40 m³ top soil will be generated during the mining, the same will be used for plantation. The ultimate maximum bench height will be up to 9 m and width will be 15-20 m. The slope of the individual bench will be 800 to 850. While overall pit slope will be 45°. The mining will be done upto depth of 93 mRL from the top of the quarry. The deep hole drilling and blasting will be undertaken. The maximum hole depth will be about 9 m with burden & spacing as 3m-3.5m and 4m - 4.5m respectively. The powder factor is 7.69 Tons/Kg. No. of working days will be 300. The water will not be intersected, as during borehole investigation it was found that the water table is at 78 mRL, whereas the ultimate pit bottom level is 93 mRL.

7. The Project Proponent submitted that the nearest village is Brishyrnot (2.12 Km in SE), nearest Dist. H.Q. Jowai which is 36.04 Km away from the mine site in NW. Nearest school is SCL Vidya Bharti school which is 2.93 Km away from mine site in NW direction. Nearest highway is NH 44 (2 Km, W).

8. The Project Proponent submitted that the total water requirement for mining operations will be 40 KLD, for sprinkling & dust suppression 25 KLD, drinking 10 KLD, and for green belt 5 KLD. Recycled treated water will be sourced from clinker plant of SCML through water tankers for sprinkling and Green belt. Water will be brought from the plant for drinking and domestic purpose. Recycled treated water will be sourced from the existing SCML plant through water tankers.

9. The Project Proponent submitted that the green belt for a 5-year planned period will be developed in 1.058 ha which includes a safety zone of 7.50 m along the lease boundary. At the end of the 50 year about 37.748 ha area will be afforested with native species within the safety zone, 50 m nallah area and mined out benches.

10. The Project Proponent submitted that there is no forest land involved in the mining lease area and letter for the same has been obtained from Chief conservator of forest & HOFF has been obtained vide letter no MFG.16/50/CMCL/Vol-III/7849-855 dated 29.08.2018. The PP submitted that the boundary of Narpuh Wildlife Sanctuary is located at distance of 1.46 km in SE direction from the mine lease area and boundary of ESZ of Narpuh Wildlife Sanctuary is 0.25 Km away from the mining lease area. PP also submitted certificate vide letter no JH/CMCL/2011-12/584/A/449 dated 20th August, 2018 from the Divisional Forest Officer, Jaintia Hills Territorial Division, Jowai, Govt. of Meghalaya, stating that the boundary of Narpuh Wildlife Sanctuary is located 1.46 km away from the mining lease area and boundary of ESZ of Narpuh Wildlife Sanctuary is 0.25 Km away from the mining lease area, the same was confirmed vide letter no JH/ACF(p)/2017-18/CORR dated 20th August, 2018 by the Assistant Conservator of Forest, Jaintia Hills Territorial Division, Jowai, Govt. of Meghalaya.

11. The project proponent submitted that there are schedule-1 species present in the buffer area namely Clouded leopard, Great Pied Hornbill, Indian Rock Python, Himalayan Serow, Leopard Cat, Pangolin, Sloth Bear, Slow Loris, Western Hoolock Gibbon and Assam Bamboo partridge. Wildlife Conservation Plan for Schedule-I species found in the buffer zone has been prepared along with budgetary allocations and same approved by PCCF, Meghalaya, vide no. MFG16/50/CMCL/Vol.I/II, 031 dated 28.11.2013 and supplementary conservation plan has also been approved vide no. CMCL/Cons.PI-Supl/2015 dated 05.11.2015. In addition to that, Site specific supplementary Conservation plan including Schedule-I species is under process.

12. The Project Proponent submitted that one season primary baseline data for ambient air quality, (as per CPCB quality Notification, 2009), water quality, noise level, soil and flora & fauna has been collected during winter season (Dec 2018 to Feb 2019). The dominant wind direction is from North-East to South-West direction. Temperature of the area varied from 9.9 0C to 30.2 0C. Relative Humidity of the area varied from 21.0 % to 97.0 %. Wind speed was in the range of 0.3 m/s to 7.3 m/s. The concentrations of PM₁₀ and PM_{2.5} for all the 7 AAQM stations were found between 59.6 to 76.8 µg/m³ and 24.6 to 31.7 µg/m³ respectively. The concentrations of SO₂ and NO₂ were found to be in range of 6.4 to 8.3 µg/m³ and 11.2 to 14.5 µg/m³ respectively. Ambient noise levels were measured at 8 locations in and around the mine site and varied from 51.5 to 68.3 Leq dB(A) during day time and from 44.5 to 60.7 Leq dB(A) during night time. The Surface water sample collected from 4 surface water bodies was found potable as per the drinking water standards IS – 10500: 2012. The ground water /drinking water samples were collected from 4 locations, the ground water was found that all parameters are within the drinking water standards (IS:10500) and can be used for drinking purpose and other household activities. The analysis results of soil shows that soil texture in core zone is clay loam which can hold water and nutrients and makes soil fertile.

13. Meghalaya SPCB vide their letter no. MPCB/TB-360-SCML-2020-2021/ dated 4th December 2020 vide which copy of the public hearing proceedings along with DVD of the hearing and written presentations received till date in r/o of the proposal of M/s Star cement Meghalaya Ltd for Brishyrnot Limestone deposit-I with proposed production of Limestone capacity of 2.507Million TPA and proposed Shale Production capacity of 0.217Million TPA in the Mine Lease area of 42.051ha located at village Brishyrnot, District East Jaintia Hills, Meghalaya were forwarded to this Ministry. Endorsement of the State Pollution Control Board on the Deputy Commissioner's letter dated 25.11.2020 has also been conveyed to this Ministry vide above-said letter.

DC, Jaintia Hill District, Meghalaya vide above-said letter has informed that three attempts have been made on 19.10.2019, 31.01.2020 and 21.11.2020 for holding the public hearing, however, in view of the law-and-order situation created on each of these occasions the hearings have been cancelled/ discontinued. It has been requested to consider exempting the said project from the requirement of the public hearing as a part of public consultation as provided in para 7(i) Stage (3) - Public Consultation, clause (v) of the EIA Notification, 2006 and to take into account the written submissions which were received during the period of one month after the publication of the public notice and to make them an integral part of public consultation under the prescribed provisions of the notification.

The matter was examined in the Ministry and it was communicated to Meghalaya SPCB on dated 22.02.2021, that the public consultation in the instant case need not include the component of the public hearing.

14. The Project Proponent submitted that there is no habitation within the mine lease area hence no R&R is applicable to the proposed mining project. The capital cost for EMP has been allotted of Rs. 71 Lakhs and annual recurring cost is 19.10 Lakhs. PP also submitted that Workers will be subjected to primary health check-up before they are employed to ascertain their health conditions. Thereafter, regular medical check-up will be organized for workers & villagers to evaluate the adverse impact if any on these persons due to proposed mining activity. Workers are provided with environment protection equipment like masks, gloves, goggles & ear muffs etc. First aid facility and training to workers will be provided. Insurance for workers will be done.

15. The Project Proponent submitted that there is no court case pending against the project and/or land in which the project is proposed to be set up.

16. The Project Proponent submitted that the total project is Rs. 16 Crores. PP reported that the total manpower required for the proposed mining project will be around 70 persons.

17. The proposal was considered in 29th EAC meeting held during 15-17th March, 2021. The Committee observed that the project site is on hill between 72 mRL and 219 mRL contour. The steep slope is towards the NE and NW direction of the lease area. Mine is adjacent to the cement plant. It is proposed to take out 2.507 Million TPA of limestone which will be achieved in 50 years.

18. Based on the documents submitted and presentation made by the project proponent and the consultant, the Committee recommended the proposal for grant of Environmental Clearance for Brishyrnot Limestone Deposit-I with proposed production of limestone capacity of 2.507 Million TPA and proposed shale production capacity of 0.217 Million TPA in the mine lease area 42.051 Ha by M/s Star Cement Meghalaya Limited located at Village Brishyrnot, Tehsil Khliehriat, District East Jaintia Hills, Meghalaya with following specific conditions.

19. The Ministry has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto; and after accepting the recommendation of 29th EAC meeting held during 15th - 17th March, 2021. The Ministry hereby accords the Environmental Clearance for Brishyrnot Limestone Deposit-I with proposed production of limestone capacity of 2.507 Million TPA and proposed shale production capacity of 0.217 Million TPA in the mine lease area 42.051 Ha by M/s Star Cement Meghalaya Limited located at Village Brishyrnot, Tehsil Khliehriat, District East Jaintia Hills, Meghalaya with the following specific conditions

and standard conditions subject to compliance of the followings terms and conditions and environmental safeguards mentioned below.

A. Specific Conditions

- (a) Since the project is in close vicinity of eco-sensitive area, mining should be carried out strictly as per the approved mining plan with all safety measures in place particularly during blasting to avoid impacts due to noise and vibration, impacts on movement on the road as well as on natural disturbance to the hilly area. Noise and vibration will be monitored at the lease boundary every time during blasting and the record will be kept. It should never exceed the noise limits set for the wildlife as well as vibration should be brought to zero at the mine lease boundary.
- (b) Conservation plan must include a study by a Government recognized agency to study the impact of mining on the Schedule-1 species and arboreal species as well. Collect the data on number of animals and the species diversity. The conservation plan must include the propagation of specie's number in the Narpuh Wildlife Sanctuary as global conservation is highly significant in India.
- (c) The protection of slopes by advanced technologies to ensure that mine operation does not cause any landslide in future.
- (d) The budget for addressing public concerns i.e. 32 Lakhs will be spent on capital items as mentioned during the presentation.
- (e) Peripheral plantation must be completed in 3 years using the capital budget indicated in the EIA report.
- (f) The mining operation will start from western side of the mine as it is close to the plant and progressive mining and back filling should be adopted.
- (g) Since the stream is passing adjacent to the eastern boundary, protective measures should be in place before mining operation to protect the water body. Monitoring should be carried out for water quality in the stream whenever it is flowing and in the river at the confluence point to assess impact of mining on the water quality.
- (h) Monitoring station should be located near the mine dump so that any impact due to mining on the environmental and ecologically sensitive locations such as forest; school etc. can be assessed regularly. Intermittently, air quality should also be monitored near the school.



B. Standard Conditions

I. Statutory compliance

- (1) This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
- (2) The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors before commencing the mining operations.
- (3) The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
- (4) This Environmental Clearance shall become operational only after receiving formal NBWL Clearance from MoEF&CC subsequent to the recommendations of the Standing Committee of National Board for Wildlife, if applicable to the Project.
- (5) This Environmental Clearance shall become operational only after receiving formal Forest Clearance (FC) under the provision of Forest Conservation Act, 1980, if applicable to the Project.
- (6) Project Proponent (PP) shall obtain Consent to Operate after grant of EC and effectively implement all the conditions stipulated therein. The mining activity shall not commence prior to obtaining Consent to Establish / Consent to Operate from the concerned State Pollution Control Board/Committee.
- (7) The PP shall adhere to the provision of the Mines Act, 1952, Mines and Mineral (Development & Regulation), Act, 2015 and rules & regulations made there under. PP shall adhere to various circulars issued by Directorate General Mines Safety (DGMS) and Indian Bureau of Mines from time to time.
- (8) The Project Proponent shall obtain consents from all the concerned land owners, before start of mining operations, as per the provisions of MMDR Act, 1957 and rules made there under in respect of lands which are not owned by it.
- (9) The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled

“Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area”.

- (10) The Project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and from CGWA for withdrawal of ground water for the project.
- (11) A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
- (12) State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
- (13) The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
- (14) The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred than mining operation shall only be carried out after transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.

II. Air quality monitoring and preservation

- (1) The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO₂, CO and SO₂ etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure

characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

- (2) Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.

III. Water quality monitoring and preservation

- (1) In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
- (2) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintain. The natural water bodies and or streams which are flowing in an around the village, should not be disturbed. The Water Table should be nurtured so as not to go down below the pre-mining period. In case of any water scarcity in the area, the Project Proponent has to provide water to the villagers for their use. A provision for regular monitoring of water table in open dug wall located in village should be incorporated to ascertain the impact of mining over ground water table. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
- (3) Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-

monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.

- (4) The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease and maintain its records. The project proponent shall undertake regular monitoring of water quality upstream and downstream of water bodies passing within and nearby/ adjacent to the mine lease and maintain its records. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. PP shall carryout regular monitoring w.r.t. pH and included the same in monitoring plan. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
- (5) Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TSS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
- (6) Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
- (7) Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate

(CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.

- (8) The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.

IV. Noise and vibration monitoring and prevention

- (1) The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
- (2) The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
- (3) The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

V. Mining plan

- (1) The Project Proponent shall adhere to the working parameters of mining plan which was submitted at the time of EC appraisal wherein year-wise plan was mentioned for total excavation i.e. quantum of mineral, waste, over burden, inter burden and top soil etc.. No change in basic mining proposal like mining technology, total excavation, mineral & waste production, lease area and scope of working (viz. method of mining, overburden & dump management, O.B & dump mining, mineral transportation mode, ultimate depth of mining etc.) shall not be carried out without prior approval of the Ministry of Environment, Forest and Climate Change, which entail adverse environmental impacts, even if it is a part of approved mining plan modified after grant of EC or granted by State Govt. in the form to Short Term Permit (STP), Query license or any other name.

- (2) The Project Proponent shall get the Final Mine Closure Plan along with Financial Assurance approved from Indian Bureau of Mines/Department of Mining & Geology as required under the Provision of the MMDR Act, 1957 and Rules/ Guidelines made there under. A copy of approved final mine closure plan shall be submitted within 2 months of the approval of the same from the competent authority to the concerned Regional Office of the Ministry of Environment, Forest and Climate Change for record and verification.
- (3) The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

VI. Land reclamation

- (1) The Overburden (O.B.) generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by D.G.M.S w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of top soil/OB dumps. The topsoil shall be used for land reclamation and plantation.
- (2) The reject/waste generated during the mining operations shall be stacked at earmarked waste dump site(s) only. The physical parameters of the waste dumps like height, width and angle of slope shall be governed as per the approved Mining Plan as per the guidelines/circulars issued by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of waste dumps.
- (3) The reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- (4) The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring

proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.

- (5) The Project Proponent shall carry out slope stability study in case the dump height is more than 30 meters. The slope stability report shall be submitted to concerned regional office of MoEF&CC.
- (6) Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
- (7) Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
- (8) The top soil, if any, shall temporarily be stored at earmarked site(s) within the mine lease only and should not be kept unutilized for long. The physical parameters of the top soil dumps like height, width and angle of slope shall be governed as per the approved Mining Plan and as per the guidelines framed by DGMS w.r.t. safety in mining operations shall be strictly adhered to maintain the stability of dumps. The topsoil shall be used for land reclamation and plantation purpose.

VII. Transportation

- (1) No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of

roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers.

- (2) The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

VIII. Green Belt

- (1) The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
- (2) The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
- (3) The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide

mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

- (4) The Project Proponent shall undertake all precautionary measures for conservation and protection of endangered flora and fauna and Schedule-I species during mining operation. A Wildlife Conservation Plan shall be prepared for the same clearly delineating action to be taken for conservation of flora and fauna. The Plan shall be approved by Chief Wild Life Warden of the State Govt.
- (5) And implemented in consultation with the State Forest and Wildlife Department. A copy of Wildlife Conservation Plan and its implementation status (annual) shall be submitted to the Regional Office of the Ministry.

IX. Public hearing and human health issues

- (1) The Project Proponent shall appoint an Occupational Health Specialist for Regular as well as Periodical medical examination of the workers engaged in the mining activities, as per the DGMS guidelines. The records shall be maintained properly. PP shall also carryout Occupational health check-ups in respect of workers which are having ailments like BP, diabetes, habitual smoking, etc. The check-ups shall be undertaken once in six months and necessary remedial/ preventive measures be taken. A status report on the same may be sent to MoEFCC Regional Office and DGMS on half-yearly basis.
- (2) The Project Proponent must demonstrate commitment to work towards 'Zero Harm' from their mining activities and carry out Health Risk Assessment (HRA) for identification workplace hazards and assess their potential risks to health and determine appropriate control measures to protect the health and wellbeing of workers and nearby community. The proponent shall maintain accurate and systematic records of the HRA. The HRA for neighborhood has to focus on Public Health Problems like Malaria, Tuberculosis, HIV, Anaemia, Diarrhoea in children under five, respiratory infections due to bio mass cooking. The proponent shall also create awareness and educate the nearby community and workers for Sanitation, Personal Hygiene, Hand washing, not to defecate in open, Women Health and Hygiene (Providing Sanitary Napkins), hazard of tobacco and alcohol use. The Proponent shall carryout base line HRA for all the category of workers and thereafter every five years.
- (3) The Proponent shall carry out Occupational health surveillance which be a part of HRA and include Biological Monitoring where practical and feasible, and the tests and investigations relevant to the exposure (e.g. for Dust a X-Ray chest; For Noise Audiometric; for Lead Exposure Blood Lead, For Welders Full Ophthalmologic

Assessment; for Manganese Miners a complete Neurological Assessment by a Certified Neurologist, and Manganese (Mn) Estimation in Blood; For Inorganic Chromium- Fortnightly skin inspection of hands and forearms by a responsible person. Except routine tests all tests would be carried out in a Lab accredited by NABH. Records of Health Surveillance must be kept for 30 years, including the results of and the records of Physical examination and tests. The record of exposure due to materials like Asbestos, Hard Rock Mining, Silica, Gold, Kaolin, Aluminium, Iron, Manganese, Chromium, Lead, Uranium need to be handed over to the Mining Department of the State in case the life of the mine is less than 30 years. It would be obligatory for the State Mines Departments to make arrangements for the safe and secure storage of the records including X-Ray. Only conventional X-Ray will be accepted for record purposes and not the digital one). X-Ray must meet ILO criteria (17 x14 inches and of good quality).

- (4) The Proponent shall maintained a record of performance indicators for workers which includes (a) there should not be a significant decline in their Body Mass Index and it should stay between 18.5 -24.9, (b) the Final Chest X-Ray compared with the base line X-Ray should not show any capacities ,(c) At the end of their leaving job there should be no Diminution in their Lung Functions Forced Expiratory Volume in one second (FEV1), Forced Vital Capacity (FVC), and the ratio) unless they are smokers which has to be adjusted, and the effect of age, (d) their hearing should not be affected. As a proof an Audiogram (first and last need to be presented), (e) they should not have developed any Persistent Back Pain, Neck Pain, and the movement of their Hip, Knee and other joints should have normal range of movement, (f) they should not have suffered loss of any body part. The record of the same should be submitted to the Regional Office, MoEFCC annually along with details of the relief and compensation paid to workers having above indications.
- (5) The Project Proponent shall ensure that Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
- (6) Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.
- (7) The activities proposed in Action plan prepared for addressing the issues raised during the Public Hearing shall be completed as per the budgetary provisions

mentioned in the Action Plan and within the stipulated time frame. The Status Report on implementation of Action Plan shall be submitted to the concerned Regional Office of the Ministry along with District Administration.

X. Corporate Environment Responsibility (CER)

- (1) The activities and budget earmarked for Corporate Environmental Responsibility (CER) as per Ministry's O.M No 22-65/2017-IA. II (M) dated 01.05.2018 or as proposed by EAC should be kept in a separate bank account. The activities proposed for CER shall be implemented in a time bound manner and annual report of implementation of the same along with documentary proof viz. photographs, purchase documents, latitude & longitude of infrastructure developed & road constructed needs to be submitted to Regional Office MoEF&CC annually along with audited statement.
- (2) Project Proponent shall keep the funds earmarked for environmental protection measures in a separate account and refrain from diverting the same for other purposes. The Year wise expenditure of such funds should be reported to the MoEFCC and its concerned Regional Office.

XI. Miscellaneous

- (1) The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
- (2) The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (3) The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
- (4) A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEFCC.

(5) The concerned Regional Office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data / information / monitoring reports.

20. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

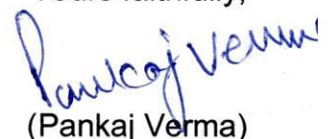
21. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attracts action under the provisions of Environment (Protection) Act, 1986.

22. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/ High Court of Chhattisgarh and any other Court of Law relating to the subject matter.

23. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

24. This issues with the approval of Competent Authority.

Yours faithfully,



(Pankaj Verma)
Scientist E

Copy to

- (1) The Secretary, Ministry of Mines, Government of India, ShastriBhawan, Dr. Rajendra Prasad Road, New Delhi - 110 001.
- (2) The Secretary, Department of Mines and Geology, Government of Meghalaya, Secretariat, Shillong, Meghalaya.
- (3) The Secretary, Department of Environment, Government of Meghalaya, Secretariat, Shillong, Meghalaya.
- (4) The Secretary, Department of Forest, Government of Meghalaya, Secretariat, Shillong, Meghalaya.

- (5) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Line, Nagpur – 440 001.
- (6) The Chief Wildlife Warden of the State Govt. of Meghalaya, Secretariat, Shillong, Meghalaya.
- (7) The Dy. Director General, Ministry of Environment, Forest & Climate Change, Regional Office (NEZ), Law-U-Sib, Lumbatngen, Near MTC Workshop, Shillong, Meghalaya.
- (8) The Member Secretary, Central Pollution Control Board, PariveshBhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- (9) The Member Secretary, Meghalaya State Pollution Control Board, ARDEN Lumpyngrigad, Shillong – 793 003.
- (10) The Member Secretary, Central Ground Water Board Ministry of Agriculture and Irrigation, 12/1 Jam Nagar House, Shahjahan Road, New Delhi - 110 011.
- (11) The District Collector, District East Jaintia Hills, Meghalaya.
- (12) Guard File,
- (13) PARIVESH Portal.


(Pankaj Verma)
Scientist E