



F. No. J-11015/202/2011-IA. II (M)
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division

Indira Paryavaran Bhavan
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JorBagh Road, New Delhi-110 003

Dated: 11th June, 2020

To,

M/s Calcom Cement India Ltd.
3rd & 4th Floor, Anil Plaza-II
ABC, G.S Road, Guwahati
Assam-781005

Subject: New Umrangshu Limestone Mine (Mine Lease area – 417.50 Ha; Production Capacity of 7.77 MTPA) of M/s. Calcom Cement India Limited at Village- New Umrangshu, Tehsil – Umrangshu, District – DimaHasao (North Cachar Hills), Assam [Environmental Clearance - regarding].

Ref: Proposal No: IA/AS/MIN/150441/2011

Sir,

The proposal of M/s. Calcom Cement India Limited is for mining lease with production capacity of 7.77 MTPA of limestone from New Umrangshu Limestone mine (ML Area- 417.50 ha.) located at village – New Umrangshu, Tehsil Umrangshu & District – DimaHasao (North Cachar Hills), Assam. The latitudes and longitudes of the mine lease area lies between 25°31'18.00" N to 25°32'25.20" N, 92°47'25.20" E to 92°48'30.24" E." (as per the EMP) and 25°31'28.222" to 25°32'41.825" N, 92°47'41.1" to 92°48'52.559" E." (as per the DGPS survey). The mining lease falls in Survey of India Toposheet No. 83 C/14. The project falls under Seismic Zone – V [as per IS 1893 (Part-I): 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 mining lease area is greater than 100 ha.

3. PP had earlier submitted the application on 18.08.2011 in the prescribed format (Form-1) and a copy of the pre-feasibility report to prescribe the ToRs for undertaking detailed EIA study for the purpose of obtaining environmental clearance under the provisions of the EIA Notification, 2006. Based on the information submitted and the presentation made before the Expert Appraisal Committee (EAC) for mining projects during its Meeting held on October 19-21, 2011, the Ministry granted Terms of Reference (TOR) vide No. J-11015/202/2011-IA. II (M) dated 28.12.2011.

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4. PP applied for Environment Clearance after conducting public hearing vide its letter dated 9th July, 2013 and submitted the final EIA/EMP report. The proposal for environmental clearance was considered by the Expert Appraisal Committee in its 12th Meeting held during 31st October & 1st November, 2013. The matter was examined and based on the discussion held; the Committee recommended the proposal subject to the submission of the Stage-I Forest Clearance for diversion of forest land.

5. PP submitted that the Stage-I Forest Clearance vide F.No. 8-11/2019-FC dated 23.08.2019 received. PP vide its letter dated 26.08.2019 submitted the copy of Stage-I Forest Clearance for grant of Environment Clearance for the said project.

6. PP has submitted that initially, mining lease was granted over 417.50 ha area for mining of limestone in New Umrangshu, Dima Hasao (North Cachar Hills) District of Assam to M/s Assam Industrial Development Corporation Ltd. (AIDC), Guwahati on 4th July 1992, for a period of 20 years. The mining lease agreement was executed on 27.11.1992. The said mining lease was transferred in favour of M/s. Calcom Cement India Limited vide Govt. of Assam letter no. PEM 58/2005/204 dated 06.12.2008. The deed of transfer amongst AIDC Ltd and Calcom Cement India Ltd and State Government of Assam was executed on 07.01.2009. The mining lease was valid up to 26.11.2012. PP applied for Renewal of mine lease on 19.05.2011.

Thereof under section 8A(3) & 8A(5) of the Mines and Minerals (Development and Regulation) Amendment Act, 2015, the said lease is extended up to 26.11.2042. The Government of Assam vide its letter No. PEM.58/2005/426 dated 21st May 2018 accorded that the lessee has complied with the terms & conditions of the mentioned sections for extension. A further extension of period of two months for execution of this supplementary Lease deed has been granted vide letter No PEM.58/2005/Pt/11 dated 28th August 2018.

7. The Land and Revenue Department, the North Cachar Hills Autonomous Council Haflong issued NOC vide letter No. REV/S/4-Allot/2018-2019/ Dy. No. 1905 dated 14.09.2018 for execution of extended Mining Lease upto 26/11/2042. Thereby, Mines and Minerals Department, Government of Assam vide letter No. PEM.48/2017/107/ Dy. No. 1910 dated 29.08.2018 provided Approval of Lease Deed Agreement in respect of M/s Calcom Cement India Ltd. The supplementary lease agreement was executed on 01.10.2018 w.r.t. extension of the lease period up to 26.11.2042.

8. PP has submitted that Mining Plan has been approved from IBM vide letter No. 314(3)/2011-MCCM (CZ)/MP-28, dated 10th April, 2012.

9. The project proponent (PP) submitted that mining will be carried out by Opencast Fully Mechanized Mining Method, utilizing heavy earth moving machines and with deep hole drilling and controlled blasting techniques, with proper benching of deposit to exploit the available limestone reserves.

Sl. No.	Particulars	Details
1.	Method of Mining	Opencast Fully Mechanised
2.	Minerale Reserves	162.56 million tonnes

3.	Life of the Mine	21 years
4.	Bench Height	10 m
5.	Bench Width	20 m
6.	Ultimate Pit Slope	45 degree
7.	Total Waste Generation	Sub grade: 17.6 million m ³ Top Soil: 0.672 million m ³ Kopili and Shale: 9.12 m ³
8.	Stripping ratio	1:0.16

10. PP submitted that the depth of ground water level near mining lease area in pre & post monsoon are found to be 103 to 63 mbgl & 100 to 60 mbgl respectively. PP has further informed that The total water requirement for this project will be about 100 KLD; which will be sourced from Amrangnalla, harvested rain water stored in lower benches and/or ground water depending upon feasibility and availability. NOC has been obtained from Dima Hasao Autonomous Council, Haflong vide letter no. DHAC/GAD/282/2011-12/10-A dated 31.07.2012 for drawing the pipelines for total water requirement for Plant & Mine from nearby river, stream & nallas within a radius of 25 km from plant & mining lease boundaries.

11. PP has submitted that Primary Baseline data for ambient air quality, water quality, noise level, soil, flora and fauna has been collected during Post Monsoon Season (October to December-2011) along with Site-specific meteorological data. The location of the monitoring stations were decided on the bases of prevailing micro – meteorological conditions (Wind direction & wind speed) of the study area. PP has submitted that there is no significant pollution of air, water, soil and noise. Regular monitoring of all the components of environment will be done.

12. PP submitted that total of 490890 saplings will be planted. At the conceptual stage, out of the total lease area i.e. 417.50 ha, about 327.26 ha area will be covered under greenbelt and plantation (including 204.08 ha on mined out benches, 55.0 ha area around office and crusher area and 72.0 ha area on dump area). Green belt will be developed all along the haul roads, around the mine pit, periphery of the mining lease area etc. Plantation will be done on mined out benches, waste dump area, around mine office & crusher area. Plantation will be done @ 1500 plants/ha. The trees will be planted at suitable grid spacing to encourage proper growth. The following plant species will be planted according to CPCB guidelines: *Embllica officinalis* (Amla), *Acacia catechu* (Kher), *Terminalia arjuna* (Arjun), *Albizzia odoratissima* (Chichwa), *Anthocephalus cadamba* (Kadam), *Ficus religiosa* (Pipal), *Aegle marmelos* (Bel), *Madhuca indica* (Mahua), *Terminalia tomentosa* (Saja), *Anogeissus latifolia* (Dhaora), *Dalbergia sissoo* (Sisam) etc. The funds allocated towards plantation is Rs. 6 crores.

13. PP submitted that the proposed mine lease area is 417.5 ha, which is a forestland. No National Park/Sanctuary/ Wildlife Corridors are reported within 10 km of the mine lease. PP submitted that no schedule I fauna was found within core & buffer zone during survey. There will be no adverse effect on the Biodiversity of the area because of the Mining Project. Authenticated List of flora & fauna found in the study area by Divisional Forest Officer, North Cachar Hills Dima Hasao, Haflong has been provided. PP reported that the total lease area of 417.50 ha is unclassified state forest Land. No Private Land involved. ML area falls in one revenue village and there is no habitation within ML area. Therefore, R&R is not applicable.

14. The Project Proponent reported that Public Hearing was carried out for the project on 10.04.2013 at NEEPCO Recreation Club at KHEP Colony, Neepco Ltd., Umrangshu, and District: Dima Hasao (North Cachar Hills) Assam under the chairmanship of District magistrate, Dima Hasao. The advertisement for public hearing was published on 09.03.2013 in newspapers -Assam Tribune and Samayik Prasanga. The issues raised during public hearing included Environment protection, preference in employment, Social activities, training for employments etc. are detailed in uploaded PH Minutes.

15. PP has submitted that as per MoEF&CC's OM no. F. No. 22-65/2017-IA.II dated 01.05.2018, the CER computed for the project is Rs. 2.3 Crore. During the appraisal of the project, PP had earlier earmarked Rs. 1.20 Crore to be spent over a span of 5 years for the various Community Developmental Activities. However, on the basis of the MoM of Public Hearing conducted on 10th April 2013 and findings of participatory rural appraisal from time to time, CCIL has already invested about Rs. 6.79 Cr. during the course of time (2014-2019) for the development of the area which are as follows: Soil & Water Conservation - 67.75 lakhs, Energy Conservation and Climate Change Mitigation – 13.77 lakhs, Livelihood and Skill Training – 9.94 lakhs and Social Development 587.88 Lakhs.

16. PP has submitted that the most common diseases in the region is common cold and cough and bronchitis malaria, flue, anteric diseases like typhoid which is also prevalent amongst the mine workers. None of these can be related to the project allied activities of the project. The quality of water both on the surface, underground and bore hole is good and all parameters of drinking water is as per ISI standards. Such water analysis is carried out at periodical interval over years. The water is found to be free from coliform organism as tested in BOD incubator in environmental laboratory which cause bacillary/dysentery. Therefore, the water can not cause any problem in the buffer zone. The scope of any disease due to SPM, CO₂, SO₂ does not arise since these are much below the prescribed limit (and gets confined to mines area because of it gets arrested by green belt all around). The dust of the area even otherwise is innocuous being without free silica. Noise generation is at a very low key and cannot travel beyond the lease area due to green belt all around. Therefore, no disease in the impact zone is related to project or any activity of the project. Hence, question of remedial measures does not arise. To control and minimize the risks at workplace, Calcom Cement India Limited will implement Health, Safety and Environment Policy with the objectives to prevent hazards, to provide safe and healthy environment to all the employees.

The company will adopt the policy set below for the purpose of creating and maintaining safe and healthy environment. A safety officer with a Manager EH &S will supervise at an organization level. The organization also has Occupational health surveillance program. PP has submitted that Necessary care will be taken to provide health and safety aids to the villagers around the mining lease area, Mobile clinical van shall be provided to render the necessary clinical facilities at villages. A first aid station will be established in the mine premises.

17. Project Proponent submitted that the total cost of the project is 120 Crore and during operations project will provide permanent employment to 240 persons. The Project Proponent submitted that the budget earmarked for Environmental Management Plan (EMP) shall be ₹ 1.5 Crores (Capital) & ₹0.50 Crores (recurring/annum).

18. PP submitted the there is no Court Cases pending against the project and/or land in which the project is proposed to be set up.

19. During the deliberations, the committee opined that the recommendation was made by the EAC in November, 2013 and advised the PP to justify that there is no change in the impact assessment and EMP through the present baseline scenario and considering other developmental activities that may come in the study area. The project proponent has submitted following in response to the observations of EAC:

- i. Details of the Industries within study area along with their status in year 2013 (during EC recommendation) and in 2020:

S. No	Name of Industry	Type	Distance and direction from project site	Status during earlier Appraisal of Project	Status as on date
1	NECEM Cement Ltd	Cement Manufacturing, 100 TPD	2.25 km (NW)	Operational	Not Operational
2	Umrangshu Cement Ltd	Cement Manufacturing, 100 TPD	2.0 km (NW)	Operational	Not Operational
3	Vinay Cement Ltd, New Umrangshu	Cement Manufacturing, 500 TPD	2.5 km (SW)	Operational	Not Operational
4	Assam Mineral Development Corporation Limestone Mines	Limestone Mining Project (State Govt)	1.5 km (West)	Not Operational	Not Operational
5	NEEPCO (National Eastern Electric Power Corporation Ltd.	Hydro Electric Power Project (CPSU)	4.0 km (SW)	Operational	Operational
6	Jamunannagar Limestone Mine.	Limestone Mining	2.0 km (SW)	Operational	Operational
7	Limestone Mine of NECM	Limestone Captive Mining	2.5 km (NW)	Operational	Operational
8	Kopili Tea State	Tea Estate and tea manufacturing	3.0 km (SW)	Operational	Operational

No industries have been established in the area after year 2013, except Calcom Cement India Ltd. with clinkerisation capacity of 0.98 MTPA- Operational Since April, 2015.

- ii. Baseline Data collected in Winter Season, Dec-2019 To Feb-2020

Parameters	No. of Locations	Description

Ambient Air Quality	10 Locations	PM10- 50.4 to 82.1 $\mu\text{g}/\text{m}^3$ PM2.5- 31.7 to 48.3 $\mu\text{g}/\text{m}^3$ SO2- 5.02 to 10.55 $\mu\text{g}/\text{m}^3$ NO2- 7.14 to 18.14 $\mu\text{g}/\text{m}^3$
Noise Level Monitoring	10 Locations	Noise level During Day time- 49.5 to 62.6 Leq dB(A) Noise level During Night time – 40.9 to 52.2 Leq dB(A)
Water Quality Monitoring	8 Ground Water &	pH(7.08 to 7.62 mg/L), TDS (134 to 257 mg/L), Fluoride (0.15 to 0.34 mg/L), Sulphate (2.25 to 13.4 mg/L), Calcium (16.03 to 41.86 mg/L), etc. are found within the permissible limits.
	7 Surface Water Locations	All the parameters for Surface water like pH (6.86 to 7.34), TSS (3.0 to 14 mg/L), TDS (141 to 307 mg/L), etc. Are found within the permissible limits.
Soil Sampling	8 Locations	pH-6.91 to 7.38 Texture-Sandy Loam Organic Matter-0.93 to 1.28%

- iii. Ambient air quality modelling has been carried out composite for Mine and cement plant by using AIRMET View 8.2.0 and AERMOD View 8.2.0 – Model AERMOD. Emissions from existing clinkerisation unit operating at a capacity of 0.98 MTPA has already been considered in Baseline study conducted during Dec-2019 to Feb 2020. In order to predict maximum Ground level concentration (GLC's) emissions from the proposed mine along with anticipated expansion of existing clinkerisation unit have been considered. The cumulative impact from the proposed operation of the Limestone mine including anticipated expansion of clinkerisation unit on the Ground Level Concentration (GLC's) is presented in table given below:

S. No.	Pollutants	Concentration ($\mu\text{g}/\text{m}^3$)			CPCB NAAQS Standards
		Incremental Value	Baseline Value	Resultant value	
1.	PM10	4.52	68.5	73.02	100
2.	PM2.5	2.17	40.2	42.37	60
3.	SO2	2.35	9.20	11.55	80
4.	NO2	1.18	14.11	15.29	80

- iv. Project cost has been revised from 45.50 Cr. to Rs. 120 Cr during grant of stage -1 Forest Clearance. During the earlier appraisal of project, Rs. 1.20 Crore was earmarked to be spent over a period of 5 years for the various community developmental Activities and commitments made during public hearing. However, on the basis of the issues raised during Public Hearing and findings of participatory rural appraisal from time to time, company have proactively carried out various socio-economic developmental work in the area. Although, mining activity is yet to be commenced, Company has already spent about Rs. 6.79 Crore during the course of time (2014 – 2019) for the development of the area under various heads i.e. Soil & Water Conservation, Energy Conservation and Climate Change Mitigation, Livelihood and Skill Training and Social Development. Now, As per MoEFCC OM No 22-65/2017-IA-III Dated 1st May, 2018 CER computed for the proposed Project is Rs. 2.3 Cr.

S. No	Capital Investment (In Rs)	Greenfield project % of capital investment	CER Cost (Rs. In crore)	
			Earlier	Revised
1.	≤100 Crores	2.0%	1.20	2.0
2.	>100 Crore to ≤500 Crores	1.5%		0.3
Total			-	1.20
				2.3

- v. An additional amount of Rs. 2.5 Crores has been earmarked to be spent in next 3 years. Details of CER budget with proposed activities are given below:

S No.	Program Activities	Unit	No. of Units	Unit Cost (Rs.In Lakhs)	Rs. In Lakhs			
					1st year	2nd year	3rd year	Total
1	Hospital Infrastructure:- Ambulance with emergency equipment(Basic Life Support)-Umrangso CHC	No,s	1	20.00	-	20.00	-	20.00
2	Mini ICU- Hospital Infra-Umrangso CHC	No,s	1	45.00	-	-	45.00	45.00
3	School Bus Umrangso 19Kilo -	No,s	1	20.00	-	20.00	-	20.00
4	School Class rooms in the school Standard English School Hebron Village	No,s	5	4.00	20.00	-	-	20.00
5	Village Road - 19kilo to New Borothungrang & Chota Thungrong	Km	12	0.67	2.04	3.00	3.00	8.04
6	Solar Street Lights in the villages of New Borolarthang & Chotlarthing	No's	90	0.20	-	9.00	9.00	18.00
7	Smart Class equipments for School Lovely well memorial school & Royal Academy	No's	2	15.00	15.00	-	15.00	30.00
8	Open defecation free village-New Borothungrang & Chota Thungrong	No's	60	0.25	5.00	5.00	5.00	15.00
9	Construction of ring wells-Kekrangsip, Langcherui	No.s	15	2.00	10.00	12.00	8.00	30.00
10	Spring Water Harvesting in the village of Dhinrazi, Hanjanglingso, chtolangklam	No,s	3	15.00	15.00	15.00	15.00	45.00
Grand Total					67.04	84.00	100.00	251.04

20. The Ministry of Environment, forest and Climate Change has examined the proposal in accordance with the Environmental Impact Assessment Notification, 2006 and further amendments thereto; the 16th EAC meeting held during May 5th, 2020, reiterated the **recommendation** of the EAC in its meeting held during 31st October & 1st November, 2013 for grant of environmental clearance subject to the standard conditions in respect of non-coal mining issued by the ministry vide office memorandum, F.No. 22-34/2018-IA.III, dated the 8th January, 2019 and following specific conditions, and after accepting the recommendation, hereby decided to accord the environmental clearance under the provisions thereof to the above mentioned proposal of **New Umrangshu Limestone Mine (Mine Lease area – 417.50 Ha; Production Capacity of 7.77 MTPA) of M/s. Calcom Cement India Limited at Village- New Umrangshu, Tehsil – Umrangshu, District – Dima Hasao (North Cachar Hills), Assam** 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

- 4
- i. An amount of Rs. 251.04 Lakhs allocated for the CER shall be spent within 3 years for the activities such as Hospital Infrastructures; School infrastructure; village roads; ODF programme; rain water harvesting; and other concerns raised during the public hearing.
 - ii. Green belt shall be developed with a total of 490890 saplings with a fund allocation of Rs. 6 crs. At the conceptual stage, out of the total lease area i.e. 417.50 ha, about 327.26 ha area shall be covered under greenbelt and plantation (including 204.08 ha on mined out benches, 55.0 ha area around office and crusher area and 72.0 ha area on dump area). Green belt shall be developed all along the haul roads, around the mine pit, periphery of the mining lease area etc. Plantation shall be done on mined out benches, waste dump area, around mine office & crusher area. Plantation will be done @ 1500 plants/ha. The trees shall be planted at suitable grid spacing to encourage proper growth and species shall be planted according to CPCB guidelines such as *Embllica officinalis* (Amla), *Acacia catechu* (Kher), *Terminalia arjuna* (Arjun), *Albizzia doratissima* (Chichwa), *Anthocephalus cadamba* (Kadam), *Ficus religiosa* (Pipal), *Aeglemarmelos* (Bel), *Madhuca indica* (Mahua), *Terminalia tomentosa* (Saja), *Anogeissuslati folia* (Dhaora), *Dalbergia sisso* (Sisam) etc.
 - iii. Garland drain of adequate cross section shall be made all along the quarry area and measures shall be taken to avoid the erosion and contamination of the surrounding area.
 - iv. Controlled blasting shall be carried using the NONELs and fly rock control measures.
 - v. In pursuant to Ministry's O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Hon'ble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to other mining

activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.

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 (TDS), 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, overburden, interburden 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 of 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.

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

27. 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.

28. 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/ Hon'ble High Court and any other Court of Law relating to the subject matter.

21. 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.

22. This issues with the approval of Competent Authority.

Yours faithfully,

Sharath
11/6/2020

(Sharath Kumar Pallerla)
Director/Scientist 'F'

Copy to:

1. **The Secretary**, Ministry of Mines, Government of India, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi-110 001.
2. **The Secretary**, Department of Mines and Geology, Government of **Assam**, Secretariat, Guwahati.
3. **The Secretary**, Department of Environment, Government of **Assam**, Secretariat, Guwahati.
4. **The Secretary**, Department of Forest, Government of **Assam**, Secretariat, Guwahati.
5. **The Controller General**, Indian Bureau of Mines, Indira Bhawan, Civil Line, Nagpur-440001.
6. **The Chief Wildlife Warden** of the State Govt. of **Assam**, Secretariat, Guwahati.
7. **The Dy. Director General**, Ministry of Environment, Forest & Climate Change, Regional Office (NEZ), Law-U-Sib, Lumbatngen, Near MTC Workshop, Shillong.
8. **The Member Secretary**, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
9. **The Member Secretary**, Assam State Pollution Control Board, Bamunimaidam, Guwahati - 21
10. **The Member Secretary**, Central Ground Water Board, Ministry of Water Resources, River development and Ganga rejuvenation, Bhujal Bhawan, NH-IV, Faridabad – 121001, Haryana.
11. **The District Collector**, District-Guwahati, Assam.
12. **Guard File**,
13. **PARIVESH Portal**.

Sharath
11/6/2020

(Sharath Kumar Pallerla)
Director/Scientist 'F'