



**F. No. J-11015/121/2007-IA. II (M)**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**(Impact Assessment Division)**

Indira ParyavaranBhavan  
Vayu Wing, 3<sup>rd</sup> Floor, Aliganj,  
JorBagh Road, New Delhi-110 003  
Dated: 30<sup>th</sup> July, 2020

To,

M/s Adani Cementation Limited  
(Shri Sanjay Prasad, AGM, Environment)  
Adani House, 56 Srimali Society, Navrangpura, Ahmedabad,  
Ahmedabad, Gujarat-380009

**Subject: Mudhvay Limestone Mine Block 'C' of M/s Adani Cementation Limited with proposed production capacity of 12 million TPA of limestone in the mine lease area of 251.9 ha, the mine lease area is located at Village: Mudhvay, Taluka: Lakhpat, District: Kutch, Gujarat – Prior Environmental Clearance - Regarding**

Sir,

This has reference to the online proposal of M/s Adani Cementation Limited vide Proposal No: IA/GJ/MIN/70787/2017 for mining of 12.00 MTPA of Limestone from Mudhvay Limestone Mine Block 'C' with the mine lease area of 251.9 ha. The mine lease area is located at Govt land Survey No. '26P' and '27P' Private Santhani Land Survey No. 26P7, 26P10, 26P22, 26P18, 26P41, 26P49, 26P33, 26P11, 26P42, 26P30, 26P57, 26P32, 26P25, 26P8, 26P52, 26P37, 26P9, 26P19, 26P27, 26P63, 26P47, 26P12, 8P1, 8P2, 8p9, 18P3, 26P10, 27P10, of Village: Mudhvay, Taluka: Lakhpat, District: Kutch, Gujarat. The latitudes and longitudes of the Mine lease fall between Latitude: 23°42'43.6432" N to 23°44'04.9094" N and Longitude: - E 68°41'51.6687" E to 68°42'40.9420" E. The project falls under seismic zone V.

2. As per EIA Notification dated 14th September, 2006 as amended from time to time, the project activity falls under Item 1(a) in Category "A".

3. With reference to the online application for ToR on 12.11.2017 along with Form-1, Pre-Feasibility Report, copy of Letter of Intent, etc., the proposal was appraised in the EAC in its meeting held on 21-22 December, 2017 wherein the Committee recommended the ToR. Ministry granted the ToR vide letter no. J-11015/121/2017-IA.II(M) dated 9<sup>th</sup> January, 2018 for preparation of report of Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP).

4. The Project Proponent submitted the EIA/EMP Report online dated 12.12.2019 for seeking Prior Environmental Clearance and the proposal was considered in the EAC in its meeting held during January 30-31, 2020 and further considered in the meeting held during 22-24 June, 2020.

5. The Project Proponent submitted that the total mine lease area is 251.90 ha, comprises of 132.42ha (52.57%) of agricultural land and 119.48ha (47.43%) of open scrub land. The proponent submitted that the Letter of Intent (LoI) has been issued for

winning mineral Limestone (cement grade) over an area of 251.90 ha by Department of Industries & Mines, Govt. of Gujarat vide letter no. MCR- 102016- 2146-CHH dated 21.06.2017 for a period of 50 years from the date of mining lease execution.

6. The Project Proponent reported that the mining plan is prepared with total excavation (Maximum peak production) of 12 MTPA Limestone, 5 MTPA Overburden and 0.08 MTPA Top soil. The Mining Plan Progressive Mine Closure Plan is approved by the Regional Controller of Mines, Indian Bureau of Mines, Gandhinagar vide letter no. पत्रसे. 684(4)(1)/MP-84 dated 03.01.2018 as per the approved mine plan the mining shall be carried out by fully mechanized opencast method using continuous surface miner (CSM) with combination of pay loader and dumpers/tippers. No drilling and blasting is required. The cutting depth of surface miner is 250-300mm and product size generated after cutting and milling in the range of 75-150mm. This size of limestone is suitable for cement plant without crushing. PP submitted that the working Bench height will be 6m and 15m width will be maintained respectively. The ultimate pit slope will be 45<sup>0</sup> and slope of over burden will be maintained at 70<sup>0</sup>. Overburden waste is loose material thus, not required drilling and blasting. It can directly be mined with the help of excavator bucket and will be loaded in dumper/tippers. Overburden material will be stored at designated place as per approved mining plan inside the mine lease area. Surface miner is environment friendly machine and to be used in order to avoid blasting. No crushing of mineral limestone is required. PP also reported that 0.3m cover of overburden sandy soil is available, the same during the mine plan OB will be dumped at designated place and will be re-handled and backfilling will be started in eighth year onwards, after getting part of worked out area matured for the same. The future Waste handling will vary based on the exploration plan of the Mining lease area and accordingly backfilling will be planned. It has been envisaged that after back-filling the entire excavated area of 112.30 Ha will have a void of about 30.0 m BG at the end of the conceptual period. The loading of excavated material by surface miner, is to be carried out by pay loader and transportation carried by dumper/tippers of 35 tonne capacity. The dumpers/tippers will carry material to transfer hopper of surface Belt conveyor. The Belt conveyor to be installed within the boundary barrier of boundary pillars C-07 to C-01. Limestone shall be conveyed to proposed cement plant along boundary barrier by surface Belt conveyor.

4 7. The Project Proponent submitted that the Gujarat State Pollution Control Board conducted Public Hearing for the proposed project of Cement Plant of Production Capacity 10MTPA Clinker, 10MTPA Cement & 99 MW Cpp (Including 24MW WHRS); Limestone Mine for 12MTPA from 251.9ha Area and Berthing Jetty of 19MTPA Capacity, located Village: Maldo, Mudhvay, Koriyani & Kapurasi, Taluka: Lakhpat, District: Kutch, Gujarat State on 28.05.2019 at Village Koriyani, Taluka Lakhpat, District Kutch (Gujarat). The advertisement for public hearing was published in "Kutch mitra" and "The Indian Express" on 22.04.2019. The Public hearing was conducted under the chairmanship of Smt. Remya Mohan (I.A.S.), District Magistrate and District Collector Bhuj, Kutch and Dr. S.N Agravat, I/c Regional Officer, Gujarat Pollution Control Board, Regional office Kutch-west was also presented. The issues raised during public hearing were also deliberated during the meeting which includes, employment, drinking water facility, medical facility, skill development, infrastructure facility in school & village, implementation of pollution control measures, additional compensation, educational facilities, effect on agricultural crop production, road maintenance, employment to local people, etc. The PP, *inter alia*, committed during public hearing that the project will employ around 630 persons per day during construction Phase and Preference will be given to local workers from the surrounding villages. During the operation phase, there

will be direct around 150 persons and indirectly more than 450 persons likely to give employment.

8. The Project Proponent submitted that the Baseline data was generated during winter season December 2017 to February 2018 for various environmental parameters including air, water (surface and ground water), land and soil, ecology and socio-economic status to determine quality of the prevailing environmental settings. The noise level fluctuations in daytime and night time was observed and the maximum noise level in daytime observed was 50.4dB(A) at NQ6, S.K.Varmanagar and minimum noise level observed was 41.4 dB(A) at NQ3, Koriyani Village, the Leq value is slightly exceeding the prescribed limit of CPCB. The maximum noise level in night time observed was 42.9dB(A) at NQ6, S.K.Varmanagar and minimum noise level was 32.7 dB(A) at NQ8, Mudhvay. Particulate Matter (PM10) Maximum concentration was recorded in AAQ6, S.K Varmanagar (75.1µg/m<sup>3</sup>) and the minimum concentration was recorded in AAQ1-Onsite Mining Area (64.7µg/m<sup>3</sup>). The higher concentration of PM10 in AAQ6-SK Varmanagar due to attributed to its proximity to State Highway and the ongoing, construction activities in the vicinity and presence of commercial activities. As per the monitoring data, PM2.5 ranges between 23.3µg/m<sup>3</sup> in AAQ1(Onsite ML Area) to 32.9µg/m<sup>3</sup> in AAQ6 (S.K.Varmanagar). Further PP reported that the Surface and ground water sampling was carried out in 6 and 7 locations respectively. The analysis results indicate that the pH values of all the samples of Kori Creek are in the range of 7.9 (SW5, Kori Creek 3) to 8.1(SW4& SW6, Kori Creek2 &Kori Creek4) indicating alkaline characteristics. All values meet criteria A as per CPCB surface water quality standard. TDS was observed in the range of 39,747 mg/l at SW6 (Kori Creek 4) to 43,200.0 mg/l at SW3 (Kori Creek 1).

9. The Project Proponent submitted that the Plantation will be carried out along statutory barrier as a green belt. The plantation will be done at the rate of 1000 saplings per Ha @ 1.0 Ha per year. The top soil removed during the mining process will be used for plantation purpose. At the end of mine life, about 83.50 Ha of lease area will be under plantation, out of which 5.00 Ha will be boundary greenbelt and 78.50 Ha will be plantation on reclaimed areas. The afforested area will be protected from cattle by fencing off the plantation area.

10. The Project Proponent submitted that the total water requirement for the mining will be 250 KLD which will be sourced from desalination plant to be proposed in upcoming cement plant in the vicinity.

11. The Project Proponent submitted that the total cost of the project shall be Rs. 7525 Crore (Approx.) and the proposed project about 630 persons is will be recruit during construction phase, preference will be given to local workers. During the operation phase, 150 skilled workers will be directly and 450 persons indirectly will be recruited.

12. The Project Proponent submitted that in order to compensate for the potential damage/degradation of Commiphora wightii habitats Adani Cementation Limited(ACL) shall carry out 2.0 ha. of plantation through Kutch-West Forest Division, Bhuj. ACL will financially support to Kutch West Forest Division for improvement of wildlife habitat (Schedule I species) in the forest area. Rs. 453.5 lacs have been estimated for conservation measure under wild life conservation plan which includes provision of Vehicles for patrolling and water supply for wild animals (Tractor with water Tanker).

13. The Project Proponent submitted that Mudhway Limestone Mine Block 'C' does not fall under CRZ. Map showing demarcation of LTL, HTL, CRZ and Coastal features w.r.t. Mudhway Limestone Mine Block 'C' and duly authenticated by Institute of Remote Sensing, Anna University submitted.

14. The Project Proponent submitted that no court cases were pending against the project or activity.

15. The Project Proponent submitted that Eco Sensitive Zone of Narayan Sarovar Wildlife Sanctuary is at ~2.0 km South; Kori Creek (Arabian Sea) is at ~7.5km West; Kali Nadi is at ~3.5km East; Kapurasi Nadi is at ~6.0km West; Mudhway RF is at ~0.5 km South; Kaiyari RF is at ~6.0km SW; and Lakhpur Fort is at ~12.5km NE. It was reported that no important or sensitive species of flora or fauna were found. This project does not involve land protected under any international conventions, national or local legislation for their ecological, landscape, cultural or other related value.

16. The Project Proponent submitted that detailed Hydro-geological and Geo-physical survey to assess the impact of mining up to conceptual pit limit on sea water ingress towards ground water regime with mitigation measures is conducted between mine and coast during the period from 14th to 18th February, 2020 by recording 30 resistivity soundings along two sections from western boundary of the mine to nearest Kori creek, collection of 20 water samples from the surrounding area and construction of an exploratory bore hole to know the lithology of the area up to depth of 103 metres by M/s Hydro-Geosurvey Consultants Pvt. Ltd., Jodhpur.

17. The Project Proponent submitted that the Stage wise reclamation plan of the mine up to the period of conceptual pit limit shall be provided in the environment management plan.

- OB in this deposit is mainly characterized by Top Soil, mix of Sandy soil, Clay, Siltstone and Mudstone.
- The generated top soil will be used for Green belt development simultaneously.
- OB Dumping will be carried out temporarily for which a single dump of 38Ha is proposed.
- Backfilling of temporary dump as well as Concurrent Backfilling shall start from 8<sup>th</sup> year onwards.

Year	OB/Waste (Mm <sup>3</sup> )	OB Disposal Method	Top Soil (Mm <sup>3</sup> )	Top Soil Disposal Method
1st	1.704	38Ha is earmarked on the Northern part of Block for temporary dumping of OB. Same will be backfilled from 8 <sup>th</sup> year onward.	0.046	No stacking proposed, simultaneous utilization for plantation purposes
2nd	2.5		0.057	
3rd	0.734		0	
4th	0.686		0	
5th	0.021		0	
up to Conceptual	13.475	Dumping till 8 <sup>th</sup> year and then concurrent backfilling	0.22	
Total	19.12	Nil at the end of Conceptual period	0.32	Nil at the end of Conceptual period

The generated waste will be backfilled till conceptual stage through concurrent as well as from temporary dump re-handling, starting from southern side of ML area.

The stage wise detailed OB reclamation plan up to conceptual pit has been given below -

Year	Generated (in Mm <sup>3</sup> )	To Temporary dump (in Mm <sup>3</sup> )	OB Reclamation (in Mm <sup>3</sup> )			Reclaimed Area (in Ha)
			From Dump	Concurrent	Total	
1 to 5	5.65	5.65	-	-	-	-
6 & 7	2.90	2.90	-	-	-	-
8 to 10	4.35	-	3.21	4.35	7.56	32.48
10 to 15	6.22	-	5.34	6.22	11.56	79.82
	19.12	8.55	8.55	10.57	19.12	112.30

5<sup>th</sup> Years Plans showing waste dump creation and systematic reclamation till conceptual plan is enclosed, as per approved mining plan. Summary of Stage wise reclamation plan is as under -

- Total waste generation envisaged till conceptual period is 19.12 Million cum
- Total waste available for backfilling envisaged till conceptual period is 24.85 Million cum (Considering 1.3 Swell Factor)
- Total void area envisaged till conceptual period is 112.30 Ha, which will be backfilled with generated OB
- Total 83.5 ha. will be developed as green cover including 78.5ha. back filled area and 5ha. along mine block boundary till conceptual stage of mining.

18. The Project Proponent submitted that as per Article-5 of ILO Safety & Health in Mines Convention, 1995 (No,176), Director General of Mines and Safety, India is the competent authority to monitor and regulate the various aspects of Health and Safety in Mines. DGMS has already adopted the ILO standards for occupational health and recommended the implementation of ILO Convention number 176 in mines during 10 & 11<sup>th</sup> Safety conferences. The following are the occupational health Surveillance in Mining Industry measures proposed by DGMS, which Adani Cementation Limited will implement.

- All chest radiographs of Initial and Periodical Medical Examinations in mines shall be classified for detection, diagnosis and documentation of pneumoconiosis in accordance with ILO classification for pneumoconiosis.
- The PME Medical Officer in every PME centre of mines shall be trained in occupational health and use of ILO classification for pneumoconiosis.
- Operating mechanized mines shall set up an Occupational Diseases Board consisting of one occupational Health Physician, one radiologist and one general physician.

19. The Project Proponent submitted that the open pit design has been planned for Mudhvay Limestone Mine Block 'C', considering the standard slope geometry and with respect to nearby operating mine, which is approved by Indian Bureau of Mines (IBM):

- Panandhro Lignite Mine located at about 9km towards SE of proposed mine is

safely operating with similar open pit design having overall pit slope of 45 degrees.

- In general, overall slope angle of 45° is considered to be safe in opencast pit as per Directorate General of Mines Safety (DGMS),

20. The Project Proponent submitted that the broad parameters of conceptual mine design are as below:

- Bench height : 6.0 m (max.) in Overburden & Mineral Both
- Bench width: In Limestone – Optimum  
In Soil – Optimum  
In Overburden – Optimum
- Bench slope : In Limestone Strata at 70° In Loose Strata from 35° to 45°
- Ultimate pit slope : ~ 45°

21. The Project Proponent submitted that the above bench parameters are planned with following Safety Measures during Mining Operation

- Drilling & Blasting not proposed
- Eco friendly mining operation using Surface Miner.
- Using surface miner, pay loaders and dumpers/tippers are safe and steady in operation with minimum dust generation and noise.
- Minimum safe distance of 50m will be kept between surface edge of quarry and nearest public building, roads etc.
- Mining operations within the quarry and outside will be conducted as per the conditions laid down by DGMS and under strict supervision of competent persons appointed under Metalliferous Mine Regulation Act, 1961.
- Bench slopes will be stabilized by using anchor bolts where ever required.
- However, the slope stability study will be carried out as per new MMR guidelines in future.

22. The Project Proponent submitted that the assessment of impact of mining of Limestone on migratory bird's path and mitigation plan w.r.t. Mudhvay Limestone Mine Block 'C' as supplementary report to existing 'Ecological Study & Wildlife Conservation Plan for Integrated Cement Plant and Mining at Lakhpat, Kutchh, Gujarat', is prepared based on survey conducted between 5<sup>th</sup> February 2020 to 7<sup>th</sup> March 2020 by M/s Bhagvati Enviro Care Pvt. Ltd., Ahmedabad.

23. The Project Proponent submitted that M/s Adani Cementation Limited aims to provide following activities to be implemented effectively in the village of the vicinity for socio economic development:

- Promote supply of quality seeds,
- Promote production of fodder crops,
- Extending fodder cultivation to currently unutilized lands outside ML area
- Promotion of dual purpose varieties of crops which has the potential of meeting fodder requirements in Season and off-season,
- Promotion of non-traditional fodder,
- Post-harvest technologies for preservation of fodder,
- Promote conservation of fodder by converting crop residues into fodder blocks through use of modern technologies, baling machines etc.

- Establish silage-making units to preserve surplus fodder for feeding during lean periods.
- Promote cultivation of superior variety of fodder for fodder seed (breeder, foundation and certified seed) production by creating assured market.
- Reduce wastage by encouraging chopping of fodder to promote better utilization.
- Promotion of area specific mineral mixture for livestock feeding to meet specific deficiency of macro and micro- minerals
- Conducting training program to educate dairy farmers.

**Time Bound Action Plan with Budget**

Issues raised	Commitment of PP	Action plan	Time line	Budget
Agriculture & Animal Husbandry Support.	Contribution in various govt. schemes Scientific support and awareness to local farmers	Fodder distribution during stress period Seed and Fertilizers distribution Financial support to ongoing Govt. schemes	In first 3 Years	Rs. 35 Lakhs.  (Rs. 5 Lakhs spent on Fodder Distribution)

24. The Project Proponent submitted that Water budget and details on water conservation plan to reduce the water requirement for mine, it has been estimated by modelling that average inflow of ground water in the mine during 1<sup>st</sup> five years of mining will be around 500 m<sup>3</sup>/day.

<b>Mining Year</b>	<b>Water Inflow (m3/day)</b>
First Year	211.65
Second Year	526.53
Third Year	616.02
Fourth Year	596.31
Fifth Year	546.15
Average	500.00

Out of 500 KLD of mine pit discharge, 225KLD will be used for dust suppression. Rest 275KLD will discharge to the percolation pond/ Local seasonal nala.

**Water Conservation Measures:**

- No ground water will be used for project activities including mining operations.
- Water will be conserved by means of both natural (Rain Water Harvesting) as well as artificial methods (Percolation Tanks)
- Treated Sewage recycled from Mine Office (15m<sup>3</sup>/day) will be used for green belt development.
- Ground water inflow in the proposed mine shall be used for ground water recharging through dust suppression and plantation in ML area. Remaining water will be used for ground water recharge through designated percolation pond.
- Tanker mounted water sprinkler will be used for dust suppression of mine roads to utilize 225m<sup>3</sup>/day.

- ❑ 275m<sup>3</sup>/day will be taken to the nearest percolation pond.
- ❑ 8 percolation tanks are proposed to be deepened to accommodate major part of the surface runoff available in study area.

25. The Project Proponent submitted that cost estimation for CER Budget has been considered on the basis of Slab rate stated in Ministry's O.M. dated 01/05/2018 are as follows:

CAPEX Range (Rs. In Crs)		CAPEX	CER% #	Total CER Fund (Rs. In Crs)
From	To			
0	100	100	2.0%	2.0
101	500	133	1.5%	2.0
Total CAPEX of Project		233	1.7%	4.0

# As per Slab rate stated in Ministry's O.M. dated 01/05/2018.

26. The Project Proponent submitted that R&R plan for Project affected families of Mudhvay Limestone Mine, ACL has adopted State Government R&R Policy as its R&R Policy.

- Land for Land: 145 Ha land identified in Village Panandhro (<2Kms from Project Site) or compensation for Land based on LARR, 2013
- Choice of annuity for safeguarding the interest of entire family.
- One-time assistance for house construction.
- Compensation for cattle shed/ petty shops.
- One-time resettlement allowance.
- One time grant artisan, small traders and certain other.
- Subsistence allowance @ Rs.3000 for 12 months/PDF.
- Transportation cost for shifting of family.
- Stamp duty @ 7.5% and registration fee @1% for land & house to the PAFs.
- R&R proposal in line with R&R policy of Government of Gujarat has been submitted to office of District Collector, Kutch for approval.

R&R Compensation Cost (Rs. In Lakhs) for Mudhvay Limestone Mine Block 'C'

S. No.	Particulars	Nos.	Rate (in Rs.)	Amount (Rs. in Lac)
1	One time assistance for house construction	17	5.76	97.92
2	Choice of annuity or employment	67	5.0	335
3	Subsistence allowance @ Rs. 3000 for 12 months / PDF	17	0.36	6.12
4	Transportation cost for shifting of family	17	0.50	8.5
5	One time resettlement allowance	17	0.50	8.5
6	Compensation for cattle shed / petty shop	17	0.25	4.25
7	One time grant artisan, small traders and certain others	17	0.25	4.25
8	Stamp duty @ 7.5% and registration fee @1% for land & house to the PAFs			8.32
Total				472.86

27. The Project Proponent submitted that time bound action plan with budget for issues raised during public hearing are as follows:

Issues raised	Commitment of PP	Action plan	Time line	Budget
Training and Skill development, Local Employment	Skill development of people in project impact area. Promotion of self-working groups Traditional & Cultural Support	Industrial & Tech. skill development – 40 Persons from nearby villages Self-employment training – 40 villagers from nearby villages Employment opportunity to the marginal workers of project impact area based on the relevant skills, experience and Merit	In first 3 Years	Rs.40 Lakhs
Education Support	Development of School infrastructure facilities Student welfare programmes	5 additional rooms at Primary Schools in nearby Villages Technical aid to ITI, Panadhro	In first 3 years	Rs. 70 Lakhs
Health Facilities	Organizing Health camps Provision of Public health center and ICU on wheel	Two nos. of mobile ICU	1 <sup>st</sup> Mobile ICU at start of project and 2 <sup>nd</sup> at commissioning	Rs 50 Lakhs on mobile ICU. Rs. 3 Lakhs already spent on Health Camp and Distribution of Wheelchair and Equipment for differently abled person.

Infrastru ctu re Developm ent	Infrastructure development in project impact area	Deepening of Godhtad Dam. Community Hall – Mudhvay Village Rain water harvesting System in 28 Villages Drinking Water arrangement	In first 3 Years	Rs. 160 Lakhs.
Environme nt Protection	Installation of Pollution control equipment	Adequate pollution control devices are envisaged for project area.	Considered in Project Cost	
	Mass plantation	Mass plantation shall be carried out in project impact Villages.	In first 3 Years	Rs. 45 Lakhs (For mass plantation)
Agricultur e &Animal Husbandr y Support.	Contribution in various govt. schemes Scientific support and Awareness to localfarmers	Fodder distribution during stress period Seed and Fertilizers distribution Financial support to ongoing Govt. schemes	In first 3 Years	Rs. 35 Lakhs.  (Rs. 5 Lakhs already spent for Fodder Distribution)
Impact on existing Infrastruc ture	No community structures such as schools, temples or community halls are getting affected.	R & R activities Compensation for reconstruction Equivalent area of land compensation for land losers	In first 3 Years	As per

28. After detailed deliberations during 18<sup>th</sup> EAC meeting held during 22-24 June, 2020, the committee recommended for grant of Environmental Clearance subject to the specific conditions in addition to the standard conditions:

29. 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; and after accepting the recommendation of EAC meeting held during June 22, 23 & 24, 2020, hereby decided to accord the Environmental Clearance (EC) under the provisions thereof to the above mentioned

proposal of M/s Adani Cementation Limited for Mudhvay Limestone Mine Block 'C' with proposed production capacity of 12 MTPA of Limestone in the mine lease area of 251.9 ha, located at Village: Mudhvay, Taluka: Lakhpat, District: Kutch, Gujarat with following additional specific conditions in addition to the standard conditions for this project.

### **A. Specific Conditions**

- I. As committed by the PP, no road transportation of the limestone shall be allowed from the crusher / Pit-head, to the linked cement plant.
- II. The PP shall carryout the regular monitoring of the bird movement during the mining operations.
- III. The PP shall carryout the study on the igress of the sea water upto 110 m through pezio metric well to carry out the mining upto (-) 57 m as proposed or the quarry depth shall restrict to the (-) 50 m.
- IV. The minimum width of terrace of the proposed waste dump shall not be less than 20 m.
- V. The total excavation shall not exceed to 17.08 MTPA, even during the rehandling of the waste dump from the mineralized area for void filling also.
- VI. Plantation shall be carried in 83.50 Ha of lease area at the end of life, interaila, including 5.00 Ha shall be along the boundary of ML area within first two years of commencement of mining operations, species shall be native to the area and selected in consultation with state forest department, and plantation record shall be maintained, gap plantation shall be carried and grassing as per the directions of the Hon'ble SC.
- VII. PP shall implement the recommendation of a need – based assessment study and commitments on the issues raised during public hearing with fund the provision of Rs 4 Crs, as committed under CER. The record for the same shall be maintained and compliance status shall be reported to Regional office periodically along with the compliance report.
- VIII. No ground water shall be used for project activities including mining operations.
- IX. No drilling and blasting shall be carried. As per the approved mine plan the mining shall be carried out by using continuous surface miner (CSM) with combination of pay loader and dumpers/tippers.
- X. All the mitigation measures committed / envisaged in the EIA/EMP report and subsequent submission shall be implemented.

### **B. Standard conditions**

#### **I. Statutory compliance**

- 1) The EC granted to the project is strictly under the provisions of the EIA Notification 2006 and its amendments. It does not tantamount/ construe to approvals/ consent/ permissions, etc. required to be obtained under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project

- 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 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".
- 4) 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.
- 5) 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.
- 6) 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](http://www.parivesh.nic.in)). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
- 7) 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, NO<sub>2</sub>, CO and SO<sub>2</sub> 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, 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 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.) and waste 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 reclamation of waste dump sites shall be done in scientific manner as per the Approved Mining Plan cum Progressive Mine Closure Plan.
- 3) 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.
- 4) 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.

- 5) 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.
- 6) 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 topsoil shall be used for land reclamation and plantation purpose.

#### **VII. Transportation**

- 1) 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 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.
- 2) 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.
- 3) 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.

## **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. 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.
- 6) The mining lease holders shall, after ceasing mining operations, undertake re-grossing the mining area and any other area which may have been disturbed

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

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

31. 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.

32. 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 State and any other Court of Law relating to the subject matter.

33. 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.

34. This issues with the approval of Competent Authority.

Yours faithfully,

  
(Sharath Kumar Palferia)  
Director/Scientist 'F'

**Copy to:**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi-110 001.
2. The Secretary, Department of Mines & Geology, Government of Gujarat, Secretariat, Gandhinagar.
3. The Secretary, Department of Environment, Government of Gujarat, Secretariat, Gandhinagar.
4. The Secretary, Department of Forests, Government of Gujarat, Secretariat, Gandhinagar.
5. The Chief Wildlife Warden, Government of Gujarat, Dr. Jivaji Mehta Bhavan, Block No. 14, 1<sup>st</sup> Floor, Old Sachivalaya, Gandhinagar-382 010.
6. The Additional Principal Chief Conservator of Forests, Ministry of Environment, Forest and Climate Change, Regional Office (WZ), E-5, Kendriya Paryavaran Bhawan, E-5 Arera Colony, Link Road-3, Ravishankar Nagar, Bhopal – 462016, Madhya Pradesh.

7. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
8. The Member Secretary, Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
9. The Chairman, Gujarat State Pollution Control Board, Sector 10-A, Gandhi Nagar - 382043, Gujarat.
10. The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
11. The District Collector, Devbhoomi Dwarka, District, Government of Gujarat.
12. Guard File.
13. MoEF&CC Website.

  
(Sharath Kumar Pallerla)  
Director/Scientist 'F'