

No. J-11015/585/2007-IA.II(M)

Government of India
Ministry of Environment & Forests

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110 003.

Dated the 4th February, 2011

To

M/s Hindalco Industries Limited
Bagru Hills Bauxite Mines,
Lohardaga District,
Jharkhand-835 302

Subject: Bagru Bauxite Mining Project of M/s Hindalco Industries Limited, located in Village(s) Bagru, Bhusar & Hisri, Tehsil Kisko, District Lohardaga, Jharkhand - Environmental Clearance Regarding.

Sir,

This has reference to your No. 'Nil' dated 25.06.2007 and subsequent letters dated 20.03.2008, 13.06.2008, 22.10.2008, 28.01.2009, 23.03.2009 and 09.11.2010 on the subject mentioned above. The proposal is for renewal of mining lease, which was due since April, 2005 and for production of 85,000tonnes per annum (TPA) of bauxite and 21,120TPA of china clay. It is noted that the Mines and Geology Department, Government of Jharkhand vide their letter No. Kha-Ni(Vividh)-19/2005 dated 23.08.2010 have transferred the mining lease of the said project from M/s Indian Aluminium Company Limited to M/s Hindalco Industries Limited. The total mine lease area of the project is 75.41ha, out of which 19.56ha is forestland, 47.35ha is wasteland(barren land), 1.76ha is water harvesting pond developed in mined out pit and 6.74ha is others(road, colony, office building and magazine). Area proposed for mining is 49.34ha, an area of 0.77ha is kept for sub-grade dump, 1.74ha for roads, 2.24ha for quarry embankment, 1.76ha for water harvesting pond and 19.56ha is forest land [(hosting crusher, ropeway and magazine built before Forest (Conservation) Act, 1980]. The Sukri Nadi and the Chanpi Nallah are located at a distance of 4.75km and 2km respectively from the mine lease boundary. No national park/wildlife sanctuary/biosphere reserve/tiger reserve etc. is reported to be located in the core and buffer zone of the mine and that the area does not report to form corridor for Schedule-I fauna. Four reserve forests namely Rudninpat RF, Pakhar RF, Salaiya RF and Banri RF and three protected forests namely Navatoli PF, Totratoli PF and Kandtoli PF are in the buffer zone of the mine. There are 1000 people residing in the colony in the core zone. It has been envisaged that the entire land falling in the lease area has been acquired and the entire project affected families resettled long back. No fresh displacement of population is envisaged. The Working will be opencast by mechanized method involving drilling and blasting. Controlled blasting with NONEL technology will be adopted. The

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targetted production capacity of the mine is 85,000TPA of bauxite and 21,120TPA of china clay. The life of the mine is 8years based on bauxite deposit. The topography of the area is a flat terrain in the plateau top at an elevation ranging from 1025m-1055m AMSL. The ultimate working depth of mine will be upto a depth of 27m from the plateau top. The water table in the core zone varies from 90m to 120m. The mine working will not intersect groundwater table. The peak water requirement of the project is estimated as 157m³ per day, out of which 30m³ per day will be met from the mine sump water and remaining 127m³ per day from the chanpi reservoir. Approximately 5964m³ per month of solid waste comprising 4197m³ per month of soil and murrum, 1003m³ per month of over burden, 557m³ per month of mineral rejects, 207m³ per month of lithomarge and 0.5m³ per month of sludge will be generated. It is estimated that 0.07million m³ per annum of solid waste will be generated, which will be concurrently backfilled. There will be no external OB dump at the end of the mine life. Plantation will be raised in an area of 50.11ha at the end of the mine life and an area of 1.76ha will be developed as water body during the post mining stage. NOC from the Jharkhand State Pollution Control Board obtained on 23.06.2006 for production capacity of 0.92LTPA of bauxite and 54TPD of china clay involving lease area of 75.41ha. Public hearing of the project was held on 27.02.2006. The Indian Bureau of Mines vide their letter No. 314(3)/2010-MCCM(CZ)/MP-17 dated 09.11.2010 have approved the modified mining plan and progressive mine closure plan of the project in the name of M/s Hindalco Industries Limited for lease area of 75.41ha. The capital cost of the project is Rs.205.12lakhs.

2. The Ministry of Environment and Forests has examined the application in accordance with Section 12 of EIA Notification 2006 read with para 1.2 of the circular No.J-11013/41/2006-IA.II(I) dated 13.10.2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Bagru Bauxite Mining Project of M/s Hindalco Industries Limited for an annual production capacity of 85,000tonnes of bauxite and 21,120tonnes of china clay by opencast mechanized method involving total lease area of 75.41ha, subject to implementation of the following conditions and environmental safeguards.

A. Specific conditions

- (i) All the conditions stipulated by the State Pollution Control Board in their NOC shall be effectively implemented.
- (ii) The environmental clearance is subject to grant of forestry clearance for diversion of 19.56ha forestland.
- (iii) The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below ground water table, prior approval of the Ministry of Environment & Forests and Central Ground Water Authority shall be obtained for which a detailed hydro-geological study shall be carried out.

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- (iv) The project proponent shall ensure that no natural watercourse and/or water resources shall be obstructed due to any mining operations.
- (v) Top soil should be temporarily stacked with proper slope at earmarked site(s) only with adequate measures and it should not be kept unutilized for a period of more than 3 years. The top soil shall be used for land reclamation and rehabilitation of mined out areas.
- (vi) The entire waste generated shall be backfilled and there shall be no external over burden dump left at the end of the mine life. The entire backfilled area shall be reclaimed by plantation. The back filling should be carried out in such a manner that it is restored to the normal ground level. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional Office, Bhubneshwar on six monthly basis.
- (vii) The void left unfilled in an area of 1.76ha shall be converted into water body. The higher benches of excavated void/mining pit shall be terraced and plantation done to stabilize the slopes. The slope of higher benches shall be made gentler for easy accessibility by local people to use the water body. Peripheral fencing shall be carried out along the excavated area.
- (viii) Catch drains and siltation ponds of appropriate size shall be constructed around the working pit, sub-grade dump, and mineral dumps to arrest flow of silt and sediment directly into Chanpi Nallah, Sukri Nadi and others water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly desilted, particularly after monsoon, and maintained properly.

Garland drains settling tanks and check dams of appropriate size, gradient and length shall be constructed for both around the mine pit and sub-grade dump to prevent run off of water and flow sediments directly into the Chanpi Nallah, Sukri Nadi and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and desilted at regular intervals.

- (ix) Dimension of the retaining wall at the toe of sub-grade dump and OB benches within the mine to check run-off and siltation should be based on the rain fall data.

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- (x) Plantation shall be raised in an area of 50.11ha including a 7.5m wide green belt in the safety zone around the mining lease by planting the native species around ML area, backfilled and reclaimed area, around water body, roads etc. in consultation with the local DFO/Agriculture Department. At least 1500 trees per year shall be planted with a tree density of 1000 trees per hectare.
- (xi) Effective safeguard measures, such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and all transfer points. Extensive water sprinkling shall be carried out on haul roads. It should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xii) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xiii) Regular monitoring of ground water level and quality should be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out four times in a year i.e. January, April-May, August, November and the data thus collected may be sent regularly to the Ministry of Environment and Forests, its Regional Office, Bhubneshwar; Central Ground Water Authority and Central Ground Water Board.
- (xiv) The project authorities shall obtain necessary prior approval of the competent authority for drawal of requisite quantity of water (surface water and groundwater) for the project.
- (xv) Vehicular emissions should be kept under control and regularly monitored. Measures shall be taken for maintenance of vehicles used in mining operations and in transportation of mineral. The vehicles should be covered with a tarpaulin and shall not be overloaded.
- (xvi) Blasting operation should be carried out only during the daytime. Controlled blasting should be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.
- (xvii) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xviii) Sewage treatment plant should be installed for the colony. ETP should also be provided for workshop and wastewater generated from mining operations.

- (xix) Consent to operate should be obtained from SPCB before starting production from the mine.
- (xx) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (xxi) The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM₁₀) and NO_x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TDS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.
- (xxii) A Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

B. General conditions

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral bauxite & china clay and waste should be made.
- (iii) Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.
- (iv) Four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO₂ and NO_x monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

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- (v) Data on ambient air quality (RSPM, SPM, SO₂ and NO_x) should be regularly submitted to the Ministry including its Regional office located at Bhubneshwar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (vi) Fugitive dust emissions from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.
- (vii) Measures should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs / muffs.
- (viii) Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May, 1993 and 31st December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
- (ix) 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.

Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

- (x) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (xi) The project authorities should inform to the Regional Office located at Bhubneshwar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (xii) The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the Ministry and its Regional Office located at Bhubneshwar.
- (xiii) The Regional Office of this Ministry located at Bhubneshwar shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information / monitoring reports.

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- (xiv) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the Ministry of Environment and Forests, its Regional Office Bhubneshwar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneshwar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- (xv) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
- (xvi) The State Pollution Control Board should display a copy of the clearance letter at the Regional office, District Industry Centre and the Collector's office/ Tehsildar's Office for 30 days.
- (xvii) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneshwar by e-mail.
- (xviii) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the Ministry of Environment and Forests at <http://envfor.nic.in> and a copy of the same should be forwarded to the Regional Office of this Ministry located at Bhubneshwar.
3. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

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4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

5. 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 thereunder and also any other orders passed by any Court of Law relating to the subject matter.

(SATISH C. GARKOTI)
Scientist 'F'

Copy to:

1. The Secretary, Ministry of Mines, Government of India Shastri Bhawan, New Delhi.
2. The Secretary, Department of Environment, Government of Jharkhand, Secretariat, Ranchi.
3. The Secretary, Department of Mines, Government of Jharkhand, Secretariat, Ranchi.
4. The Chief Wildlife Warden, Government of Jharkhand, P.O. Doranda, Ranchi.
5. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandra Shekar, Bhubneshwar-751 023
6. The Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
7. The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), HEC Campus, P.O. Dhurwa, Ranchi - 834004, Jharkhand
8. The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
9. The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
10. The District Collector, Lohardaga District, Jharkhand.
11. EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
12. Monitoring File.
13. Guard File.
14. Record File.


(SATISH C. GARKOTI)
Scientist 'F'