

No. J-11015/1088/2007-IA.II (M)

Government of India  
Ministry of Environment & ForestsParyavaran Bhavan,  
C.G.O. Complex, Lodi Road,  
New Delhi-110 003.Dated the 16<sup>th</sup> January, 2009

To

M/s Orissa Mining Corporation Limited  
OMC House, P.O. Box-34,  
Bhubaneshwar,  
Orissa-751 001  
E-mail: dkpattanaik60@gmail.com**Subject: Expansion of Gandhamardan-A Iron Ore Mining Project of M/s Orissa Mining Corporation Limited, located in Village(s) Daonra and Suakati, Tehsil Telkoi, District Keonjhar, Orissa-environmental clearance regarding.**

Sir,

This has reference to your letter No. 10608/ OMC/F&E/2007 dated 15.05.2007 and subsequent letters dated 04.10.2007, 15.11.2007, 15.03.2008, 28.03.2008 and 08.08.2008 on the subject mentioned above. The proposal is for enhancement of production of iron ore from 2,50,000tonnes per annum(TPA)(0.25 million TPA) to 0.35 million TPA. The total mine lease area of the project is 618.576ha, out of which 11.55ha is an agricultural land, 519.7472ha is forestland (Gandhamardan RF), 73.002ha is wasteland, 10.3632ha is grazing land, 1.7ha is settlements and 2.212ha is roads. Area proposed for mining is 150.2407ha, an area of 6.7ha is kept for temporary storage of the existing over burden, 8.476ha for green belt, 38.6204ha for infrastructure (township, roads, magazine building and other infrastructure) and 414.5389ha is others (undisturbed area). An area of 6.7ha earmarked for existing dumps will be re-handled into the quarried void within first five years and afforested. The Chamda Nallah is flowing in the buffer zone of the mine at a distance of 0.8km from the mine lease boundary. In addition, the Baitarani River and the Bamni Nadi are also flowing in the buffer zone of the mine at distance of 5km each from the mine lease boundary. Pre-mining surface drainage pattern has been submitted and three, fourth order seasonal streams, namely Id1, Id2 and Id3 emanating from the mine lease will be affected during the expansion phase in the Hill Top quarries. The initial stretch of Id1 and Id2 fourth order channels of 70m and 30m respectively will be affected after the 10<sup>th</sup> year of expansion phase, whereas, the Id3, the fourth order seasonal channel of 400m length has already been cut and a diversion channel has been planned for the same. A part of the quarry will be backfilled and the flow of the channel will be restored over backfilled area. No national park/wildlife sanctuary/biosphere reserve/tiger reserve/elephant 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. In support of this, a map duly authenticated by the DFO cum Wildlife Warden, Keonjhar

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Division has been provided showing that no National Park / Sanctuary and no Wildlife Corridor exist within 10km of the mine lease. Twelve Reserve Forests are in the buffer zone of the mine. The mine working will be opencast by mechanized method involving drilling and blasting. The targeted production capacity of the mine is 3,50,000TPA of iron ore and the life of mine is 18years. The mineral will be transported through the road and about 100additional trucks will ply to carry the ore from the mine. The topography of the area is hilly at an elevation ranging from 570m-1009m AMSL. The existing ground level for the hill top quarry is 975m AMSL and the ultimate working depth will be 928m AMSL. For the float quarry, the existing ground levels are 770m AMSL and 704m AMSL and the ultimate working depths will be 764m AMSL and 698m AMSL. The ground water table is reported at 643m AMSL. The mine working will not intersect the ground water table. A detailed hydro-geological report has been provided concluding that the mining will not have any impact on the ground water or the steams oozing out from the contact zones and forming major streams. The peak water requirement of the project is estimated as 329m<sup>3</sup>per day, which will be obtained from the Chamda nallah traversing near the lease hold. There is no population in the core zone, therefore, displacement of population and R&R is not involved. It is estimated that 5.6million m<sup>3</sup> of waste will be generated during the life of the mine. The existing over burden dump occupy about 0.3 million m<sup>3</sup> of over burden, which will be used for backfilling the quarry void till 2011. The entire quantity of the over burden will be re-handled and backfilled and there will be no external over burden dump. Backfilling will commence from the year 2010 onwards. Out of the total 150.2407ha excavated area, an area of 35.54 ha will be backfilled and an area of 114.7007 ha will be left as void, in which bench plantation will be carried out. Plantation will be raised in an area of 165.417 ha at the end of the mine life. The Consent to Establish from the State Pollution Control Board, Orissa was obtained on 04.07.2007 for enhancement of production of iron ore from 0.25MTPA to 0.35MTPA involving lease area of 618.576ha. The public hearing of the project was held on 09.03.2007, as per the EIA Notification, 2006 for enhancement of production of iron ore upto 3.5lakhs TPA over an area of 618.576ha. The Indian Bureau of Mines had approved scheme of mining including progressive mine closure plan of the project on 01.08.2006 for lease area of 618.576ha. The capital cost of the project is Rs.25.94Crores and the capital cost for the environmental protection measures is proposed as Rs.108.96Lakhs. The annual recurring cost towards environmental protection measures is proposed as Rs.31Lakhs.

2. The Ministry of Environment and Forests has examined the application in accordance with the Section 12 of the 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 Gandhamardan-A Iron Ore Mining Project of M/s Orissa Mining Corporation Limited for an annual production capacity of 3,50,000tonnes(0.35 million tonnes) of iron ore by opencast mechanized method involving total mining lease area of 618.576ha, subject to implementation of the following conditions and environmental safeguards.

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### A. Specific conditions

- (i) All the conditions stipulated by the State Pollution Control Board, Orissa in their Consent to Establish shall be effectively implemented.
- (ii) Environmental clearance is subject to grant of forestry clearance. Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 519.7472ha forestland involved in the project shall be obtained before starting mining operation in that area. No mining shall be undertaken in the forest area without obtaining requisite prior forestry clearance.
- (iii) The environmental clearance is subject to approval of the State Landuse Department, Government of Orissa for diversion of agricultural land for non-agricultural use.
- (iv) The project proponent shall develop fodder plots in the non-mineralised area in lieu of the use of the grazing land.
- (v) The project proponent shall effectively address the concerns raised by the locals in the public hearing as well as during consideration of this project, while implementing this project
- (vi) The mining operations shall be restricted to above ground water table and it should not intersect the groundwater table. In case of working below the ground water table, prior approval of the Ministry of Environment and Forests and the Central Ground Water Authority shall be obtained, for which a detailed hydro-geological study shall be carried out.
- (vii) The project proponent shall ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken while diverting all the three, fourth order seasonal streams, namely Id1, Id2 and Id3 emanating from the mine lease, during the course of mining operation.
- (viii) The top soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation.
- (ix) The existing over burden (OB) and the likely to be generated over burden during the course of mining shall be re-handled and backfilled. Backfilling shall start from the year 2010 and the entire quantity of the waste to be generated shall be backfilled. There shall be no external over burden dumps. Out of the total 150.2407ha excavated area, an area of 35.54 ha shall be backfilled and an area of 114.7007 ha shall be left as void, in which bench plantation should be carried out. The backfilled area shall be afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.

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- (x) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and temporary OB dumps to prevent run off of water and flow of sediments directly into the Chamda Nallah, the Baitarni River, the Bamni Nadi and other water bodies. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regularly desilted, particularly after the monsoon, and maintained properly.

Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed around the mine pit, topsoil dump, temporary over burden dumps and mineral dumps to prevent run off of water and flow of sediments directly into the Chamda Nallah, the Baitarni River, the Bamni Nadi and other water bodies and sump capacity shall 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 shall also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.

- (xi) Dimension of the retaining wall at the toe of temporary OB dumps and the over burden benches within the mine to check run-off and siltation shall be based on the rain fall data.
- (xii) Plantation shall be raised in an area of 165.417ha including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, quarry benches, around crusher, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.
- (xiii) Regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of SPM and RSPM 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 shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xiv) Regular monitoring of the flow rate of the springs and the perennial nallahs shall be carried out and records maintained.
- (xv) Regular monitoring of water quality upstream and downstream of the Chamda Nallah shall be carried out and record of monitored data should be maintained and submitted to the Ministry of Environment and Forests, its Regional Office, Bhubneswar, the Central Groundwater Authority, the Regional Director, Central Ground Water Board, the State Pollution Control Board and the Central Pollution Control Board.

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- (xvi) The project authority shall implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xvii) Regular monitoring of ground water level and quality shall 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 – pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January) and the data thus collected shall be sent regularly to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar, the Central Ground Water Authority and the Regional Director, Central Ground Water Board. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity, necessary corrective measures shall be carried out.
- (xviii) Appropriate mitigative measures shall be taken to prevent pollution of the Baitarni River and the Bamni Nadi in consultation with the State Pollution Control Board.
- (xix) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water, if any) required for the project.
- (xx) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- (xxi) Vehicular emissions shall 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 mineral transportation shall be carried out through the covered trucks only and the vehicles carrying the mineral shall not be overloaded. No transportation of ore outside the mine lease area shall be carried out after the sunset.
- (xxii) No blasting shall be carried out after the sunset. Blasting operation shall be carried out only during the daytime. Controlled blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented.
- (xxiii) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxiv) Mineral handling area shall be provided with adequate number of high efficiency dust extraction system. Loading and unloading areas including all the transfer points should also have efficient dust control arrangements. These should be properly maintained and operated.

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- (xxv) Consent to operate shall be obtained from the State Pollution Control Board prior to start of enhanced production from the mine.
- (xxvi) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.
- (xxvii) Digital processing of the entire lease area using remote sensing technique shall be carried out regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
- (xxviii) Land oustees and land losers/affected people, if any, shall be compensated and rehabilitated as per the National Policy on Resettlement and Rehabilitation of Project Affected Families.
- (xxix) Pre-placement medical examination and periodical medical examination of the workers engaged in the project shall be carried out and records maintained. For the purpose, schedule of health examination of the workers should be drawn and followed accordingly.
- (xxx) 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.
- (xxxi) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely elephant etc. spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the State Forest and Wildlife Department. Necessary allocation of funds for implementation of the conservation plan shall be made and the funds so allocated shall be included in the project cost. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to the project site shall be effectively implemented. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
- (xxxii) A Final Mine Closure Plan along with details of Corpus Fund shall 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.

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- (ii) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.
- (iii) Atleast four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM, SPM, SO<sub>2</sub> & NO<sub>x</sub> 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.
- (iv) Data on ambient air quality (RSPM, SPM, SO<sub>2</sub> & NO<sub>x</sub>) should be regularly submitted to the Ministry of Environment and Forests including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (v) 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.
- (vi) 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.
- (vii) 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 19<sup>th</sup> May, 1993 and 31<sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluents.
- (viii) 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.
- (ix) 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.
- (x) 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 of Environment and Forests and its Regional Office located at Bhubaneswar.

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- (xi) The project authorities should inform to the Regional Office located at Bhubaneswar 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 Regional Office of this Ministry located at Bhubaneswar 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.
- (xiii) The project proponent shall submit six monthly report on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Pollution Control Board and State Pollution Control Board.
- (xiv) A copy of clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom suggestion / representation has been received while processing the proposal.
- (xv) 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.
- (xvi) 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 7days 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 Bhubaneswar.

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.

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

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6. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.



**(SATISH C. GARKOTI)**  
**Additional Director (S)**

**Copy to:**

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- (ii) The Secretary, Department of Environment, Government of Orissa, Secretariat, Bhubaneswar.
- (iii) The Secretary, Department of Mines and Geology, Government of Orissa, Secretariat, Bhubaneswar.
- (iv) The Secretary, Department of Forests, Government of Orissa, Secretariat, Bhubaneswar.
- (v) The Chief Wildlife Warden, Government of Orissa, Bhubaneswar.
- (vi) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- (vii) The Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharpur, Bhubaneswar-751023.
- (viii) The Chairman, Orissa State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
- (ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (x) The District Collector, Keonjhar District, Government of Orissa.
- (xi) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
- (xii) Monitoring File.
- (xiii) Guard File.
- (xiv) Record File.

