

No.J-11015/183/2007-IA.II (M)

Government of India

Ministry of Environment & Forests

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

Dated the 13th May, 2009

To

M/s Ferro Alloys Corporation Limited
Laxmi Bhawan, Kuans,
Bhadrak,
Orissa
E-mail: bls_factor168@sancharnet.in
facormines@dataone.in

Subject: Bhimtanagar Chromite Mining Project of M/s Ferro Alloys Corporation Limited, located in Village Kalarangiatta (Bhimtanagar), Tehsil Sukinda, District Jajpur, Orissa - environmental clearance regarding.

Sir,

This has reference to your letter No. BHF/DM/50/08 dated 25.07.2008 and subsequent letters dated 27.01.2009 and 10.03.2009 on the subject mentioned above. The Ministry of Environment and Forests had earlier prescribed additional Terms of Reference (TORs) to the project on 18.06.2007. ~~The mine was earlier worked by M/s TISCO and the lease was granted in favour of the project proponent only on 10.06.2005, therefore, for all practical purposes, it is a new mine for the present proponent.~~ The proposal is for opening of a new mine for production of 50,000tonnes per annum (TPA) of chrome ore. The total mine lease area of the project is 23.8ha, out of which, 1.008ha is an agricultural land (tenanted land) and 22.792ha is waste land. No forestland is involved. Area proposed for mining is 8.41ha, an area of 0.58ha is kept for storage of top soil, 7.192ha for over burden dump, 2.286ha for mineral storage, 1.404ha for infrastructure, 1.165ha for roads, 1.743ha for green belt, 0.416ha for ETP and 0.604ha is others (drain). The Damsala Nallah is flowing in the buffer zone of the mine at a distance of 0.6km from the mine lease boundary. No national Park/Wildlife Sanctuary/Bio-sphere Reserve/Tiger Reserve etc. are reported to be located within 10km of the mine lease. In support of this, a letter dated 12.01.2009 from the Divisional Forest Officer, Cuttack and an authenticated map through the Divisional Forest Officer-cum-Wildlife Warden, Cuttack has been provided. Two reserve forests, namely Ranjagarh RF and Dhalparha RF and two protected forests namely Mahaghaz PF and Daitari PF are reported to be located in the buffer zone of the mine at a distance of 3.6km, 6.5km, 0.2km and 6.0km respectively from the mine lease boundary. The mine working will be opencast by mechanized method involving drilling and blasting. The targetted production capacity of the mine is

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50,000TPA of chrome ore and the life of mine is 10years. Approximately 167TPD of mineral will be transported through the road. The topography of the area is flat at an elevation above mean sea level ranging from 103m -110m RL. The general ground level is reported at 110m RL. The present working depth of mine is 93mRL (17m bgl) and the ultimate working depth of mine will be 40mRL (70m bgl). The groundwater table in the core zone reported to vary from 99m RL (6m bgl) to 96m RL (9m bgl) during post-monsoon and pre-monsoon. The mine working will intersect the ground water table. Hydro-geological report has been provided reporting the stage of groundwater development in the area as 51%, which is reported under safe category. The peak water requirement of the project is estimated as 70.28m³ per day, which will be obtained from the ground water (0.54m³ per day) and the mine sump water (69.74m³ per day). There is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. Approximately 12,292m³ per month of solid waste comprising 234m³ per month of top soil, 11,475m³ per month of over burden and 583m³ per month of nickelliferrous limonite will be generated, which will be disposed off in the earmarked area. It is estimated that 13.77lakh m³ of over burden and 0.7lakh m³ of nickelliferrous limonite will be generated during the life of the mine. No backfilling is proposed. The entire quantity of the waste will be disposed off in the form of an external dump having maximum projected height of 30m. Plantation will be raised in an area of 12.715ha at the end of the mine life and an area of 5.21ha will be developed as water body during the post mining stage. The State Pollution Control Board, Orissa had issued Consent to Establish to the project on 26.09.2008 for enhancement of production of chromite ore (ROM) to 50,000TPA over mine lease area of 23.8ha. The public hearing of the project was held on 26.03.2008, as per the EIA Notification,2006 for production of 50,000TPA of chromite ore over an area of 23.8ha. The Indian Bureau of mines approved the mining plan including progressive mine closure plan of the project on 06.10.2005 for lease area of 23.8ha. The Central Ground Water Authority issued NOC to the project on 17.06.2008 for a period of five years. The capital cost of the project is Rs.493Lakhs and the capital cost for the environmental protection measures is proposed as Rs.53.36Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.10.9lakhs.

2. The Ministry of Environment and Forests has examined the application in accordance with the EIA Notification, 2006 and hereby accords environmental clearance under the provisions thereof to the above mentioned Bhimtanagar Chromite Mining Project of M/s Ferro Alloys Corporation Limited for an annual production capacity of 50,000tonnes (0.05million tonnes) of chrome ore by opencast mechanized method involving total mining lease area of 23.8ha, subject to implementation of the following conditions and environmental safeguards.

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) The environmental clearance is granted for opencast mining only. For the underground mining, the project proponent shall obtain separate clearance after getting the mine plan approval from the Indian Bureau of Mines.
- (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 ensure that no natural watercourse and/or water resources are obstructed due to any mining operations. Adequate measures shall be taken for protection of Damsala Nallah and other seasonal channels, if any, emanating from the mine lease, during the course of mining operation.
- (v) The top soil 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.
- (vi) The over burden (OB) generated during the mining operation shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time and their phase-wise stabilization shall be carried out. There shall be one external over burden dump having maximum projected height of 30m. Proper terracing of the OB dump shall be carried out so that the over all slope of the dump shall be maintained to 27^o. The OB dump shall be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas shall 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.
- (vii) Catch drains and siltation ponds of appropriate size shall be constructed for the working pit, soil, OB and mineral dumps to arrest flow of silt and sediment directly into the Damsal Nallah and other 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 the monsoon and maintained properly.

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Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dump to prevent run off of water and flow of sediments directly into the Damsala Nallah 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.

Storm water return system should be provided. Storm water should not be allowed to go to the effluent treatment plant during high rainfall/super cyclone period. A separate storm water sump for this purpose should be created.

- (viii) Dimension of retaining wall at the toe of the over burden dump and the OB benches within the mine to check run-off and siltation should be based on the rainfall data.
- (ix) Effluents containing Cr^{+6} shall be treated to meet the prescribed standards before reuse/discharge. Effluent Treatment Plant should be provided for treatment of mine water discharge and wastewater generated from the workshop and mineral separation plant.

Run off from the OB dump and other surface run off should be analysed for Cr^{+6} and in case its concentration is found higher than the permissible limit the water should be treated before reuse/discharge.

- (x) Separate impervious concrete pits for disposal of sludge shall be provided for the safe disposal of sludge generated from the mining operations.
- (xi) The project proponent shall ensure that the treated effluents conforming to the prescribed standards shall only be discharged.
- (xii) Plantation shall be raised in an area of 12.715ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dump, roads etc. by planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500plants per ha.
- (xiii) The void left unfilled in an area of 5.21ha shall be converted into the water body. The higher benches of the excavated void/mine pit shall be terraced and plantation done to stabilise the slopes. The slopes of higher benches shall be made gentler for easy accessibility by the local people to use the water body. Peripheral fencing shall be carried out all along the excavated area.

- (xiv) Effective safeguard measures, such as 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 should be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
- (xv) Regular monitoring of water quality upstream and downstream of the Damsala 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.
- (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 by establishing a network of existing wells and constructing new piezometers in and around the mining lease during the mining operation. The periodic monitoring [(at least four times in a year- pre-monsoon (April-May), monsoon (August), post-monsoon (November) and winter (January); once in each season)] shall be carried out in consultation with the State Ground Water Board/Central Ground Water Authority and the data thus collected may be sent regularly to the Ministry of Environment and Forests and its Regional Office Bhubneswar, 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) The project proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of water (surface water and ground water) for the project and effectively implement all the conditions stipulated therein.
- (xix) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- (xx) 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.

- (xxi) 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.
- (xxii) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxiii) 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.
- (xxiv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.
- (xxv) Consent to operate shall be obtained from the State Pollution Control Board, Orissa before starting production from the mine.
- (xxvi) The project authorities should undertake sample survey to generate data on pre-project community health status within a radius of 1 km from proposed mine.
- (xxvii) 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.
- (xxviii) 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.
- (xxix) The critical parameters such as SPM, RSPM, NO_x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closure shall be monitored periodically (atleast once a month). Further, quality of discharged water shall also be monitored (TDS, DO, PH, suspended particulate matter and Cr⁺⁶). The monitored data shall be uploaded on the website as well as displayed on a display board at a suitable location in public domain.
- (xxx) 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. All the safeguard measures brought out in the Wildlife Conservation Plan so prepared specific to this project site shall be effectively implemented. 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. A copy of action plan shall be submitted to the Ministry of Environment and Forests and its Regional Office, Bhubaneswar.

(xxxi) 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.
- (ii) No change in the calendar plan including excavation, quantum of mineral chromite ore and the waste shall 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, SO₂ & 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.
- (iv) Data on ambient air quality (RSPM, SPM, SO₂ & NO_x) 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 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.

- (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.
- (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, Bhubneswar, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests, Bhubneswar.
- (xiv) A copy of clearance letter will be marked to concerned Panchayat / local NGO, if any, from whom suggestion/representation has been received while processing the proposal. The clearance letter shall also be put on the web site of the company.
- (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.

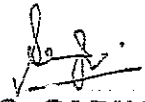
(xvi) The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within seven(7) days of the issue of the clearance letter informing that the project has been accorded environmental clearance 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 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.

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, Jajpur District, Government of Orissa.
- (xi) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
- (xii) Monitoring File.
- (xiii) Guard File.
- (xiv) Record File.