

No.J-11015/7/2007-IA.II(M)
Government of India
Ministry of Environment and Forests

Paryavaran Bhavan
CGO Complex, Lodi Road,
New Delhi-110 003

Dated the 19th February 2008

To

✓ M/s Misri Lall Mines (P) Ltd.
M.D.House, P.O. - Chaibasa,
Singhum (W), Jharkhand
Pin- 833 201

Subject: Expansion of Saruabil Chromite Ore Mining Project of M/s Misri Lall Mines (P) Ltd., located in Village(s) Saruabil, Kamarda & Tailangi, District Jajpur, Orissa - environmental clearance regarding.

Sir,

This has reference to your letter No. 'Nil' dated 'nil' received in the Ministry on 10.01.2007 and subsequent letters dated 10.07.2007, 10.11.2008 and 02.12.2008 on the subject mentioned above. The proposal is for enhancement of chrome ore production from 70,000 tonnes per annum (TPA) (0.07 million TPA) to 0.136 million TPA. The total mine lease area of the project is 246.86ha, out of which 224.63ha is a forest land and 22.23ha is private land. Area proposed for mining is 63.5ha, an area of 0.2ha is kept for storage of top soil, 120.05ha for overburden dumps, 7.77ha for mineral storage, 3.69ha for infrastructure (workshop, administrative building, magazine), 6.68ha for roads, 7.43ha for mineral separation plant/ETP, 21.63ha is township area, 5.11ha for green belt/safety zone, 5.9ha for plantation and 4.9ha is for future exploration. The Kamarda Nallah is flowing within the leasehold area. In addition, the Damsal nallah is flowing adjacent to north of leasehold area. Modification/ diversion in the existing natural drainage pattern have not been envisaged. 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. The area also does not report to form corridor for Schedule-I fauna. In support of this, a map duly authenticated by the DFO cum Wildlife Warden, Cuttack Division has been provided. In addition, DFO, Cuttack Forest Division vide their letter dated 17.07.2007 mentioned that the mine lease area does not form any part of National Park, Sanctuary, Bio-sphere reserve, Elephant reserve, Tiger reserve and elephant corridor. The Mahagiri Protected Forest (PF) is located within the core zone of the lease area and the Daitari PF is located at a distance of 1km from the mine lease boundary. The mine working will be opencast by mechanized method involving drilling and blasting. The targetted production is 27/-

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capacity of the mine is 1,36,000TPA (0.136million TPA) of chrome ore and the life of mine is 21years. Approximately 453TPD of mineral will be transported through the road. The topography of the area is undulated and hilly at an elevation above means sea level ranging from 125m-187m AMSL. The present working depth of mine is 142m RL (45m from the top surface at 187m RL) and the ultimate working depth of mine will be 107m RL (80m from the top of the surface at 187m RL). The ground water table in the core zone reported to vary from 132m AMSL (12m from top of surface at 144m AMSL) to 136m AMSL (8m from the top of the surface at 144m AMSL) during pre-monsoon and the post-monsoon. The mine working will intersect the ground water table. A study on Hydro-geological and Ground Water Resource around Saurabil Chromite Mine, October, 2008 has been conducted. The peak water requirement of the project is estimated as 273m³ per day, out of which 33m³ per day will be obtained from the ground water and remaining from the mine water. It has been reported that ninety (90) households, comprising a population of 370people (township) are in the core zone of the mine, however, displacement of population and R&R has not been envisaged. Approximately 78,233m³ per month of over burden (laterite, nickeliferous limonite, serpentine, quartzite etc.) and 2.1m³ per month of sludge will be generated, which will be disposed off in the earmarked areas. It has been reported that about 3.297million m³ of over burden has already been accumulated during the last ten years and it is proposed to generate another 25.7million m³ of over burden during the life of the mine. No backfilling has been proposed. There will be six external over burden dumps. The maximum height of the dump will be 50m. Plantation will be raised in an area of 191.3ha at the end of the mine life and an area of 43.5ha will be developed as water body during the post mining stage. The Consent to Establish from the State Pollution Control Board, Orissa was obtained on 01.09.2006 for enhancement of production of chromite ore from 70,000TPA to 1,36,000TPA over a leasehold area of 246.858ha. The public hearing of the project was held on 07.06.2006, as per the EIA Notification, 1994 as amended on 10th April, 1997, for enhancement of production of chromite ore from 70,000TPA to 1,36,000TPA involving leasehold area of 246.858ha. The Indian Bureau of Mines had approved scheme of mining including progressive mine closure plan of the project on 21.09.2005 for lease area of 246.858ha. The project proponent had obtained NOC from the Central Ground Water Authority on 24.10.2008 for drawal 350m³ per day of groundwater for a period of five years or till the area remains under safe category. The capital cost of the project is Rs.3Crores and the capital cost for the environmental protection measures is proposed as Rs.25Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.15Lakhs.

The Ministry of Environment and Forests has examined the application in accordance with Section 12 of the EIA Notification, 2006 read with para 2.2.1 (1) (a) 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

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Centre
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 Chief Executive Manager
 Saurabil Chromite Mines Ltd.
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above mentioned Saruabil Chromite Ore Mining Project of M/s Misri Lall Mines (P) Ltd. for an annual production capacity of 1,36,000 tonnes (0.136 million tonnes) of chromite ore by opencast mechanized method involving total mine lease area of 246.86ha, 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) Necessary forestry clearance under the Forest (Conservation) Act, 1980 for an area of 224.63ha forestland shall be obtained before starting mining operation in that area. Environmental clearance is subject to grant of forestry clearance. No mining shall be carried out in the forest area without requisite prior forestry clearance.
- (iii) Necessary clearance from Central Ground Water Authority shall be obtained for drawl of groundwater for the project and effectively implement all the condition stipulated therein.
- (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 while diverting Kamarda Nallah and other seasonal channels originating from the mine lease, if any, 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. The total height of the dumps shall not exceed 50m. Proper terracing of the OB dumps shall be carried out so that the over all slope of the dumps shall be maintained to 27° . The proponent shall carry out slope stability study and submit report to the Ministry. The OB dumps should 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 dumps. 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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- (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, Kamarda 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.

Garland drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dumps to prevent run off of water and flow of sediments directly into the Damsal Nallah, Kamarda 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 dumps 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 dumps 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 quality of decanted effluents from the tailing pond, if any, conform to the prescribed standards before discharge.
- (xii) The project proponent shall explore the possibility to reduce concentration of Cr^{+6} in the tailing pond, if any, in consultation with an expert scientific institution like NEERI.

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- (xiii) Plantation shall be raised in an area of 191.3ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dumps, 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.
- (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 Damsal Nallah and the Kamarda 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 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) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with the Regional Director, Central Ground Water Board.
- (xix) 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.

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- (xx) 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.
- (xxi) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxii) 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.
- (xxiii) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and wastewater generated during the mining operation.
- (xxiv) Consent to operate shall be obtained from the State Pollution Control Board, Orissa before starting enhanced production from the mine.
- (xxv) 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.
- (xxvi) 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.
- (xxvii) Digital processing of the entire lease area using remote sensing technique shall be done regularly once in three years for monitoring land use pattern and report submitted to the Ministry of Environment and Forests and its Regional Office, located at Bhubaneswar.
- (xxviii) 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.

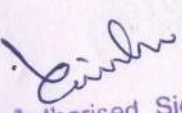
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- (iii) Conservation measures for protection of flora and fauna in the core & buffer zone should be drawn up in consultation with the local forest and wildlife department.
- (iv) Atleast four ambient air quality-monitoring stations should be established 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.
- (v) 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.
- (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.

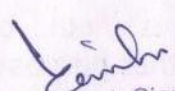
- (x) A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.
- (xi) The funds earmarked for environmental protection measures should be kept in separate account and 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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- (xii) 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.
 - (xiii) 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.
 - (xiv) 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. The proponent shall upload the status of compliance on their website and shall update the same periodically.
 - (xv) 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.
 - (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 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 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

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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 Chandrashekharapur, 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.

[Signature]
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(SATISH C. GARKOTI)
Additional Director (S)