

BY SPEED POST

No. J-11015/139/2012-IA.II (M)
Government of India
Ministry of Environment, Forests & Climate Change
Impact Assessment Division

3rd Floor, Vayu Wing,
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi-110 003

Dated: 22nd August, 2014

To,

M/s Balsore alloys Limited
Kaliapani Chromite Mine
At/P.O. Kaliapani-755047

**Subject: Underground Chromite Mine of M/s Balasore Alloys Ltd.,
Village Kaliapani, Tehsil Sukinda, District Jajpur, Orissa
(64.463 ha) (expansion from 0.42 MTPA to 0.6 MTPA and
change in technology from opencast to opencast and
underground)- Environmental clearance regarding.**

Sir,

This has reference to your letter No. Nil dated 04.05.2012 on the subject mentioned above and subsequent letters dated 01.10.2013 and 15.10.2013. The terms of reference to the proposal for undertaking detailed EIA study were prescribed on 11.10.2012. The proponent submitted the EIA/EMP and public hearing documents which was considered by Expert Appraisal Committee in its meeting held during 31st October & 1st November, 2013 and re-considered during March 20-21, 2014. The Committee recommended the proposal for grant of environmental clearance.

2. The proposal is for existing Kaliapani Chromite Mine (ML Area - 64.463 Ha.) at Village Kaliapani, Tehsil : Sukinda, District : Jajpur (Odisha). The Latitude & Longitude of the site is 21°00'07"-21°02'46"N and 85°44'12" - 85°47'22" E. The compliance report of the EC conditions stipulated by MoEF, New Delhi vide letter no. J -11015/341/2006-IA.II (M) dated 3rd July, 2007 were discussed. It was noted that the conditions stipulated in earlier EC were by and large complied and no specific condition is required in this regard.

3. The total mine lease area is 64.463 ha is Government Land. Modified Mining Scheme is approved by IBM vide letter no. 314(3)/2012-MCCM (CZ)/MS -11 dated 17.12.2012 under rule 10 of MCDR 1988. This is a proposal for expansion in production capacity from 0.42 MTPA & 0.6 MTPA and Change in Technology from Opencast to Opencast & Underground including mining of blocked pillars in open pit mines by Drift & Fill mining method. The Opencast process will be done by mechanized method involving drilling & blasting, loading and transportation of the excavated material. Wet drilling is performed by 100 mm dia DTH drills associated with compatible size compressors. Non cap sensitive slurry of 83mm dia cartridge like Aqua

dyne, as column charge and for secondary blasting Aqua dyne – 25 explosive cartridge of 25 mm dia will be adopted.

4. The total mineable reserves are 26.89 Million Tonnes. The anticipated life of mine is approximately 45 years. It was reported by the PP that the total waste generation at the end of the life of the mine will be 4.08 million cum. At the conceptual stage, about 32.34 ha area will be covered under waste dump. The same will be stabilized by plantation.

5. Total fresh water requirement for the project is 347.2 KLD, out of which 220 KLD is required for beneficiation Plant, 115 KLD for mining operations & Green belt and 12.2 KLD for Domestic/drinking purpose. The requirement is being met from mine discharge water & borewell. Necessary Clearance from CGWA, Ministry of Water Resource, Govt Of India for withdrawal of 53 KLD of water from bore well and 294.2 KLD of Mine Dewater with a total amount not exceeding 347.2 KLD has been obtained vide letter No. 21-4(44)/SER/CGWA/2008-1845 Dated 11.10.2013. It was reported by the PP that during Underground mining, ground water table shall be intersected. NOC for the same shall be obtained from CGWA.

6. It was reported by PP that there is no National Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves (existing or proposed) etc. within the study area (10 km radius of the mining lease boundary). There are two protected Forests and three Reserved Forests exist within 10 km radius of the mining lease boundary. Authenticated list of flora and fauna was submitted. The nine Schedule-I species are reported from the study area. Species Specific Conservation plan for the schedule-I species i.e. Leopard, *Panthera pardus*; Elephant, *Elephas maximus*; Sloth bear, *Melursus ursinus*; Ratel, *Mellivora capensis*; Indian pangolin, *Manis crassicaudata*; Peafowl, *Pavo cristatus*; Indian rock python, *Python molurus*; Monitor lizards, Bengal & Yellow monitor was submitted. The plan has been forwarded by Divisional Forest Officer, Cuttack forest division.

7. Baseline data for Site-specific Micro-meteorological data, ambient air quality (PM₁₀, SO₂ and NO₂), water quality, noise level, soil and flora and fauna was collected during Post Monsoon Season 2012 (Oct to Dec-2012). Results are found within permissible limits. The Public Hearing for the Project was conducted at Kaliapani Village on 04.04.2013. The Public Hearing was chaired by Mr. Chakrayudha Hota, Additional District Magistrate as per EIA Notification, 2006. Major issues raised during public hearing were related to treatment of Mine Drainage Water, Air pollution and control measures, ground water depletion in mining lease area, provision of check dams for irrigation of agricultural land, deforestation and peripheral development (education, health service, drinking water supply and Employment). Total cost of the project is Rs. 599.0 Crores. Capital cost for Environment Protection Measures has been earmarked Rs. 82.5 Crores along with annual recurring cost Rs. 75.7 Lakh/year.

8. 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 proposal of Underground Chromite Mine of M/s Balasore Alloys Ltd. for enhancement of production from 0.42 MTPA to 0.6 MTPA (ROM) and change in technology from opencast to opencast and underground in the mine lease area of 64.463 ha located at Village Kaliapani, Tehsil Sukinda, District Jajpur, Orissa subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

- (i) Mining shall not commence without necessary permissions for drawl of water and intersection of ground water table.
- (ii) Mitigation measures such as well-designed ventilation network within underground mine, provision of Personal Protective Equipment should be ensured and necessary training and awareness programs for mine workers should be undertaken.
- (iii) Continuous monitoring of Mine water should be done and reports furnished.
- (iv) Continuous monitoring of all drinking water sources for Cr(VI) of Mine water should be done and reports furnished.
- (v) Morbidity pattern which is a sensitive indicator of ill health with regard to Cr related diseases need to be done.
- (vi) Mine water discharge and/or any waste water shall be properly treated in an ETP/s for the removal of hexavalent chromium and to meet the prescribed standards before reuse/discharge. The run off from OB dumps and other surface run off shall be analyzed for hexavalent chrome and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.
- (vii) The project proponent shall obtain Consent to Establish and Consent to Operate from the State Pollution Control Board, Odisha and effectively implement all the conditions stipulated therein.
- (viii) Traffic density on the route of mineral transportation shall be regularly monitored and report shall be submitted along with compliance report.
- (ix) As part of ambient air quality monitoring during operational phase of the project, the air samples shall also be analysed for their mineralogical composition and records maintained.
- (x) Mineral handling plant 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.
- (xi) Effective safeguard measures such as conditioning of ore with water, 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 transfer points. 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 shall 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 shall be carried out in and around the mine lease by establishing a network of existing wells and installing new piezo meters 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 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.
 - (xiv) The project proponent shall regularly monitor the flow rate of the natural water streams flowing adjacent to the mine lease and maintain the records.
 - (xv) The reclaimed and rehabilitated area shall be afforested. 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.
 - (xvi) Dimension of the retaining wall at the toe of temporary over burden dumps and OB benches within the mine to check run-off and siltation shall be based on the rain fall data.
 - (xvii) Plantation shall be raised in an area of 36.156 Ha. including a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around the higher benches of excavated void to be converted in to water body, 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.
 - (xviii) 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 RPM such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.
 - (xix) Process water discharge and/or any waste water shall be properly treated to meet the prescribed standards before reuse/discharge. The runoff from temporary OB dumps and other surface run off shall be analyzed for iron and in case its concentration is found higher than the permissible limit, the waste water should be treated before discharge/reuse.

B. General Conditions

- (i) No change in Iron Ore Processing/Beneficiation 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 Processing/Beneficiation of mineral iron ore and waste should be made.
- (iii) At least four ambient air quality-monitoring stations should be established in the core zone as well as in the buffer zone for RSPM (Particulate matter with size less than 10 micron i.e., PM₁₀) 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. The data so recorded should be regularly submitted to the Ministry, including its Regional office located at Bhubaneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
- (iv) 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.
- (v) There will be zero waste water discharge from the plant.
- (vi) 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.
- (vii) 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.
- (viii) 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.
- (ix) 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 Bhubaneswar.
- (x) 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.
- (xi) 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.
- (xii) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions

- (xx) The decanted water from the beneficiation plant and slime/tailing pond shall be re-circulated within the mine and there shall be zero discharge from the mine.
- (xxi) Regular monitoring of the flow rate of the springs and perennial nallahs shall be carried out and records maintained.
- (xxii) Regular monitoring of water quality, upstream and downstream of natural water bodies shall be carried out and record of monitoring data should be maintained and submitted to Ministry of Environment and Forests, its Regional Office, Bhubaneswar, Central Groundwater Authority, Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board.
- (xxiii) Suitable rainwater harvesting measures on long term basis shall be planned and implemented in consultation with Regional Director, Central Ground Water Board.
- (xxiv) 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 from mine face to the beneficiation plant. The vehicles shall be covered with a tarpaulin and shall not be overloaded.
- (xxv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for workshop and wastewater generated during mining operation.
- (xxvi) 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 Ministry of Environment and Forests and its Regional Office, Bhubaneswar.
- (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) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna 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.
- (xxix) 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.
- (xxx) The project proponent shall undertake all the commitments made during the public hearing and effectively address the concerns raised by the locals in the public hearing as well as during consideration of the project, while implementing the project.

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 Bhubaneswar, the respective Zonal Office of Central Pollution Control Board and 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, Bhubaneswar, the respective Zonal Officer of Central Pollution Control Board and the State Pollution Control Board.

- (xiii) 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.
- (xiv) 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.
- (xv) 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 respective Regional Office of the Ministry of Environment and Forests, Bhubaneswar by e-mail.
- (xvi) The project authorities should advertise at least in two local newspapers of the District or State in which the project is located and 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.

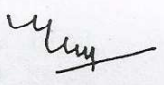
9. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

10. 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 attract action under the provisions of Environment (Protection) Act, 1986.

11. 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 Odhisa and any other Court of Law relating to the subject matter.

12. 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.


(Dr. V.P. Upadhyay)
Director

Copy to:

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- (ii) The Secretary, Department of Environment, Government of Odhisa, Secretariat, Bhubaneswar.
- (iii) The Secretary, Department of Mines and Geology, Government of Odhisha, Secretariat, Bhubaneswar.
- (iv) The Secretary, Department of Forests, Government of Odhisha, Secretariat, Bhubaneswar.
- (v) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- (vi) The Additional Principal Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharapur, Bhubaneshwar-751023.
- (vii) The Chairman, Odhisa State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneshwar-751012.
- (viii) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (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 Odhisa.
- (xi) Record File.
- (xii) MoEF Website


(Dr. V.P. Upadhyay)
Director

BY SPEED POST

No. J-11015/139/2012-IA.II (M)
Government of India
Ministry of Environment, Forests & Climate Change
Impact Assessment Division

3rd Floor, Vayu Wing,
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj,
New Delhi-110 003
Tele: 011-24695304
E-mail: vp.upadhyay@nic.in

Dated: 15th December, 2014

To
M/s Balsore Alloys Limited,
Kaliapani Chromite Mine,
At/ P.O. Kaliapani-755047

Fax:06726-268520
E-mail: sukinda_mines@balasorealloys.com

CORRIGENDUM

Subject: Underground Chromite Mine of M/s Balasore Alloys Ltd., Village Kaliapani, Tehsil Sukinda, District Jajpur, Orissa (64.463 ha) (expansion from 0.42 MTPA to 0.6 MTPA and change in technology from opencast to opencast and underground)- Environmental clearance regarding.

Sir,

This is in continuation of MoEF letter even no. dated 22nd August, 2014 granting Environmental Clearance to above mentioned project.

2. A typographical error occurred inadvertently in General condition No. (i) & (ii) of EC letter at page 6. The words in General condition 'Iron ore' & 'Iron ore and waste' need to be rectified as 'Chrome Ore' and 'Chrome Ore and waste'.

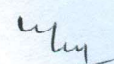
3. Hence, the General condition No. (i) & (ii) of EC letter at page 6 are now substituted as follows:

B General Condition

- (i) No change in Chrome ore Processing/Beneficiation technology and scope of working should be made without prior approval of the Ministry of Environment, Forests and Climate Change.
- (ii) No change in the calendar plan including Processing/Beneficiation of mineral Chrome ore and waste should be made.

4. All other terms and conditions mentioned in this Ministry's letter of even no. dated 22.08.2014 shall remain the same.

5. This issues with the approval of the Competent Authority.


(Dr. V.P. Upadhyay)
Scientist 'F'

Copy to:

- (i) The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
- (ii) The Secretary, Department of Environment, Government of Odhisa, Secretariat, Bhubaneswar.
- (iii) The Secretary, Department of Mines and Geology, Government of Odhisha, Secretariat, Bhubaneswar.
- (iv) The Secretary, Department of Forests, Government of Odhisha, Secretariat, Bhubaneswar.
- (v) The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
- (vi) The Additional Principal Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3 Chandrashekharpur, Bhubaneswar-751023.
- (vii) The Chairman, Odhisa State Pollution Control Board, Parivesh Bhawan, A/118 Nilakantha Nagar, Unit-VIII, Bhubaneswar-751012.
- (viii) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (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 Odhisa.
- (xi) Record File.
- (xii) MoEF Website

\

(Dr. V.P. Upadhyay)
Scientist 'F'