

No. J-11015/453/2008-IA.II(M)
Government of India
Ministry of Environment and Forests
IA Division

Paryavaran Bhawan
CGO Complex, Lodhi Road,
New Delhi-110 003
Dated the 25th March, 2013

To
M/s Steel Authority of India Limited
Raw Materials Division,
10 Camac Street (5th Floor),
Kolkata-700 017

Subject: Integrated Durgaburu Iron Ore Mining, Beneficiation and Pelletisation Plant Project of M/s Steel Authority of India Limited (SAIL), located in Ghatkuri Reserve Forest, Tehsil Gua, District West Singhbhum, Jharkhand - environmental clearance - regarding.

Sir,

This has reference to your letter No. RMD/K/E&L/2010-724 dated 23.11.2010 and subsequent letters dated 18.02.2011 and 26.02.2011 on the subject mentioned above, as well as your Board resolution dated 11.08.2011 stating that violation will not be repeated in the future. The State Pollution Control Board, Jharkhand vide their letter 29.12.2011 have mentioned that a petition in the court of chief Judicial Magistrate, Chaibasa has been filed. The project was earlier prescribed Terms of Reference (TORs) by the Ministry of Environment and Forests on 05.02.2009 for undertaking detailed EIA study for the purpose of obtaining environmental clearance. The proposal is for renewal of mine lease, which fell due in February, 2009 and enhancement of production of iron ore to 10million TPA (ROM) and installation of a new beneficiation plant of 12.5million TPA and installation of a new pellet plant of 4million TPA capacity. Besides, 10million TPA of ROM to be produced from the mine, 2.5million TPA of fines from existing fines dumps will be utilized in the beneficiation plant.

2. The total mine lease area of the project is 1443.756ha, which is a forest land. Stage – I forest clearance for diversion of broken up area of 274.691ha of forest land, out of the total applied area of 635.986 ha for iron ore mining has been obtained vide letter no. 8-251/1986-FC dated 14th August, 2012 subject to certain conditions. The Karo River (1km), the Koina River(4.5km) and the Sarako River (6.5km) are reported to be located in the buffer zone of the mine. A number of seasonal drainage channels reported to flow down of the core zone escarpment on either side towards SE or NW. Modification/diversion in the existing natural drainage pattern at any stage has not been envisaged.

3. It has been stated that no National Park/ wildlife sanctuary/biosphere reserve/tiger reserve etc. are 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. However, the entire mine lease area falls within the core zone of Singhbhum Elephant Reserve. The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Jharkhand

vide letter No. 564 dated 04.12.2010 stated that the proposed mine lease area falls within the core area of the Singhbhum Elephant Reserve. The Karo Karampada Elephant corridor touches the Southern boundary of the study area / buffer zone of the mine. Three reserve forests namely the Uliburu RF(4.5km), the Ankua RF(7.3km) the Karo RF(8.7km) and nine protected forests are reported to be located in the buffer zone of the mine.

4. The mine working will be opencast by mechanized method with Shovel Dumper combination and involving drilling and blasting. The targetted production capacity of the mine is 12,000,000TPA(10,000,000TPA (ROM) from mine and 2,500,000TPA of fines from existing fines dumps) and the life of mine is 8.7years. Mineral will be transported through the rail. The capacity of the Beneficiation plant will be 12.5million TPA throughput and the capacity of the Pellet Plant will be 4million TPA. The beneficiation and pellet plant will be outside the mine lease. The beneficiation process will involve crushing, screening, washing, jigging etc. Part of the beneficiated product will be pelletized. The pelletization process involves additive mixing, balling, travelling grate operation, hearth layer separation etc. There will be three tailing ponds. The topography of the area is hilly and reported to lies between 21°12'00"- 22°14'00"N Latitude and 85°21'00"- 85°23'00" E Longitude in Survey of India topo sheets No. 73 F/8, at an elevation above mean sea level ranging from 410m-880m AMSL. The ultimate working depth of mine will be 550m AMSL. The groundwater table varies between 394m-400m AMSL. The mine working will not intersect the groundwater table. The peak water requirement of the project is estimated as 11,500m³ per day, which will be obtained from the Karo River. It has been reported that there is no population in the core zone, therefore, displacement of population and R&R has not been envisaged. A total of 7.71million m³ of OB has already been accumulated and disposed of in the form of four external dumps namely dumps D1, D2 and D3(21.32ha) and Dump 4(3.68ha). In the expansion phase, it is estimated that 49.5million m³ of OB will be generated, which will be utilized for backfilling. It has been envisaged that an area of 98.6ha will be backfilled and reclaimed by plantation. In addition, 21.75 million tonnes of tailings will be generated during the life of the mine. It is proposed that backfilling of old tailings to quarried void will be carried out from 2020. Plantation will be raised in an area of 496.838 ha at the end of mine life and there will be no water body left during the post mining stage.

5. The public hearing of the project was held on 16.09.2010 for enhancement of production of mine to 10,000,000TPA (ROM), from mine and 2,500,000TPA of fines, over mine lease area of 1443.756ha and establishment of 12.5million TPA beneficiation plant and 4million TPA Pellet plant. The Indian Bureau of Mines had approved the modification proposed in the mining plan of the project on 18.08.2010 for lease area of 1443.756ha. The capital cost of the project is Rs.2,87,800 Lakhs and the capital cost for the environmental protection measures is proposed as Rs.120 Lakhs. The annual recurring cost towards the environmental protection measures is proposed as Rs.290 Lakhs. It has been stated that there is no court case to the project or related activity.

6. 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 Integrated Durgaburu Iron Ore Mining, Beneficiation and Pelletisation Plant Project of Mis Steel Authority of India Limited (SAIL)

for an annual production capacity of 10million tonnes(ROM) of iron ore and 2.5million tonnes of fines from existing fines dumps by the opencast mechanized method involving 274.691 ha of broken up area for which FC has been obtained out of the total mine lease area of 1443.756ha, for setting up of a new beneficiation plant of 12.5 million TPA throughput capacity and installation of a new pellet plant of 4 million TPA capacity, outside the mine lease, subject to implementation of the following conditions and environmental safeguards.

A. Specific Conditions

- (i) No mining activities will be allowed in forest area for which the Forest Clearance is not available.
- (ii) The project proponent will seek and obtain approval under the FC Act, 1980 for diversion of the entire forest land located within the mining lease within a period of two years from 01.02.2013 i.e. the date of issue of guidelines by FC vide there letter F. No. 11-362/ 2012-FC, failing which the mining lease area will be reduced to the non forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.
- (iii) Need to submit a proposal for faster utilization of entire dumps of fines within a period of one year.

B. General conditions

- (i) The project proponent shall obtain Consent to Establish and Consent to operate from the Jharkhand State Pollution Control Board and effectively implement all the conditions stipulated therein.
- (ii) Environmental clearance is subject to final order of the Hon'ble Supreme Court of India In the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No. 460 of 2004, as may be applicable to this project.
- (iii) Environmental clearance is subject to obtaining clearance under the Wildlife (Protection) Act, 1972 from the competent authority, as may be applicable to this project.
- (iv) Coordinated efforts shall be made along with other operating mines in the area and action plan drawn for control of pollution load in the area. The action plan so prepared shall be effectively implemented. The air and water quality shall be monitored by involving the State Pollution Control Board and results submitted within 6 months.
- (v) The Forest Right Act shall be implemented.

- (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 shall be obstructed due to any mining operations. The first order streams and the seasonal nallahs originating from the mining lease area shall be protected.
- (viii) 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.
- (ix) The over burden 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 its phase-wise stabilization shall be carried out. There shall be four external over burden dumps. Proper terracing of the OB dumps shall be carried out so that the overall slope of the dump shall be maintained to 28°. The over burden 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.
- (x) Compliance status shall be submitted to the Ministry of Environment & Forests and its Regional Office located at Bhubaneswar on six monthly basis.
- (xi) Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies. The water so collected should 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, mineral and over burden dumps to prevent run off of water and flow of sediments directly into the Karo River, the Koina River, the Sarako River and other water bodies and sump capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pits shall be constructed at the corners of the garland drains and desilted at regular intervals.
- (xii) Dimension of the retaining wall at the toe of the over burden dumps and the OB benches within the mine to check run-off and siltation shall be based on the rain fall data.

- (xiii) The water recovery and spill way system shall be so designed that the natural water resources are not affected and that no spill water goes into the nearby Karo River, Kona River, Sarako River and other water bodies.
- (xiv) The project proponent shall carry out conditioning of the ore with water to mitigate fugitive dust emission, without affecting flow of ore in the ore processing and handling areas.
- (xv) The effluent from the ore beneficiation plant and pelletization plant shall be treated to conform to the prescribed standards and the tailings slurry shall be transported through a closed pipeline to the tailing dam.
- (xvi) The tailing dam shall be lined on all the sides as well as in the bottom with thick HDPE lining.
- (xvii) The project proponent shall take necessary safeguard measures to ensure that there is no leaching from the tailing pond.
- (xviii) The decanted water from the tailing pond shall be re-circulated and there should be zero discharge from the tailing ponds.
- (xix) Appropriate technology shall be used for maximum recovery of ore in order to reduce slurry discharge and to increase the life of the tailing dam.
- (xx) The project proponent shall constitute an emergency management team under the control of project incharge to deal with the emergency situation pertaining to the tailing dam for the timely and effective control of emergency situation. It shall be ensured that training programme & mock drills shall be organized for the employees.
- (xxi) Plantation shall be raised in an area of 496.838ha including a 7.5m wide green belt in the safety zone around the mining lease, over burden dumps, around beneficiation plant, mine benches, around tailing ponds, pelletisation plant, 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.
- (xxii) The greenbelt shall be developed all around the mine lease within the initial 3 years from the issue of clearance.
- (xxiii) Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulate matter such as around crushing and screening plant, loading and unloading point and 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.
- (xxiv) Regular monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained.

- (xxv) The project authority should implement suitable conservation measures to augment ground water resources in the area in consultation with the Regional Director, Central Ground Water Board.
- (xxvi) Regular monitoring of ground water level and quality shall be carried out in and around the project area (mine lease, beneficiation plant, pelletisation plant and tailing ponds) by establishing a network of existing wells and installing new piezometers during the 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.
- (xxvii) The groundwater and surface water in and around the mine including tailing ponds shall be regularly monitored at strategic locations for heavy metals. The monitoring stations shall be established in consultation with the Regional Director, Central Ground Water Board and the State Pollution Control Board.
- (xxviii) Appropriate mitigative measures shall be taken to prevent pollution of the Karo River, the Koina River and the Sarako River in consultation with the State Pollution Control Board.
- (xxix) 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 vehicles shall be covered with a tarpaulin and shall not be overloaded.
- (xxx) 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.
- (xxxi) Drills shall either be operated with dust extractors or equipped with water injection system.
- (xxxii) Digital processing of the entire lease area using remote sensing technique should 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 Bhubneswar.
- (xxxiii) 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.

- (xxxiv) Sewage treatment plant shall be installed for the colony. ETP shall also be provided for the workshop and the wastewater generated during mining operation.
- (xxxv) 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.
- (xxxvi) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna namely Elephant, Sloth Bear, Palm Civet, Panther, Mouse deer etc. spotted in the study area. Action plan for conservation of flora and fauna prepared shall be implemented in consultation with the State Forest and Wildlife Department. All the safeguard measures brought out in the Wildlife Conservation Plan 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 Regional Office of the Ministry of Environment and Forests, Bhubaneswar.
- (xxxvii) The entire mining lease area shall be fenced by erecting solar powered electric fencing all around it. The fencing so erected shall be maintained properly and the cost towards erection and maintenance of the solar powered electric fencing shall be borne by the project proponent out of the project cost.
- (xxxviii) No road transportation of ore outside the mine lease area shall be carried out after the sunset.
- (xxxix) 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, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (xl) The critical parameters such as RSPM (Particulate matter with size less than 10micron i.e., PM_{10}) and NO_x in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer shall be monitored periodically. Further, quality of discharged water shall also be monitored [(TOS, DO, PH and Total Suspended Solids (TSS)]. The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the Company in public domain. The Circular No. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment and Forests, which is available on the website of the Ministry www.envfor.nic.in shall also be referred in this regard for its compliance.
- (xli) 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.

- (xlii) Steps to control flow of fines into the river stream shall be taken.
- (xliv) A time bound action plan for consumption of accumulated fines as per approved Mine Plan/EIA/EMP report shall be executed in the beneficiation and Pelletization Plant.
- (xlv) In order to strengthen the management system staggered trenches shall be provided in all the earthen dams to accommodate maximum silt flow to reduce any pressure in the downstream.
- (xlv) The silt collected along the nallas should be removed completely before the onset of next monsoon and should be a regular practice of the mine.
- (xlvi) The slopes of the Earthen Dams should be provided with vegetative cover suitably with native species, thorny bushes and vetiver grasses as a part of biological measures of dump management.
- (xlvii) Monitoring of all water quality parameters as per the discharge standards shall be ensured by the project management.
- (xlviii) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment & Forests.
- (xlix) No further expansion or modifications in the beneficiation and pelletization plants shall be carried out without prior approval of the Ministry of Environment and Forests.
- (l) No change in the calendar plan including excavation, quantum of mineral iron ore and waste should be made.
 - (li) 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 μ m 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.
 - (lii) Data on ambient air quality RSPM (Particulate matter with size less than 10 μ m i.e., PM₁₀) & NO_x should be regularly submitted to the Ministry of Environment and Forests including its Regional Office located at Bhubneswar and the State Pollution Control Board / Central Pollution Control Board once in six months.
 - (liii) 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.
 - (liv) 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.

- (lv) 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.
- (lvi) 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.
- (lvii) 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.
- (lviii) 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 Bhubneswar.
- (lix) The project authorities should inform to the Regional Office located at Bhubneswar regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
- (lx) The Regional Office of this Ministry located at Bhubneswar 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.
- (lxi) The project proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions including results of monitored data (both in hard copies as well as by email) to the Ministry of Environment and Forests, its Regional Office Bhubneswar, the respective Zonal Office of Central Pollution Control Board the State Pollution Control Board. The proponent shall upload the status of compliance of the environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar, the respective Zonal Office of Central Pollution Control Board and the State Pollution Control Board.
- (lxii) 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.

- (lxiii) 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.
- (lxiv) The environmental statement for each financial year ending 31st March in Form-Vas is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Regional Office of the Ministry of Environment and Forests, Bhubneswar by e-mail.
- (lxv) 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 Bhubneswar.
7. The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
8. 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.
9. 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 Jharkhand and any other Court of Law relating to the subject matter.

(Dr. Saroj)
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 Jharkhand, Secretariat, Ranchi.
- (iii) The Secretary, Department of Mines, Government of Jharkhand, Secretariat, Ranchi.
- (iv) The Secretary, Department of Forests, Government of Jharkhand, Secretariat, Ranchi.
- (v) The Principal Chief Conservator of Forests, Biodiversity Conservation cum Chief Wildlife Warden, Government of Jharkhand, Secretariat, Ranchi.
- (vi) The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office (EZ), A/3, Chandra Shekar, Bhubneswar-751 023.
- (vii) The Chairman, Central Pollution Control Board, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.

- (viii) The Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), HEC Campus, P.O. Dhurwa, Ranchi - 834004, Jharkhand.
- (ix) The Member Secretary, Central Ground Water Authority, A2, W3 Curzon Road Barracks, K.G. Marg, New Delhi-110001.
- (x) The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur-440 001.
- (xi) The District Collector, West Singhbhum District, Jharkhand.
- (xii) EI Division, Ministry of Environment & Forests, EI Division, New Delhi.
- (xiii) Monitoring File.
- (xiv) Guard File.
- (xv) Record File.

(Dr. Saroj)
Scientist 'F'