



Ministry of Environment & Forests (MOEF)

No.J-11015/122/2007-IA.II(M)

Paryavaran Bhawan,
C.G.O.Complex,
New Delhi -110510.

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Dated: 13th October 2009

To

Shri U.P. Singh
Executive Director (Collieries),
M/s Steel Authority of India Ltd.,
Tasra Coal Mining Project,
IISCO Coal Complex,
P.O. Chasnalla, Dist. Dhanbad - 828135

Sub: Tasra Coal Mining Project (4 MTPA) of M/s Steel Authority of India Ltd, located in village Tasra, Kandra, Domgarh, Rohrabandh, Het Kandra, Chakchitani and Chasnalla, in Jharia Coalfields, Dist. Dhanbad, Jharkhand - Environmental Clearance - reg.

Sir,

This has reference to letter No. ED (C)/400 dated 03.02.2007 with application for Terms of Reference (TOR) for Tasra Opencast Coalmine Project of 1 million tonnes per annum (MTPA) for which TOR was granted on 28.03.2007 and your subsequent revised application dated 30.04.2008 for TOR a rated capacity of 4 MTPA without change in project area and letters dated 21.05.2009, 12.07.2009, and 14.09.2009 on the above-mentioned subject. The Ministry of Environment & Forests has considered your revised application. It is noted that the project is for **opening a new ocoal mine - Tasra Opencast Coal mine Project of 4 million tonnes per annum (MTPA) rated capacity** for its five linked Steel Plants. The total project area is 860.59 ha of which 540 ha is lease area. Of the total project area, 423.07 ha is Govt./PSU land and 437.52 ha is private land comprising of agricultural land, barren land and settlements. No forestland is involved. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. There is no endangered flora/fauna reported in the study area. The drainage is controlled by River Damodar flowing at a distance of 100m from the project boundary. Two Jores (streams) Domohani and Cilatu flow through the core zone and join River Damodar. Ground elevation varies from 126m RL - 149m RL and the HFL of River Damodar is 132 m MSL. It is proposed to modify the natural drainage, which is towards River Damodar, by diversion of the two Jores and realign the two Jores and rejoin River Damodar in the southern boundary of the lease and by construction of an embankment along River Damodar. The project also envisages diversion of Dhanbad-Sindri Road in the later phase of the project. Of the total project area, 371.33 ha is quarry area, 168.47 ha is for external O3 dump, 280.79 ha is for infrastructure, periphery and coal washery proposed within the ML, 40 ha is for R&R site and township. The project involves R&R of 7 villages - Tasra (304), Kandra (2088), Domgarh (2140), Rohrabandh (4124), Het Kandra (1584), Chakchitani (868) and Chasnalla (2712). Phase-I of R&R to be completed within a year consists of 1642 PAFs from the villages of Domgarh (535), Rohrabandh (1031), and Tasra (76) to excavate 540 ha of area. A separate R&R colony is being established in the village Parashania.

Mining will be opencast by mechanised method involving shovel-dumper and involves drilling and blasting. Rated capacity of the mine is 4 MTPA of prime and medium coking coal.

Mineral transportation of coal from the proposed washery within the premises of the mine to linked Steel Plant and middling to linked TPP would be by rail. Railway siding would be provided with Rapid Loading System. Ultimate working depth of the mine would be 260m below ground level (bgl). Water table in the study area during pre-monsoon is in a range of 5.65-7.45 m and in a range of 2.98-4.07 during post-monsoon. Peak water requirement is 880 m³/d, which would be met from mine sump water. Of the total water requirement, 600 m³/d is for mining including proposed washery (300 m³/d) and 280 m³/d is for township. An estimated 423.90 Mm³ of OB will be generated over the life of mine (28 years) of which 89.46 Mm³ would be dumped externally in one external OB dump of a max. height of 90m. Backfilling would begin from 6th year onwards and the balance 334.44 Mm³ of OB backfilled into decoaled voids. Life of mine at the rated capacity of 4 MTPA is 28 years. Public Hearing was held on 09.09.2007 for 1 MTPA project and on 18.03.2009 for 4 MTPA project. The Ministry of Coal has approved the Mining Plan for 4 MTPA on 24.06.2009. Capital cost of the project is Rs. 981.63 crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned Tasra Opencast Coal mine Project of M/s Steel Authority of India Limited of a production capacity of 4 MTPA in a total project area of 860.59 ha under the provisions of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and under MOEF Circulars there under subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

- (i) The environmental clearance is restricted to opencast operations only. A separate application shall be submitted for environmental clearance for underground mining project proposed below 260m bgl.
- ✓ (ii) An application for environmental clearance shall be made within 3 months for the establishment of a coal washery of 3.5 MTPA capacity proposed within the ML area.
- (iii) Mining shall be carried out maintaining a minimum distance of 100m between the river Damodar and quarry edge along the northern boundary. The Embankment to be constructed along the River Damodar adjoining the quarry shall be based on peak flow data and shall be at least 3m above the HFL. The slope of the embankment shall at least 2:1 towards the ML, compacted and stone pitching done towards the river and shall be stabilised with plantation. Materials such as OB shall be tested for strength before using for construction of embankment.
- (iv) The plan for diversion and realignment of the Domohani Jore and Cilatu Jore and modification of the natural surface drainage and design of the diversion canal shall be following the natural topography of the region to be done in consultation and approval of the concerned State Flood and irrigation Department. Dimension and depth of the nala shall be finalised based on the peak flow of the water.
- (v) Topsoil shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used within a year of generation for reclamation and development of green belt.
- (vi) OB shall be stacked at earmarked external OB dumpsite within ML area of a maximum height of 90m of 3 benches of 0m each. A garland drain of adequate capacity, and toe wall along the OB dumps shall be created to arrest the silt flow from the dumps. In addition to the garland drain, a separate 4-6m channel to serve as storm water drain shall also be created all along the mine based on peak flow data. Silt arrestors shall be constructed for both garland drain and storm water drain and the drains shall be regularly desilted. Toe wall shall be constructed at the base of the dumps. The dumps shall be strengthened at critical patches with stones and compacted. Plantation using native species shall be developed between the dump and River Damodar. For reclamation of dumps and quarry with

plantation, no chemical fertilisers shall be used. The ultimate slope of the dump shall not exceed 28°. Reclamation of the OB dump of an area of 168.47 ha with vegetation shall be completed by 10th year. Monitoring and management of reclaimed dumpsite 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 a yearly basis.

- (vii) Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilised for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly.
Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provided adequate retention period to allow proper settling of silt material.
- (viii) Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.
- (ix) The main approach roads shall be black topped. A 3-tier avenue plantation shall be developed along the main approach roads and haul roads. Entire mineral transportation shall be by rail mode only. Mineral transportation from the mine to the Railway siding shall be by closed belt conveyor only. The railway siding shall be provided with Silo Rapid Loading System.
- (x) Drills shall be wet operated only.
- (xi) Controlled blasting shall be practiced with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
- (xii) Water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc. Hoppers of the coal crushing unit and washery unit shall be fitted with high efficiency bag filters and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points and at Railway Siding.
- (xiii) No groundwater (bore well) shall be used for mining operations. Additional water if any required for the project shall be used from recycled water or mine discharge water or rainwater collected in rainwater harvesting pits within the project area.
- (xiv) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring. Rainwater structures shall be erected in the core and buffer zone, in case monitoring indicates a decline in water table.
- (xv) The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xvi) Sewage treatment plant of adequate capacity shall be installed in the colony. ETP shall also be provided for workshop and CHP wastewater. Treated wastewater meeting prescribed norms only shall be recycled for mining operations to the extent possible and permitted to be discharged in to the natural water courses only if it meets the prescribed standards.

- (xvii) The total area that shall be brought under afforestation at the time of mine closure shall not be less than 444.49 ha which includes reclaimed topsoil soil dump area, external OB dump (168.47 ha), backfilled area (276.02 ha), along ML boundary, embankment and undisturbed area, along roads and infrastructure, green belt, and in township outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (xviii) A Progressive Mine Closure Plan shall be implemented by reclamation of 276.02 ha, of the total quarry area of 371.33 ha, which shall be backfilled and afforested by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the plants shall be around 2500 plants per ha. The balance 95.31 ha of decoaled quarry area being converted into a water reservoir shall be gently sloped and the the upper benches of the reservoir shall be terraced and stabilised with plantation. Only native species shall be used for plantation.
- (xix) Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.
- (xx) An amount of Rs 600.60 lakhs as capital costs and Rs 35 lakhs towards annual recurring costs has been earmarked for environmental protection measures; the details of which shall be uploaded on the company's website every year.
- (xxi) A detailed R&R Plan for the life of the project comprising land losers, homestead losers and land and homestead losers, and landless including tribals to be displaced from the project area shall be prepared and implemented in a stipulated time-frame. A Master Plan for the R&R Colony and a specific plan for Phase-I consisting of 1642 PAFs shall be prepared within 2 months from date of environmental clearance along with a time schedule for completion of activities including construction of R&R colony and completion of various works for civic amenities in the colony. R&R shall include setting up of an ITI for training and skill development amongst the persons to be employed and those not being absorbed for vocational training for alternate livelihood, particularly simulation training for various skills, which may be for indirect employment. Annuities for the vulnerable persons being displaced shall also be included in R&R. Persons affected by double/triple displacement shall be compensated as per norms. R&R for Phase-I shall be completed within a year of grant of environmental clearance.
A Sub-Committee comprising of 3 experts of the Expert Appraisal Committee shall monitor the compliance of implementation of Phase-I of the R&R and beyond, if required.
- (xxii) Peripheral villages of Parasbani, Chattabad, Orbetta, Kultar, Sindri Basti, Manohar Tand Basti, Chasnalla Basti, Manpur, Jharna, Bogla, and Chandaniyari shall be taken for socio-economic activities under CSR, for which a sum of Rs 65 crores shall be earmarked as capital costs and Rs 4 crores as revenue costs over the life of the project. The proponent shall constitute VDC for monitoring the implementation of CSR. In addition, the sub-committee of EAC shall also monitor CSR, if required.
- (xxiii) The project authorities shall carry out a detailed pre-mining socio-economic survey based on the UNDP Human Development Report and Quality of Life parameters and monitor the socio-economic status once every three years and maintain records thereof and report in their Annual Report, the socio-economic impact of R&R and CSR activities, the details of which shall be uploaded on the company's website every year. A post of GM to exclusively look after R&R and CSR shall be created.
- (xxiv) For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone,

from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneswar.

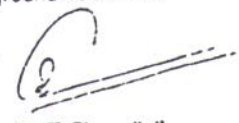
- (xxv) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval.

B. General Conditions

- (i) No change in technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- (ii) No change in the calendar plan including quantum of mineral coal and waste being produced shall be made.
- (iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring SPM, RSPM, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, in SPM and RSPM etc. shall be carried out at least once in six months.
- (iv) Data on ambient air quality (SPM, RSPM, SO₂ and NO_x and heavy metals such as Hg, As, Ni, Cr, etc) and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EP Rules, 1986 shall be furnished as part of the compliance report.
- (v) Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- (vi) Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, and treated so as to conform to the standards including for heavy metals before discharge prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluents.
- (vii) Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transportation of the mineral shall be covered with tarpaulins and optimally loaded.
- (viii) Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EP Rules, 1986.
- (ix) Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed.
- (x) A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.

- (xi) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.
- (xii) The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days 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 may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>
- (xiii) A copy of the environmental clearance letter shall be marked to concerned Panchayat/Zila Parishad, Municipal Corporation or Urban Local Body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. **A copy of the clearance letter shall also be displayed on the company's website.**
- (xiv) A copy of the clearance letter shall be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.
- (xv) The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated EC conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in the public domain. The monitoring data of environmental quality parameters (air, water, noise and soil) and critical pollutants such as SPM, RPM, SO₂ and NO_x (ambient and stack if any) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
- (xvi) The project Proponent shall submit six monthly reports on the status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the MOEF, the respective Zonal offices of CPCB and the SPCB.
- (xvii) The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports.
- (xviii) The environmental statement for each financial year ending 31st March in Form-V 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 uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MOEF by E-mail.
3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract 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. The proponent shall ensure to undertake and provide for the costs incurred

for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.



(Dr.T.Chandini)
Director

Copy to:

1. Secretary, Ministry of Coal, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Jharkand, Secretariat, Ranchi.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandrashekarpur, Bhubaneshwar - 751023.
4. Chairman, Jharkand State Pollution Control Board. T.A. Division Building (Ground Floor), H.E.C., Dhurwa, Ranchi - 834004.
5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. District Collector, Dhanbad, Government of Jharkhand.
8. Monitoring File 9. Guard File 10. Record File