सत्यमेव जयते

Ministry of Environment & Forests (MOEF)

No. J-11015/62/2009-I.A. II (M)

BY SPEED POST

Paryavaran Bhawan,
CGO Complex,
New Delhi-110510.

Dated: 20th December 2010

To,

Executive Director (Collieries),
M/s Steel Authority of India Ltd.,
Chasnala Colliery Complex,
P.O. Chasnala, Dist. Dhanbad,
Jharkhand – 8218135.

Sub: **Sitanala Underground Coking Coal Project (0.3 MTPA (steel grade I-Washery-IV) over 321 ha) of M/s Steel Authority of India Ltd., dist. Bokaro, Jharkhand – Environmental clearance – reg.**

Sir,

This is with reference to letter No ED(C)/5/125 dated 27.02.2009 with the application for Terms of Reference (TOR) on the aforesaid project for production of 0.30 million tonnes per annum (MTPA) of prime coking coal. The mine is adjacent to River Damodar, which forms its northern boundary. It is proposed to work below River Damodar by Longwall Technology. The proposal was considered by the Expert Appraisal Committee in its meeting held on 26-27th September 2007 wherein the Committee was informed that the mine is adjacent to the Chasnala UG mine wherein about 350 persons had died during the seventies due to mine inundation. The PP had stated that it is proposed to leave a barrier of 120m for safety. Since the details of old working of the mine were not available with the proponent, and since no proper survey has been carried out in the present mine area, and details of old mine workings (which are water logged) are also not available, the Committee had recommended preparation and approval of a Mining Plan for the project before its is taken up for prescribing TOR, which was approved by the Ministry of Coal on 19.01.2009, and on that basis a TOR was granted vide this Ministry's letter dated 15.04.2009. An application for environmental clearance dated 25.05.2010 was received. The Ministry of Environment & Forests has considered the application.

It is noted that the proposal is for undertaking underground mining of a production capacity of 0.30 MTPA (steel grade I-Washery-IV) over an old working in an exiting mine wherein the top seams have been already worked at by private owners and abandoned thereafter and which was subsequently taken over by M/s SAIL. Of the total 40.53 MT, 19.92 MT are extractable reserves. The gassiness of the mine is high. Of the total ML area of 321 ha, 95 ha is agriculture land, 81 ha is wasteland, 6 ha is grazing land, and 84 ha are streams, surface water bodies and 55 ha is settlements. No forestland is involved. Of the 35.92 ha of area to be acquired for surface rights, 3.66 ha is tenancy land and the remaining 32.26 ha is BCCL land. Chasnala Railway Siding and Washery exist. The main drainage of the area is controlled by River Damodar flowing west to east in the northern boundary of the block. In addition a number of streams mostly perennial flow across the mine. No modification of the drainage is proposed. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km buffer zone. Mining will continue to be underground by semi-mechanised method by Longwall mining in conjunction with hydraulic sand stowing. No disturbance of strata and subsidence are anticipated. A parting of 150m or

more would be maintained for working vertically below River Damodar and within 15m of River Damodar with prior permission of DGMS. Seam inclination is 25-45° and sand stowing would be undertaken and hence no subsidence is anticipated. As per the mining Plan, mine working would be 143m whereas the HFL of River Damodar would be 136 mRL (i.e. the mine working would be 7m higher) and the strata are such that there is no sub-soil seepage from River Damodar. Water from old workings would be let into river Damodar after settling in sedimentation tanks. Ultimate working depth is 660m bgl. The rated capacity of 0.3 MTPA would be achieved after the 9th year. Coal of 1000 TPD would be transported to Chasnala Coal washery by road covering a distance of about 6km and 800 TPD of clean coal from washery to Burnpur by rail. It is difficult to put up an overhead conveyor or ropeway over River Damodar over which the coal is to be transported. Water table is in the range of 6.28-7.63m bgl during pre-monsoon and in the range of 3.29-3.45m bgl during post-monsoon in the study area. Peak water demand is 2170 m^3/d of water of which, 200m^3/d is from tube well and 1450 m3/d is from mine water. Mine water discharge will be 10,850 m^3/day. No R&R is involved. Life of the mine at the rated capacity of 0.3 MTPA (Phase-I) is 30 years. Public Hearing was held on 18.01.2010. Mining Plan for the project has been approved by the Ministry of Coal on 19.01.2009. Capital cost of the project is Rs. 202.296 Crores.

2. The Ministry of Environment and Forests hereby accords environmental clearance for the above-mentioned **Sitanala Underground Coal Mine Project** of **M/s Steel Authority of India Ltd.** for **production of 0.30 MTPA within the ML area of 321 ha** under the provisions of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and Circulars thereunder subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

(i) Prior permission of DGMS shall be obtained for the mine operations and for working below and adjoining River Damodar.

(ii) A minimum distance of 500m should be maintained from River Damodar. Mining shall be carried out as per statuette at a safe distance from the surface water bodies/streams flowing within/adjacent to the lease boundary.

(iii) A detailed Risk Assessment and HAZAN on the potential risk of accidents from the various stages and steps of the mine operations.

(iv) A detailed Disaster Management Plan shall be prepared on the potential disasters such as mine flooding, explosions from gassiness, mine subsidence, etc.

(v) Hydraulic sand stowing shall be undertaken and subsidence monitored and compared to Subsidence Prediction Modelling and suitable remedial measures taken to prevent and check further subsidence. Mine seepage shall be regularly monitored for possible mine inundation.

(vi) Panel size and sequence of extraction of the Panels vertically below River Damodar shall be such that the strain at the surface does not exceed 3mm/m, which shall be verified by suitable studies.

(vii) Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.

(viii) The Disaster Management Plan shall be tested (mock drills) from time to time to check emergency preparedness in case of disaster.

(ix) Continuous monitoring of the levels of methane shall be recorded and appropriate ventilation system shall be put in place to keep the levels of methane within limits.

(x) In view of the highly gassy, watery nature of the deposits within the mine and the fact that old workings survey reports are not available as informed by the project proponents, and the planned inclines of 1:2.5 gradient for safety of men and mine and heat and humidity also adding to the problem of methane gas; special attention is required for the supervision of the underground workings, as electricity is in use. For better supervision, man riding facility needs to be provided in both the inclines and adequate manpower for upkeep of electrical apparatus and other equipments.

(xi) High capacity pumps shall be deployed for dewatering of mines and also in stand-by which are tested regularly.

(xii) All proposed mine entries shall be 3m above HFL.

(xiii) Garland drains (size, gradient and length) around the safety areas such as mine opening and mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over an above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also be provided adequate retention period to allow proper settling of silt material.

(xiv) A 3-tier avenue plantation shall be developed using native species (*Prosopis juliflora* shall not be used) along the main approach roads and coal transportation roads. A plan for plantation of areas with surface rights shall be prepared and implemented over the mine lease area acquired and shall include areas under green belt development, areas along roads, infrastructure, along ML boundary and township etc, by planting native species in consultation with the local DFO/Agriculture Department.

(xv) High root density tree species shall be selected and planted over areas likely to be affected by subsidence.

(xvi) Quality of water provided to villages shall be within prescribed limits. Water quality shall be tested for levels of fluoride and TDS and treated to prescribed standards before use for domestic consumption.

(xvii) Regular monitoring of groundwater level and quality shall be carried out by establishing a network of exiting wells and construction of new peizometers. 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 tot eh Central Pollution Control Board quarterly within one month of monitoring. The quality of groundwater should be got analysed at random through laboratories recognised under the EPA Rules 1986.

(xviii) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource, in case water table shows a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.

(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) A provision of Rs 5/tonne of coal shall be earmarked for CSR activities to be undertaken for the adjoining villages. Village-wise details of activities along with budgetary expenditure thereon shall be updated regularly (at least once a year) on the company website.

(xxi) 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 PM10, PM2.5, SO2 and NOx. 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.

(iv) Data on ambient air quality (PM10, PM2.5, SO2 and NOx 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 Bhubaneshwar 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 recognized 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. Mine water shall be treated to prescribed limits in case discharged outside the premises

(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 analyzed through a laboratory recognized 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 Bhubaneshwar.

(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, SO_2 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 Bhubaneshwar 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 tot 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. Director-General, DGMS, Dhanbad.
3. Secretary, Department of Environment & Forests, Government of Jharkand, Secretariat, Ranchi.
4. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandrashekarpur, Bhubaneshwar – 751023.
5. Chairman, Jharkand State Pollution Control Board, T.A. Division Building (Ground Floor), H.E.C., Dhurwa, Ranchi – 834004.
6. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
7. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
8. District Collector, Bokaro. Government of Jharkhand.
9. Monitoring File 9. Guard File 10. Record File.

12/01/2011