

Dated: 15<sup>th</sup> July 2009

To  
Chief General Manager,  
**M/s South Eastern Coalfields Ltd.,**  
Bilaspur, Chhattisgarh.

**Sub: Expansion of Bagdeva Underground Coal Mine Project (expansion in production from 0.24 MTPA to 0.76MTPA and lease area from 340.97 ha to 502.60 ha) of M/s South Eastern Coalfields Ltd. (SECL), located in village Bagdeva, Tehsil Katghora, district Korba, Chhattisgarh- environmental clearance - reg.**

Sir,

This has reference to Ministry of Coal's letter No. 43011/1147/2007-CPAM dated 05.10.2007 forwarding the application for Terms of Reference (TOR) on the aforesaid project and this Ministry's grant of TOR dated 16.01.2008 and application for environmental clearance based on TOR No.CIL/DLI/EMP-TOR/2009/17 dated 27.05.2009 and SECL's E-mail dated 09.07.2009. The Ministry of Environment & Forests has considered the application. The project is for **expansion in production of the existing Bagdeva Underground Coalmine Project (UGP) from 0.24 MTPA to 0.60 MTPA rated capacity and expansion in lease area from 340.97 ha to 502.60 ha.** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. Of the total lease area of 502.60 ha, of which 143.51 ha is agricultural land, 282.28 ha is forestland and 76.81 ha is govt. land. Mining by underground semi-mechanised Bord & pillar method using SDL and would be carried out over 469.08 ha. The mine is within the Badripali PF. Forestry clearance has been obtained on 02.04.2002 for 297.608 ha of forestland within the lease area under Mining rights and 21.554 ha for surface rights (infrastructure, mine opening, coal bunker, internal roads, loading and unloading areas, etc.). No CHP is proposed. A township exists at a distance of 0.5 km from the ML. River flows adjacent to Mine lease. The project does not involve modification of the natural drainage. Project does not involve R&R in the expansion project. Mineral transportation of 2303 TPD of coal is conveyor to surface bunker and by road by trucks. Ultimate working depth of the mine is 158m below ground level (bgl) and depillaring would be upto a max. depth of 10m bgl. Water table is in the range of 3.98-8.16m bgl during pre-monsoon and 2.10-4.42 m bgl during post-monsoon. Peak water requirement is 448 m3/d which includes 327 m3/d for domestic consumption, which will be met from treated mine water. Balance life of the mine at the rated capacity of 0.76 MTPA is 19 years. Public Hearing was held on 11.07.2008. The project has been approved by M/s SECL on 30.08.2007. Capital cost of the project is **Rs. 43.6492 crores.**

2. The Ministry of Environment & forests hereby accords environmental clearance for the above-mentioned **Bagdeva Underground Coal Mine Project of M/s SECL for expansion in production of coal from 0.24 MTPA to 0.76MTPA and lease area from 340.97 ha to 502.60 ha from 0.30 MTPA to 0.60 MTPA rated capacity** under the Environmental Impact Assessment Notification, 2006 and subsequent amendments and Circulars thereto and subject to the compliance of the terms and conditions mentioned below:

**A. Specific Conditions**

- (i) Subsidence studies including subsidence prediction modelling of the proposed expansion and impacts on the overlying forest and rivers shall be undertaken and in case of significant subsidence predicted, the land above shall be acquired.

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- (ii) R&R shall be reworked in case the entire land requires to be acquired due to subsidence. Crop compensation shall be given for the affected agricultural land.
- (iii) Sufficient coal pillars shall be left unextracted around the airshaft (within the subsidence influence area) to protect from any damage from subsidence, if any.
- (iv) Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
- (v) No depillaring operation shall be carried out below the township/colony.
- (vi) Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.
- (vii) While extracting panels in the lower seam, all water bodies in the subsidence area shall be drained. Dewatering of the old goaves of the upper seam shall be continued as long as the lower seam is worked to prevent accumulation of large water bodies over working area.
- (viii) 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.
- (ix) Garland/surface drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas 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 sites. Sump capacity shall also provided adequate retention period to allow proper settling of silt material. Sufficient number of pumps of adequate capacity shall be deployed to pump out mine water during peak rainfall.
- (x) Mist spray type water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
- (x) Drills shall be wet operated only.
- (x) All approach roads to and from ML used for mineral transportation shall be black topped. A 3-tier plantation shall be developed on both sides of the road. Mineral transportation trucks shall be covered with tarpaulin and shall not be overloaded.
- (xi) A progressive afforestation plan shall be prepared and implemented in areas acquired and under surface rights and shall include area brought under green belt development, areas along roads, infrastructure, along ML boundary and in township outside the lease area, etc, by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (xii) Conservation Plan for endangered species found in and around the project area shall be formulated in consultation with the State Forest and Wildlife Departments.
- (xiii) 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.

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- (xiv) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring of water table shows a declining trend of ground water level. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
  - (xv) The company shall obtain approval of CGWA/CGWB Regional Office for use of groundwater if any, for mining operations.
  - (xvi) ETP shall also be provided for treating workshop effluents. An STP shall be constructed for treating domestic wastes from the colony.
  - (xvii) 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 Bhopal.
  - (xviii) 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.
  - (xix) A minimum 2.5 % of the retained profits shall be earmarked for activities under CSR.

#### **B. General Conditions**

- (i) No change in mining 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 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, SO<sub>2</sub> and NO<sub>x</sub>. 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 one in six months.
- (iv) Data on ambient air quality (SPM, RSPM, SO<sub>2</sub> and NO<sub>x</sub> and heavy metals such as Hg, As, Ni, Cr, etc) shall be regularly submitted to the Ministry including its Regional Office at Bhopal 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, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19<sup>th</sup> May 1993 and 31<sup>st</sup> December 1993 or as amended from time to time before discharge. 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) Appropriate measures shall be taken to avoid hazards of fire and explosions due to methane gas.

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- (ix) 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.
  - (x) 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.
  - (xi) 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.
  - (xii) 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 Bhopal.
  - (xiii) 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>.
  - (xiv) A copy of the environmental clearance letter shall be marked to concerned Panchayat/ Zila Parishad/Municipal Corporation or Urban Local Body/ 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.
  - (xv) 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.
  - (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. 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) shall also be displayed at the entrance of the project premises and mines office and in corporate office and on the company's website.
  - (xvii) The Regional Office of this Ministry located at Bhopal 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 31<sup>st</sup> 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.

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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, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Chhattisgarh, Secretariat, Raipur.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Arear Colony, Bhopal - 462016.
4. Chairman, Chhattisgarh State Environment Conservation Board, 1-Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, RAIPUR Chhattisgarh - 492001.
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, Korba Government of Chhattisgarh.
8. Monitoring File      9. Guard File      10. Record File.

16/11/09