

No.J-11015/1000/2007-IA.II(M)
Government of India
Ministry of Environment & Forests

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

Dated: 27th April 2010

To:
General Manager (W.B.P/Env.),
M/s South Eastern Coalfields Ltd.,
Bilaspur, Chhattisgarh.

Sub: Expansion of Chhal Opencast Coal Mine Project (1 MTPA to 3 MTPA with a peak production of 3.5 MTPA and increase in project area from 222.439 ha to 641.013 ha) of M/s South Eastern Coalfields Ltd., located in village Lat, Tehsil Dharamjaigarh, district Raigarh, Chhattisgarh - environmental clearance - reg.

Sir,

This is with reference to letter No. 43011/108/2007-CPAM dated 23.08.2007 forwarding the application for Terms of Reference (TOR) and this Ministry's letter dated 17.12.2007 granting TOR to the above-mentioned project and subsequent letter No. CIL/EMP-TOR/2009/08 of M/s CIL dated 19.02.2009 with application for environmental clearance based on TOR and letters of M/s SECL dated 20.06.2009 and 03.03.2010 on the above-mentioned subject. The Ministry of Environment & Forests has considered your application. The project is for expansion in Chhal Opencast Coalmine Project in terms of **annual production capacity of coal from 1MTPA to 3 MTPA with a peak production capacity of 3.5 MTPA and project area from 222.439 ha to 641.013 ha**. The project was granted environmental clearance on 27.03.2006 for a production capacity of 1 MTPA of coal in a ML area of 222.439 ha. Of the total lease area, 313.579 ha is agricultural land, 176.71 ha is forestland, 54.996 ha is wasteland, 2.520 ha grazing land and 5.890 ha is surface water bodies. Of the total project area, 137.27 ha is for quarry, 1 ha is for storage of topsoil, 37 ha is for ext. OB dump, 1 ha is for mineral storage, 36.73 ha is for infrastructure and buildings, 10 ha is for green belt, 13 ha is for township, 407.013 ha is for safety zone and for future mining. There are a number of nalas such as Dom nala, Jhampi, Sukhia, and Bojia nalas flowing in the study area. River Kurket flowing along east-west direction, joins River Mand south of the ML. River Mand flows along the western boundary of the ML is proposed to be modified by constructing an embankment along River Mand. A 60m barrier between the Mand River and the ML is proposed. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. A number of reserved and protected (open, mixed forest) are found in the buffer zone. The core zone falls partially in forest. The study area including the mine area is visited by elephants of Dharmajaigarh and Raigarh Forest Divisions. Conservation Plan has been prepared. The project involves R&R of one village - Lat involving 550 PAFS of which 329 have been given compensation. Of the balance, 25 have been rehabilitated and 69 are awaiting compensation.

Expansion of the mine is from 1 million tonnes per annum (MTPA) to 3.5 MTPA of coal production. Mining will be both opencast (OC) be mechanised method using surface miner for coal extraction and shovel-dumper for OB removal. Blasting is limited to OB removal. Of the total lease area, 137.27 ha is for quarry area, area for ext. OB dumps 37 ha, infrastructure & other facilities including roads 49.73 ha, safety zone 70 ha and area for future mining 347.013 ha. Entire mineral transportation of **10606 TPD** of coal from mine pit top to Robertson's Railway siding located at a distance of 18km is presently by road and thereafter by rail. It is proposed to establish a railway siding near to the mine lease. Ultimate working depth of the mine is 140 m below ground level (bgl). Water table is in the range of 6.64-11.02 m bgl during pre-monsoon and 4.36-5.38m bgl during post-monsoon. Peak water demand is 442 m³/d of water of which 200 m³/d is for dust suppression, 142 m³/d is for domestic consumption, 20 m³/d is for green belt, 501 m³/d is workshop, and balance for other uses. Of the total water demand, 250 m³/d would be met from mine water, and 192 m³/d for domestic consumption would be met from groundwater. The peak mine water discharged would be

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4580 m³/d into a seasonal nala flowing along the ML. An estimated 57.70 Mm³ of OB would be generated over the balance life of the mine, of which 16 Mm³ would be stored in external OB dump of 37 ha of a max. height of 60m from ground level dumped. Backfilling would begin from 2nd year of expansion project. An area of 110.95 ha of quarry area would be reclaimed with vegetation and the balance 26.32 ha would be left as a void/water body for further expansion in the dipside. Balance life of the project at the rated capacity of 3.5 MTPA is 9 years. Mining Plan of the project was approved by SECL on 22.10.2007. Public Hearing was conducted on 04.08.2008. Capital cost of the project is **Rs. 70.96 crores**

2. The Ministry of Environment & Forests has examined the application in accordance with the EIA Notification 2006 and under the provisions thereof, hereby accords environmental clearance for the above-mentioned **Chhal Opencast Coalmine project of M/s South Eastern Coalfields Ltd. for expansion in production of coal from 1 MTPA to 3.5 MTPA rated capacity and increase in project area from 222.439 ha to 641.013 ha** under the provisions of the Environmental Impact Assessment Notification, 2006 and amendments thereto and Circulars issued thereon and subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

- (i) No mining operations shall be undertaken in 176.710 ha of forestland which shall be maintained as safety zone.
- (ii) Mining shall be carried out as per statuette at a safe distance from the surface water bodies flowing in and near the Mine Lease/ project area. The plan for modification of the natural surface drainage by construction of an embankment shall be done in consultation and approval of the concerned State Flood and Irrigation Department. Embankment to be constructed 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 and shall be stabilised with plantation.
- (iii) Top soil shall be stored in the earmarked area and used for green belt development and for plantation/reclamation within a year of its generation
- (iv) OB shall be stacked at the earmarked external OB dumpsite of 37 ha within ML area for the opencast operations of a maximum height of 60m consisting of 2 benches of 30m each. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites including slope stability 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 Bhopal on a yearly basis.
- (v) Garland 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 be provided adequate retention period to allow proper settling of silt material.
- (vi) 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.
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- (vii) 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.

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(viii) Water sprinkling system (mist type) shall be provided to check fugitive emissions from crushing operations, conveyor system which shall be closed, haulage roads, transfer points, etc.

(ix) Drills shall be wet operated only.

(x) Mineral transportation from coal mine to existing railway siding by road shall shift to rail mode within 2 years after a railway siding is established within/near the project area.

(xi) Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.

(xii) An afforestation plan covering an area not less than 324.66 ha shall be implemented, which includes backfilled area (110.95 ha) and ext. OB dump (37 ha), along ML boundary, green belt, along roads, infrastructure, safety zone, undisturbed/vacant land (176.71 ha) and township area 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.

(xiii) Backfilling shall start by the 2nd year of expansion operations. Of the total 137.27 ha of the quarry area, an area of 110.95 ha of excavated area shall be reclaimed with plantation/afforestation by planting native plant species such as Bamboo (*Dandrocalamus strictus*), *Dandrocalamus rhedhi*, *Ficus sp.*, *Bucchnania lanzen*, *Feronia elephanta*, *Milusa velutina* etc. The Committee also suggested some grass species such as *Thysanolaena agrostis*, *Cymbopogon flexuosus*, *Isellema laxum sp.*, *Eflunda mutica*, *Dycanthus sp*, *Pennisetum purpureum* (Elephant grass) *Erianthus ravennae*, *E. elephantinus* which would serve as fodder for the elephants and other native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. The balance 26.32 ha of decoaled the void left for further expansion in the dipside shall be converted into a water reservoir, shall be gently sloped and the upper benches of the reservoir shall be stabilised with plantation and the periphery of the reservoir fenced.

(xiv) The Wildlife Conservation Plan prepared for in-situ conservation of the wildlife particularly the rare and endangered species/Schedule-I and II fauna particularly Indian Elephant reported within the study area and the mine and endangered flora and species of medicinal importance found in the study area shall be implemented in consultation with the Forest and Wildlife Departments in the State Government. Separate funds shall be earmarked for implementation of the various activities there under and the status thereof shall be regularly reported to this Ministry and the MOEF Regional Office, Bhopal. The project authorities shall also participate in a Regional Action Plan of the State Government for conservation of flora and fauna including Indian Elephant found within the study area including allocation of budget (capital and revenue) towards Wildlife Conservation Plan. The details of progress made and steps/measures undertaken including costs incurred under the Plan shall be regularly reported to MOEF RO, Bhopal and also uploaded on the company website.

(xv) Prior approval of the CGWA shall be obtained for using ground water 172 m³/d for the mining operation.

(xvi) A detailed ground water monitoring action plan (along with budgetary provisions) for monitoring groundwater quality and level in consultation with the Central/State Ground Water Board be prepared and implemented. 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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- (xvii) A Plan for water conservation and recharge measures of ground water along with budgetary provisions be prepared and implemented in consultation with the Central/State Ground Water Board to mitigate the adverse impact of mining which may lead to depletion of water levels in the area. The project authorities shall meet water requirement for mining operations from rainwater/recycling of water only. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xviii) ETP shall also be provided for treatment of effluents from workshop, and an STP shall be provided for treating wastewater from the township and the treated effluents shall be used for green belt development. An estimated 4580 m³/d of mine water shall be treated to prescribed standards before discharge into the surface waters/agricultural use.
- (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) 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.
- (xxi) R&R of village Lat shall be not less than the norms prescribed in National R&R Policy 2007 and shall be implemented within a specified agreed time schedule.
- (xxii) A detailed Plan for CSR with specific budgetary allocation (capital of Rs 1 crore and revenue expenditure of Rs 5 per tonne of coal) for various skill development and alternate livelihood programmes and schemes and implemented through establishment of cooperatives and SHGs particularly for the tribal populations shall be implemented. A detailed survey shall be carried on the socio-economic status of the local communities living in the villages near the project area before start of the mining operation based on a scientific methodology based on UNDP Human Development Index and monitoring the impact of project on the socio-economic and human development of the local communities, which shall be used as for monitoring the progress of the status of human and socio-economic development in the area during and after the project life which is reflected in their Annual Report of the company and is also furnished as part of the Monitoring Report submitted to MOEF.
- (xxiii) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration into forest land (324.66 ha) using native species found during pre-mining period, and agricultural land (179.939 ha) including grazing land.

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.

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- (iii) Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring PM₁₀, PM_{2.5}, 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 particulates shall be carried out at least once in six months.
- (iv) Data on ambient air quality (PM₁₀, PM_{2.5}, 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 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, 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 Bhopal.
- (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.

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(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 PM₁₀, PM_{2.5}, 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 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 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 Chhattisgarh, Secretariat, Raipur.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, E-2/240 Aarear 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, Raigarh, Government of Chhattisgarh.
8. Monitoring File 9. Guard File 10. Record File.

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Stamp: RAIPUR
Date: 01 MAR 2012