

No. J-11015/128/2007-IA.II (M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex, Lodi Road,
New Delhi-110003.
Dated: 30 November, 2012

To,

The Chief General Manager (CP&P)
M/s Mahanadi Coal Fields Ltd.,
Bhubaneswari OCP,
P.O. Jagriti Vihar, BURLA,
Dist. Sambalpur-768020,
ORISSA.

Sub: Bhubaneswari open cast coal mining project (expansion in production from 10 MTPA to 20 MTPA in an Mining lease area of 808.294 ha with 149.570 ha is outside ML area for residential colony and rehabilitation site) of M/s Mahanadi Coalfields Ltd., located in Talcher Coalfields, Dist. Angul, Orissa Environmental Clearance – regarding

This has reference to letter No. 43011/15/2007 dated 31.01.2007 forwarding your application for Terms of Reference (TOR) and this Ministry's letter dated 28.03.2007 granting TOR to the above-mentioned project and your subsequent letter No. of CIL/DLI/EMP-TOR/2010/14 dated 11.08.2010 from M/s MCL forwarding the application for environmental clearance and letters dated 04.07.2011 and 30.07.2010 and 22.09.2012 on the above-mentioned subject.

2. The Ministry of Environment & Forests has considered your application for expansion of the existing Bhubaneswari Opencast Coal Project in terms of production capacity from 10 MTPA to 20 MTPA and lease area of 808.294 ha. The project was granted the environmental clearance earlier vide letter no. J-11015/45/96-IA.II (M) dated 06.06.2003. However, the production started only in 2008-09. The total land requirement of the expansion project is 658.724 ha, 132.094 ha is forest land, 445.03 ha is agriculture land, 48.40 ha is waste land, 11.946 ha is grazing land, 3.848 ha is surface water body, 16.596 ha others govt. land & Gharbari /road. An area of 149.570 ha is outside the ML area. Thus the total project area is 808.294 ha. Of the total ML area, 462.641 ha is for quarry, 83.150 ha is for blasting/danger zone, 94 ha is for external OB dump, 8 ha is for railway siding, 10.933 ha is for infrastructure, 32 ha is for residential colony, 117.570 ha is for resettlement. River Brahmani flows in the southern side at a distance of 6 km. The ML falls in the Angul-Talcher region, which is identified as one of the most critically polluted areas. One seasonal nala, Bangaru Jhara that flows in the north extremity of the block and drains into River Brahmani at the north of Talcher town is undisturbed.

The mining in the present project is by a combination of shovel-dumper and the expansion project would be by using surface miner (avoiding drilling and blasting). The ultimate working depth would be 187.5 m bgl. The grade of coal is E & F. An estimated 52.37 Mm³ of OB is stored in two external OB dumps (37.32 Mm³) and using the voids of Ananta OCP (15.05 Mm³) and the balance 199.02 Mm³ would be used for back filling. The mine voids would be backfilled with fly ash. The total water requirement is 4360 m³/d (3410 m³/day is industrial and

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950 m³/day is domestic).The estimated mine discharge is 13934 m³/d. The water table is in the range of 5.10m bgl to 8.70m bgl during pre-monsoon and in the range of 0.35 -2.77m bgl during post-monsoon in the core area. There is no additional R&R involved in the expansion project as no additional land is being acquired. The R&R for the existing project involves 1204 PAFs from the villages - Hensamul, Jilinda, Naraharipur, Khanduabaha, Longijoda, Anadpur, Madanmohanpur, Kandhal, of which R&R has been completed for 856 PAFs for whom employment was provided, 365 PAFs of Hensamul, Jilinda have been provided plots, and 532 PAFs of Hensamul, Jilinda, Naraharipur opted for cash compensation and the balance 1185 PAFs of Hensamul, Jilinda and Naraharipur require to be resettled.

The coal is transported by 2000 trucks/d using 35-T trucks from mine to surface and by conveyor belt to Silo (2x4000T) which is to be loaded in to railway wagons. The transportation of coal would be by rail (90%) and by road (10%) involving 16-T tippers. It was stated that a 41.45 km long railway freight corridor is proposed. However, no time line for its completion is given.

There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km buffer zone. A number of Reserve Forests (RF) are found within the core zone and within 10km of the buffer zone.

The Public Hearing was held on 10.02.2009. The Project was approved for 20 MTPA on 15.09.2005 and by MCL on 11.01.2008. The Forestry Clearance was obtained on 06.12.2004 for 112.521 ha. It was clarified that production would not exceed 20 MTPA rated capacity. The balance life of the mine is 25 years. A total Rs 187.06 crores has been earmarked for CSR. The total capital cost of Environment Protection measure would be Rs. 3963.54 Lakhs (Rs 2992.93 existing project and Rs 970 lakhs for expansion project). The total Capital cost of the project is Rs. 490.10 crore.

3.0 The project was considered by the Expert Appraisal Committee (Thermal and Coal Mining) on 28th-29th MARCH 2011 and 16-17 July, 2012 and recommended for granting environmental clearance. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned **Bhubaneswari Open Cast Coal Mining Project of M/s Mahanadi Coalfields Ltd., for expansion in production of coal from 10 MTPA to 20 MTPA rated capacity in an area of 808.294 ha with 149.570 ha outside ML area for residential colony and rehabilitation site under the provisions of Section 12 of the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and under 2.1.1 of MOEF Circular dated 13.10.2006 subject to the compliance of the following terms and conditions:**

A: Specific conditions:

- (i) The topsoil, if any, should be stacked properly with proper slope at earmarked site(s) and should not be kept active and shall be used for reclamation and development of green belt. The time schedule for development of green cover should be provided.
- (ii) The OB shall be simultaneously backfilled in the decoaled area. No new OB dumps shall be created for the OB to be generated in the balance life of mine. sequential operation of mines should be done so that the voids of adjoining mines can be used for dumping OB
- (iii) No external OB dump should be left at the Final Mine Closure stage and the mined out area and void should be backfilled up to ground level to the extent possible and the void if left, should be no more than 30-40m depth. Fly ash should not be dumped in mine void.
- (iv) The embankment constructed along the Singhara Jhor shall be stabilised by vegetation.

- (v) Water from River Brahmani should not be drawn for these purposes and an awareness campaign should be launched by MCL for proper use of water from various sources. The Committee desired that a trend analysis of the water quality (surface and ground water) including heavy metals, should be carried out and data uploaded on the company website. Mine water be used for irrigation of nearby agricultural land and also for green belt and other uses.
- (vi) Long-term monitoring on the impacts of simultaneous operation of large opencast mines should be carried out on the confined and unconfined aquifers.
- (vii) The roads used for coal transportation proposed for the initial years, should be developed with a 3-tier avenue plantation preferably of 20-30m width using native species. The Committee also desired that road transportation should be by mechanically covered trucks and not tarpaulin covered trucks, which should be introduced within 9-12 months. An 'Action Plan' for the transportation of coal by road to major consumers (during the initial years) should be submitted to ministry for record and the FSA entered with the major linkages should stipulate a condition to the effect that only mechanically covered trucks are used for coal transportation.
- (viii) The Source Apportionment Study should be got carried by an institution to determine the source and extent of air pollution from various sources as part of condition in EC.
- (ix) Monitoring and management of existing reclaimed dumpsite should continue until the vegetation becomes self-sustaining. Compliance status should be submitted to the Ministry of Environment & Forests and its Regional office located at Bhubaneswar on yearly basis.
- (x) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected should be utilised for watering the mine area, roads, green belt development, etc. The drains should be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity should 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 should also provide adequate retention period to allow proper settling of silt material.
- (xi) Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation should be based on the rainfall data.
- (vii) Crushers at the CHP should be operated with high efficiency bag filters, water sprinkling system should be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
- (ix) Drills should be wet operated. Roads shall be metal topped and mechanical sweepers shall be regularly deployed to clear the dust off the main approach and mineral transportation roads. Water sprinkling (fixed and mist type, mobile) shall be regularly done along the main haul roads.
- (ix) Mining operations for the expansion project shall not involve drilling, blasting and rushing operations as a result of use of surface miner.
- (x) The remaining area brought under afforestation shall be not less than 565.037 ha which includes, OB dumps (94 ha), internal dump (375.90 ha), Block plantation (safety zone, infrastructure, residential colony (95.137 ha), by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha.
- (xi) A Progressive Mine Closure Plan shall be implemented and OB generated shall be simultaneously backfilled so as to backfill and reclaim 585.420 ha of decoaled area and the balance 31 ha being converted into a water reservoir shall be protected by peripheral

- fencing and the upper benches of the reservoir shall be gently sloped and stabilised with plantation..
- (xii) Regular monitoring of groundwater level and quality should be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity should 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 should be submitted to the Ministry of Environment & Forests and to the Central Pollution Control Board quarterly within one month of monitoring.
 - (xiii) The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource. The project authorities should meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
 - (xiv) Sewage treatment plant should be installed in the existing colony. ETP should also be provided for workshop and CHP wastewater.
 - (xv) 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. The lung burden analysis report of workers working in coal mining area should be provided and uploaded on the company website.
 - (xvi) 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.
 - (xvii) A detailed Final Mine Closure Plan along with details of Corpus Fund should be submitted to the Ministry of Environment & Forests within 6 months of grant of this letter for approval.
 - (xviii) R&R for the 1185 PAFs of Hensamul, Jilinda and Naraharipur which are yet to be resettled, shall be implemented within a specified time-frame. R&R norms shall be not less than that of the National R&R Policy.
 - (xix) A minimum of Rs 5/T of coal as revenue expenditure should necessarily be spent annually, as the expenditure incurred so far on CSR is quite dismal. Annual social audit should be got carried out and details furnished as part of compliance report and also uploaded on the company website.
 - (xx) Corporate Environment Responsibility:
 - a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
 - d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

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B. General Conditions:

- (i) No change in mining technology and scope of working should be made without prior approval of the Ministry of Environment and Forests.
- (ii) No change in the calendar plan including excavation, quantum of mineral coal and waste should be made.
- (iii) Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ and NO_x monitoring. Location of the stations should 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, PM_{2.5}, SO₂ and NO_x) should 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. Levels of AAQ appear to be low, although the project falls in a Critically Polluted Area and desired that Third Party evaluation of AAQ levels should be got carried by an agency and samples got collected and tested by a laboratory recognized under EPA Rules, 1986. Mineralogical composition of particulates (PM₁₀ and PM_{2.5}) should be done to ascertain source of particulates (fuel wood, coal, fly ash from TPPs or silica from natural dust) in CPA of Angul-Talcher and quantified.
- (v) Fugitive dust emissions from all the sources should be controlled regularly monitored and data recorded properly. Water spraying arrangement on haul roads, wagon loading, dump trucks (loading and unloading) points should be provided and properly maintained.
- (vi) Adequate measures should 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 should be provided with ear plugs/muffs.
- (vii) Industrial wastewater (workshop and wastewater 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 before discharge. Oil and grease trap should be installed before discharge of workshop effluents.
- (viii) Vehicular emissions should be kept under control and regularly monitored. Vehicles used for transporting the mineral should be covered with tarpaulins and optimally loaded.
- (ix) Environmental laboratory should be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board.
- (x) 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 programme of the workers should 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 should 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 should be kept in separate account and should not be diverted for other purpose. Year-wise expenditure should be reported to this Ministry and its Regional Office at Bhubaneswar.
- (xiii) A copy of the environmental clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.

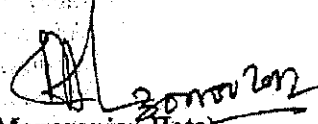
(xiv) State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/Tehsildar's Office for 30 days.

(xv) The Project authorities should 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>.

3. The Ministry or any other competent authority may stipulate any further condition for environmental protection.

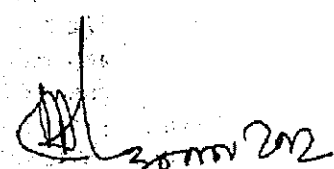
4. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.

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.


(Dr. Manoranjan Hota)
Director

Copy to:

1. The Secretary, Ministry of Coal, New Delhi.
2. The Secretary, Department of Environment & Forests, Government of Orissa, Secretariat, Bhubaneswar, Orissa.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandrashekarpur, Bhubaneswar - 751023, Orissa.
4. Chairman, Orissa State Pollution Control Board, Parivesh Bhawan, A/118, Nilkanthanagar, Unit VIII, Bhubaneswar - 751012, Orissa.
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, Angul, Government of Orissa.
8. Monitoring File 9. Guard File 10. Record File


(Dr. Manoranjan Hota)
Director