



**Ministry of Environment &  
Forests (MOEF)**

No. J-11015/233/2008-IA.II(M)

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To

Shri Malay Kar,  
Vice-President (Coal Mines),  
**M/s Abhijeet Infrastructure Ltd.,**  
801, Mahabir Tower,  
Main Road, RANCHI – 834001.

Dated: 23<sup>rd</sup> September 2009

**Sub: Meral Opencast Coalmine Project (0.5 MTPA over 1021.89 ha of ML area) of M/s Abhijeet Infrastructure Ltd., located in village Meral, Daltonganj Coalfields, District Palamau, Jharkhand - environmental clearance – reg.**

Sir,

This is with reference to letter No. Nil dated 05.05..2008 for Terms of Reference (TOR) and this Ministry's letter dated 19.09.2008 granting the TOR and application for environmental clearance dated 27.04.2009, and subsequent letters dated 20.07.2009, and 15.09.2009 on the above-mentioned subject. The Ministry of Environment & Forests has considered the application. It is noted that the project is for opening a new **Meral Opencast Coal Mine Project of 0.5 million tonnes per annum (MTPA)** to meet the partial requirement for captive consumption of their linked Sponge Iron Plant of 0.7 MTPA capacity located in district Saraikela-Karsawan, Jharkhand. The project involves a total lease area of **1021.89 ha** of which 624.87 ha is agricultural land, 33.85 ha is settlements, area under rivers 80.52 ha, and 280.95 ha is wasteland. No forestland is involved. A separate township consisting of 50 dwelling units is proposed at a distance of 3 km. There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 15 km buffer zone. The principal drainage of the study area is River Amanant, River Koel and Jinjoi Nala. River Amanant and Jinjoi Nala flow within the core zone. The quarry is divided by River Amanant into east and west quarry and joins Jinjoi Nala within the ML. River Amanant ultimately joins River Koel about a km further west. It is proposed to divert 1.5 km of Jinjoi Nala, which forms a loop within the ML and realign it to its original course. NOC from the Minor Irrigation Department, State Government has been obtained on 16.01.2009. An embankment is to be provided along River Amanant at specific stretch along the quarries. It is proposed to divert SH-48 during the 20<sup>th</sup> year of mining operation.

The project is opencast by mechanised method involving shovel-and-dumper. **The rated capacity of the mine is 0.5 MTPA of coal production.** Of the total project area of 1021.89 ha, 566.93 ha is quarry area, 88.51 ha is for external OB dump, 11.35 ha is for roads & infrastructure, 5.28 ha is nalla diversion, 82.77 ha is area under River Amanant and Jinjoi Nala, 38.65 ha is for embankment, 92.34 ha is safety zone, 100 ha is area for resettlement of Meral village and unworkable patches, and 36.06 ha is for green belt. Transportation of 1400 TPD of coal from mine to Kajri Railway siding would be by road for a distance of about 1.5 Km and by thereafter by rail to the linked Sponge Iron Plant. The feasibility of switch over to closed conveyor-cum rail mode of transport would be explored. Ultimate working depth of the mine is 76m below ground level (bgl). Water table is in the range of 7.50-8.20m bgl during pre-monsoon and 2.5-3.5 m bgl during post-monsoon. Peak water requirement for the mine is 875 m<sup>3</sup>/d; which will be met from mine pit water except for

domestic consumption of 30 m<sup>3</sup>/d, which would be met from ground water. An estimated 179.01 Mm<sup>3</sup> of OB would be generated over the life of mine, of which 155.18 Mm<sup>3</sup> would be from the East Quarry and 23.83 Mm<sup>3</sup> from the West Quarry. Of the total OB generated, 33.97 Mm<sup>3</sup> of OB (32.85 Mm<sup>3</sup> from East quarry and 1.12 Mm<sup>3</sup> from west quarry) would be dumped in two external OB dumps in an area of 88.51 for the initial 10 years and of a max. height of 60m, and the balance 145.04 Mm<sup>3</sup> of OB would be concurrently backfilled in the decoaled void of 427.17 ha. Project involves R&R of Meral village comprising 196 PAFs of homestead and land losers. Life of the mine at the rated capacity of 0.5 MTPA is 29 years. Public Hearing was held on 25.12.2008. Mining Plan was approved by Ministry of Coal on 11.01.2008. Capital cost of the Coalmine project is **Rs. 300 crores**.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned **Meral Opencast Coal Project of M/s Abhijeet Infrastructure Ltd. for production of coal at 0.5 MTPA annual rated capacity in a total project area of 1021.89 ha** under the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and Circulars thereto subject to the compliance of the terms and conditions mentioned below:

**A. Specific Conditions**

- (i) A 3-tier plantation consisting of native species shall be developed on both sides of the SH-48 passing the through the lease. Prior approval of the State Government shall be obtained for diversion of SH-48 during the 20<sup>th</sup> year of the mine operation for a length of 1.5 km within the ML area towards western side of the block without disturbing the traffic flow.
- (ii) Mining shall be done maintaining a minimum statutory distance between the river Amanat and quarry edge of the East and West Quarries. The plan for diversion and realignment of the Jinjoi nala and construction of embankment along River Amanant shall be done in consultation with and prior approval of the concerned State Flood and irrigation Department before start of the mining activity. Dimension and depth of the embankment shall be finalised based on the peak flow of the water 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) Mining shall begin from the side of western quarry abutting the NH and the entire coal would be extracted after start of mining operations and thereafter the quarried area shall be backfilled immediately, compacted and reclaimed with plantation and if required surrendered. The statutory distance between the quarry and NH shall be maintained during mining.
- (iv) Topsoil shall be stacked properly within the ML area with proper slope at earmarked site(s) and shall be used concurrently for reclamation and development of green belt of its generation.
- (v) OB shall be stacked at earmarked external OB dumpsite of 88.51 ha within ML area and shall be a maximum height of 60m only consisting of two benches of 30m. Garland drains shall be maintained around the Jinjoi Nala and along the OB dumps, which would be regularly desilted to prevent siltation of the Jinjoi nala and River Amanat. The ultimate slope of the dump shall not exceed 28°. Monitoring and management of existing reclaimed dumpsites 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 yearly basis.
- (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.

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.

- (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.
- (viii) Drills shall be wet operated.
- (ix) Controlled blasting shall be practiced only during daytime with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
- (x) Crushers at the CHP shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc. at all times of operation to check fugitive emissions from crushing operations, transfer points of and from transportation roads and at Railway Siding.
- (xi) The proponent shall establish a Railway siding at Kajri within 3 years from date of grant of environmental clearance. The trucks/dumpers from the mine shall not use the NH and instead shall use an existing road that runs along north of the lease and cross the NH to reach the Railway Siding for an initial period of 5 years. Prior permission shall be obtained from NHAI to construct an underpass or an over bridge to cross the NHAI. The proponent shall simultaneously undertake a feasibility study for transport of coal to the Railway Siding by closed conveyors to completely switch to closed conveyor-cum rail mode of transport within 5 years from date of environmental clearance.
- (xii) All approach roads to the mine and to Railway Siding shall be black topped and internal roads shall be concreted or black topped. The main approach roads and internal roads shall be regularly cleaned. A 3-tier avenue plantation using local species shall be developed along the main approach roads to mine and to Kajri Railway Siding. Green belt shall be developed using local species all along the periphery of the mine, along the areas such as crushing unit, transfer units and at Kajri Railway Siding.
- (xiii) Trucks/dumpers engaged for transportation of coal to Kajri Railway Siding shall be optimally loaded and covered with tarpaulin with no spillage en route. The trucks shall be properly maintained and emissions shall be below notified limits.
- (xiv) No groundwater shall be used for the mine operations except for the initial 3 years and limited to domestic use only. Any additional water requirement envisaged shall be obtained by recycle/reuse to the maximum extent and from rainwater harvesting measures.
- (xv) Industrial wastewater (workshop and wastewater from the washery) 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 for treatment of workshop effluents.
- (xx) Area brought under afforestation shall not be less than 582.77 ha which includes reclaimed external OB dump (88.54 ha), topsoil dump, backfilled area (427.17 ha), along ML boundary (26 ha), along roads (5 ha), green belt (36.06 ha), in undisturbed areas and in colony and railway siding by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha.
- (xxi) A Progressive Closure Plan shall be implemented by reclamation of quarry area of 566.93 ha of which 427.17 ha shall be backfilled and afforested by planting native plant species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. The balance decoloured area shall be gently sloped along the upper benches and stabilised and reclaimed with plantation.

- (xxv) 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 and in monsoon. 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.
- (xxvi) The Company shall put up artificial groundwater recharge measures including rainwater harvesting structures for augmentation of groundwater resource in case monitoring indicates decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xxvii) ETP shall also be provided for workshop, and CHP. Effluents shall be treated to conform to prescribed standards, particularly for pH and TSS in case of discharge into any watercourse within or outside the lease.
- (xxviii) An STP shall be provided for the township/colony to treat the domestic effluents to prescribed standards and for their reuse in project activities.
- (xxix) An amount not less than Rs. 3 crores as capital costs and Rs. 2.3 crores (which shall be up scaled after adjusting for depreciation of the rupee) as revenue costs shall be provided for implementing environmental measures. The details of the activities and expenditure made thereon shall be displayed on the company's website and updated at least once in six months.
- (xxx) R&R for Meral village shall be based on norms laid down/approval by the State Government and shall not be inferior than that in the National R&R Policy and shall be completed within a specified time-frame. R&R shall include specific income generation schemes. The progress of R&R shall be uploaded on the company's website.
- (xxxi) The proponent shall provide Rs. 1.5 crores for revenue expenditure (which shall be up scaled after adjusting for depreciation of the rupee) towards activities undertaken under CSR. The details of the activities and expenditure made thereon shall be displayed on the company's website and updated at least once in six months.
- (xxxii) 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.
- (xxxiii) A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests for approval 5 years in advance of final mine closure for approval.

## **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 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, 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 once 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) 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 19<sup>th</sup> May 1993 and 31<sup>st</sup> 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, SO<sub>2</sub> and NO<sub>x</sub> (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 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.
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 Jharkand, Secretariat, Ranchi.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A/3 Chandrashekarapur, Bhubaneswar – 751023.
4. Chairman, Jharkand State Pollution Control Board, TA Building, HEC Complex, PO Dhurwa, Ranchi.
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, Palamau, Government of Jharkhand.
8. Monitoring File      9. Guard File      10. Record File.