



Ministry of Environment & Forests (MOEF)

No .J-11015/143/08-IA.II (M)

Paryavaran Bhawan,
CGO Complex,
New Delhi-110510.

To

Dated: 31st August 2010

Chief General Manager,
M/s Gujarat Mineral Development Corp. Ltd.,
Khanij Bhawan, 6th Floor, A Tower,
132 Ring Road, Vastrapur,
AHMEDABAD- 380052.

Sub: Expansion of Mata no Madh Opencast Lignite Mine Project (from 0.60 MTPA to 2.40 MTPA of Lignite in an ML area of 1752.6156 ha) of M/s Gujarat Mineral Development Corporation, located in village Mata no Madh, Taluk Lakhpat, District Kutchh, Gujarat – Environmental Clearance

Sir,

This is with reference to your application vide letter No. GMDC/ENV/MoEF/261147/08 (C) dated 19.03.2008 for Terms of Reference, which was granted vide MOEF letter dated 12.06.2008 and with reference to your application for environmental clearance based on the prescribed Terms of Reference vide letter No. GMDC/ENV/4171/2010 dated 10.03.2010 on the above-mentioned subject and letters dated 19.03.2008, 10.03.1010 and 07.08.2010. The Ministry of Environment & Forests has considered the application. It is noted that the project was granted EC on 19.11.1999 for 0.6 MTPA production capacity. The present proposal is for expansion of production of lignite from 0.6 MTPA to 2.40 MTPA in an ML area of 1752.6156 ha acquired. No additional land is to be acquired. Of the total ML area, 407.22 ha is agriculture land and 1314.7138 ha is Govt. waste land. No forestland is involved. There are a number of RF found within the 10km buffer zone. Gugariana RF is found about 0.3 Km away from core. Indian Grey Wolf and Chinkara are the reported Schedule-I fauna found in the area. According to letter No. WLP/32/A/1062-25 dated 19.03.2010 of Principal Chief Conservator of Forests, Government of Gujarat, the Narayan Sarovar Wildlife Sanctuary is located at a distance of 3.78 km from the ML and a Wildlife Conservation Plan is under implementation at a Capital cost of Rs 73 lakhs and an annual recurring cost of Rs. 34 lakhs. There are no major river passing through the lease and the area has a few small dry seasonal nalas of which one seasonal nallah passes through the lease. However, the drains passing through the ML form the catchment of a drain passing through the Naryan Sarovar WL Sanctuary. The Sanctuary is not in the predominant down wind direction of the mine.

Of the total ML area of 1752.18 ha, total lignite bearing area is 648 ha. Of the total ML area, 699.51 ha is quarry area, 82.68 ha is external OB dumps, 1.70 ha is infrastructure, bund/embankment 4 ha, roads is 5 ha, nalas 100 ha, 272.74 ha is unutilized area and peripeheral plantation and 587.0256 ha is area under exploration. Mining is opencast by mechanised method involving Shovel-dumper combination. Lignite extraction would be from two quarry pits namely North Pit and South pit. Lignite occurs at a depth of 13m-60m from surface. Present working depth is 45m from surface. Ultimate working depth is 60m. Entire lignite would be transported by road. Water table is in the range of 5-9m in the study area and confined aquifer is found at 83m bgl in the core zone. Levels of TDS, hardness are found to be high in the groundwater. Peak Water requirement is 450 m³/day, of which 400m³/d will be met from mine sump water and stored rainwater and the balance 50m³/d from Govt. of Gujarat Drinking Water Scheme. Of the total OB generation of 308.05 Mm³ of OB, 17.23 Mm³ of

OB has been accumulated in external OB dump of 82.68 ha area and the balance 291.02 Mm³ of OB would be generated over the balance life of the mine, which will be initially stored in the external OB dump and backfilled in an area of 647.83 ha and the balance 51.68 ha converted into a water body of a maximum depth of 10m. No R&R is involved and compensation to land oustees has been completed. Amount earmarked for Socio-economic welfare measures for the nearby villages (under CSR) is Rs. 6 Crores. Balance life of the mine is 13 years. Public Hearing was conducted on 17.11.2009. Revised Mining Plan was approved by Ministry of Coal on 10.02.2010. Capital Cost of the project is 35.00 Crores.

2. The Ministry of Environment & Forests hereby accords environmental clearance for the above-mentioned **expansion of Mata no Madh Opencast Lignite Mine Project (from 0.60 MTPA to 2.40 MTPA of Lignite) within the existing ML area of 1752.18 ha of M/s Gujarat Mineral Development Corporation Ltd.** under the Environmental Impact Assessment Notification, 2006 and subsequent amendments thereto and Circulars thereto subject to the Final Orders of the Hon'ble Supreme Court of India in Special Civil Application No. 13658/96 and W.P. No. 460/2004 and any other Order under any other petition passed from time to time and subject to the compliance of the terms and conditions mentioned below:

A. Specific Conditions

- (i) The project proponent shall obtain the prior approval of the "Standing Committee on Wildlife", if required, before expansion of mining operations.
- (ii) No additional land shall be acquired for the present project.
- (iii) Area of 587.0256 ha under exploration and 272.74 ha which includes unutilised area within the ML shall be developed as gauchar land using native grass species. Peripheral plantation being developed along the mine boundary near the Narayan Sarovar Wildlife Sanctuary shall be developed with suitable plant species which form part of the natural habitat of the area.
- (iv) A Mine Drainage Plan with a surface drainage design of the mine resulting from surface run-offs and diversion of seasonal nalas found within the active mining area which form the main drain draining into the Narayan Sarovar Wildlife Sanctuary and for the mine discharge water based on a peak rainfall data shall be prepared and implemented. The south side diverted nala shall be realigned to its original course after the 6th year of mine operation.
- (v) Mine discharge water from the ML joining the drain which serves as the catchment of the Naryan Sarovar Wildlife Sanctuary shall be treated to prescribed standards before discharge and records thereof maintained and furnished as part of the Compliance Report to MOEF, RO at Bhopal.
- (vi) Topsoil shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used within a year of its generation for reclamation and development of green belt.
- (vii) OB shall be stacked at earmarked external OB dumpsite within ML area. The ultimate slope of the existing dumps 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 Bhopal on yearly basis. The OB stored temporarily in external OB dumps in the expansion project shall be backfilled into the decoaled quarry.
- (viii) A garland drain all around and encircling the two quarry pits shall be established to drain the water away from working areas. 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 utilized 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 provide adequate retention period to allow proper settling of silt material.

- (ix) 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.
- (x) 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 (including TDS and acid mine water) 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. Water quality parameter such as TDS, Sulphate, Nitrate etc. and acidic mine water if any, shall be treated to conform to prescribed standards before discharge or use in dust suppression /green belt development. Records of the water quality of the mine discharge water shall be maintained. Recognised institutions such as National Geophysical Research Institute, Hyderabad shall be involved for undertaking such a study.
- (xi) Mine pit water which is high in TDS shall be treated in an RO Plant for desalination using Solar Energy technology to prescribed limits for various uses including supply of potable water to nearby villages and to schools adopted under CSR and before discharge into natural water/land. No brine sludge shall be stored within the premises. Brine sludge generated shall be disposed off to potential buyers (chemical units) with whom the proponent shall enter into an MOU.
- (xii) The Company shall put up artificial groundwater recharge measures such as check dams within and adjoining the lease for augmentation of groundwater resource in case monitoring indicates decline in water table, in consultation with the local communities and with the Wildlife Department of the State Government. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- (xiii) A minimum 20m distance shall be maintained between the ultimate working depth and the depth at which the confined water aquifer is found. It shall be ensured that at no stage of the mining operation, the confined aquifer is intersected.
- (xiv) No groundwater shall be used for mining operations. Additional water required, if any, shall be met by recycling/reuse of the water from the existing activities and from rainwater harvesting measures.
- (xv) Water sprinkling system shall be provided to check fugitive emissions, haulage roads, transfer points, etc and fugitive dust emissions shall be kept under control.
- (xvi) All approach roads, major haul roads and road to village shall be black topped.
- (xvii) Controlled blasting shall be kept to a minimum and only whenever hard starta is encountered.
- (xviii) Transportation of lignite shall be in trucks covered with tarpaulin.
- (xix) No mineral transportation shall be undertaken through the sanctuary or area falling within the mine and the Sanctuary, which is buffer to the mine and the Sanctuary.
- (xx) No stockpile of lignite shall be permitted. The lignite produced from mine face shall be transported immediately.

- (xxi) ETP shall also be provided for workshop, and CHP. Effluents shall be treated to conform to prescribed standards, particularly for pH and TDS in case of discharge into any water course outside the lease.
- (xxii) Socio-economic survey shall be undertaken before expansion of the project. CSR for the six identified villages of an amount of Rs 5/tonne of lignite or Rs 6 crores per annum whichever is higher shall be earmarked. The details of expenditure and various activities shall be drawn up in consultation with the local communities and implemented through VDICs. The socio-economic development of the villages shall be monitored over the life of the project and impact of CSR assessed every 3 years using indices such as the UNDP Human Development Index and furnished as part of the Monitoring Report and also regularly uploaded on the company website.
- (xxiii) A 50m wide green belt shall be created along the lease boundary using native species as peripheral plantation. Area brought under pastureland/agricultural land shall not be less than 1590.2356 ha which includes reclaimed external OB dump area (82.68ha), backfilled area (647.83 ha), along ML boundary, along roads, green belt and plantation in undisturbed areas (272.7 ha) and area under exploration 587.0256 ha by planting native species in consultation with the local DFO/Agriculture Department.
- (xxiv) A Progressive Closure Plan shall be implemented of quarry area of which 647.83 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. It shall be ensured that the balance de-coaled void of 51.68 ha being left as a water body, the upper slopes of which shall be gently sloped and reclaimed with grass and plantation. The quality of the water in the water body shall be regularly monitored and treated to ensure that it is not acidic.
- (xxv) Third Party evaluation of the Habitat Restoration Plan which includes Progressive Mine Closure and Final Mine Closure shall be got done and furnished as part of the Monitoring Report.
- (xxvi) 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.
- (xxvii) 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. At the Post-mining stage, land should be restored as pastureland/agricultural land use.

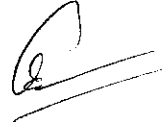
B. General Conditions

- (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.

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 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 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.
- (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, PM2.5, 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, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Gujarat, Secretariat, Gandhi agar 382010.
3. Chief Wildlife Warden, Government of Gujarat, Gandhinagar.
4. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A/3 Chandrashekarapur, Bhopal – 751023.
5. Chairman, Gujarat State Pollution Control Board, Paryavaran Bhavan, Sector 10-A, Gandhinagar – 382010.
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, Kutchh, Government of Gujarat.
9. Monitoring File 10. Guard File 11. Record File.