

F. No. J-11011/430/2011- IA II (I)
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road,
New Delhi -110003

E-mail : lk.bokolia@nic.in
Telefax : 011-24695313
Dated: 28th March, 2016

To,
Shri C.K.Prasad, Executive Director
M/s Oil and Natural Gas Corporation Ltd.
1st Floor, HSCL Building, Nayamore
Bokaro - 827001, Jharkhand

E-mail: gourisankar.datta@yahoo.co.in ; Fax No.: 06542-226666.

Subject: Development Plan of CBM Block (BK-CBM-2001/1) in District Bokaro, Jharkhand by
M/s Oil and Natural Gas Corporation Ltd. (ONGCL) –Environmental Clearance reg.
Ref: Your online proposal no. IA/JH/IND/4969/2011 ; dated 11th June, 2015.

Sir,

This has reference to your online proposal no. IA/JH/IND/4969/2011 dated 11th June, 2015 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report alongwith Public Hearing Report regarding above mentioned project.

2.0 The Ministry of Environment, Forest and Climate Change has examined the application. It is noted that proposal is for Development Plan of CBM Block BK-CBM-2001/1 of Bokaro, Jharkhand. The Bokaro CBM Block (BK-CBM-2001/1) was awarded to ONGC-IOC consortium in 2002 and the Petroleum Exploration License (PEL) was granted by the Government of Jharkhand w.e.f. 21.2.2003 ('Effective Date'). 2 exploratory wells and eight core holes/ boreholes were drilled as per the committed MWP of Exploratory Phase (Phase-I) during 2½ years, with an extension of 6 months beyond original duration of 2 years (i.e. up to 20.8.2005). The Bokaro Block, extending over an area of 75 km², consists of three disconnected sectors, viz. Central Patch (Patch-A covering 48 km² area), Western Patch (Patch-B covering 16 km² area), and Eastern Patch (Patch-C covering 11 km² area). The total prospective area works out to approximately 64 km² (48 km² in Patch-A and 16 km² in Patch-B). ONGC has planned to drill vertical wells. For processing of and collecting the gas and water to be produced from these wells, gas collecting stations are planned to be constructed. Land required for development wells are in process of permanent acquisition through Government. It is reported that no forest land is involved in this project. It is also reported that no wildlife sanctuary is located within 10 km distance. Following wells will be developed:

141 Development Wells and 05 Assessment wells

ONE Gas Collecting Station (GCS)

- Peak gas production of ~ 7.6 LCMD, Max Water 1550 SCMD
- Water production will reduce to ~ 70 SCMD at the 20th year

TWO Early Production System (EPS)

- Peak gas production of ~ 0.75 LCMD, Max Water 500 SCMD for each
- Water production will reduce to ~120 SCMD at the 20th year for each

Cost of project is Rs.1629 Crores. Well will be drilled with the average depth 1000m, Max: 1500m.

3.0 Air emissions from D.G. sets will be dispersed by providing adequate stack height. Flaring will be done as per the CPCB guidelines. Fresh water requirement will be 800 m³/well during drilling and 1 m³/day for GGS/MCS operation. Water based mud (WBM) will be used. Effluent comprising mud will be treated in compact effluent treatment plant (ETP) comprising equalization, chemical coagulation, flocculation and clarification by settling. Residual unusable mud will be collected in lined pits and solar evaporated. Remaining mud will be reused in the drilling process. Produced water will be generated around 40 m³/day and recycle/reuse for domestic purposes and preparation of mud. Produce water will be discharged into streams/land after meeting the standards prescribed by the SPCB/CPCB. Drill cutting (DC) will be separated from water based mud (WBM) and washed properly and unusable drilling fluids (DF) will be disposed off in well designed lined pit with impervious liner for solar drying. Disposal of drill cuttings and drill mud will be carried out in accordance with the GSR 546 (E) dated 30th August, 2005. Used oil will be sent to authorized recyclers.

4.0 All the projects related to offshore and onshore Oil and Gas exploration, development and production are listed in para 1(b) of schedule of EIA Notification, 2006 covered under category 'A' and appraised at central level.

5.0 Public Hearing/ Public Consultation meeting conducted on 05.10.2015 for Bokaro district and 28.10.2015 for Ramgrah district.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its meetings held during 17th – 18th October, 2011, 26th – 27th August, 2013 and 18th – 19th January, 2016 respectively. Project Proponent and the EIA Consultant namely M/s ONGC, have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be satisfactory and in full consonance with the presented TORs, The Committee recommended the proposal for environmental clearance.

7.0 Based on information submitted by you, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September, 2006 subject to strict compliance of the following specific and general conditions:

A. SPECIFIC CONDITIONS :

- i. As proposed, no forest land shall be used for the proposed facilities/ activities.
- ii. Compensation for the land acquisition to the land oustees, if any, and also for standing crop shall be paid as per the National Resettlement and Rehabilitation Policy (NRRP) 2007 or State Government norms. It may be ensured that compensation provided shall not be less than the norms of the NRRP, 2007.
- iii. The surface facilities shall be installed as per the applicable codes and standards, international practices and applicable local regulations.
- iv. Ambient air quality shall be monitored near the closest human settlements as per the National Ambient Air Quality Emission Standards (NAAQES) issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 for PM₁₀, PM_{2.5}, SO₂, NO_x, CO, CH₄, VOCs, HC, Non-methane HC etc. Efforts shall be made to improve the ambient air quality of the area.
- v. Mercury shall also be analyzed in air, water and drill cuttings twice during drilling period.



- vi. The flare system shall be designed as per good oil field practices and Oil Industry Safety Directorate (OISD) guidelines. The company shall take necessary measures to prevent fire hazards and soil remediation as needed. At the place of ground flaring, the flare pit shall be lined with refractory bricks and efficient burning system. In case of overhead flare stacks, the stack height shall be provided as per the regulatory requirements and emissions from stacks shall meet the MOEF/CPCB guidelines.
- vii. The company shall make the arrangement for control of noise from the drilling activity and DG sets by providing necessary mitigation measures such as proper acoustic enclosures to DG sets and meet the norms notified by the MoEF. Height of all the stacks/vents shall be as per the CPCB guidelines.
- viii. The company shall comply with the guidelines for disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation notified vide GSR. 546(E) dated 30th August, 2005.
- ix. During well drilling, wastewater shall be segregated into waste drilling fluid and drill cuttings. Drill cutting shall be stored onsite impervious HDPE lined pit for solar evaporation and drying. Effluent shall be properly treated and treated effluent shall conform to CPCB standards. The produced water shall be stored onsite HDPE lined pit for solar evaporation and reuse in drilling of new wells and fire hydrant system. Domestic effluent shall be disposed off through septic tank followed by soak pit.
- x. Water produced during drilling shall be reused in drilling of other core/test wells.
- xi. Ground water quality monitoring shall be done to assess if produced water storage or disposal has any effect.
- xii. Drilling wastewater including drill cuttings, wash water shall be collected in disposal pit lined with HDPE lining, evaporated or treated and shall comply with the notified standards for on-shore disposal on land. Proper toxicological analysis shall be done to ensure there is no hazardous material. Copy of toxicological analysis shall be submitted to Ministry's Regional Office at Bangalore.
- xiii. Only water based drilling mud shall be used. The drilling mud shall be recycled. Hazardous waste shall be disposed of as per Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers/re-processors.
- xiv. The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during operation.
- xv. To prevent underground coal fire, preventive measures shall be taken for ingress of ambient air during withdrawal inside the coal seams by adopting technologies including vacuum suction. Gas detectors for the detection of CH₄ and H₂S shall be provided.
- xvi. The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the natural gas/oil shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141. Pipeline wall thickness and minimum depth of burial at river crossing and casings at rails, major road crossings should be in conformity with ANSI/ASME requirements.
- xvii. The company shall develop a contingency plan for H₂S release including all necessary aspects from evacuation to resumption of normal operations. The workers shall be provided

with personal H₂S detectors in locations of high risk of exposure along with self containing breathing apparatus.

- xviii. Adequate well protection system shall be provided like Blow Out Preventor (BOP) or diverter systems as required based on the geological formation of the blocks.
- xix. The top soil removed shall be stacked separately for reuse during restoration process.
- xx. Emergency Response Plan shall be based on the guidelines prepared by OISD, DGMS and Govt. of India. Recommendations mentioned in the Risk Assessment & Consequence Analysis and Disaster Management Plan shall be strictly followed.
- xxi. Project proponent shall comply with the environment protection measures and safeguards recommended in the EIA/EMP/risk analysis report/disaster management plan.
- xxii. The company shall take measures after completion of drilling process by well plugging and secured enclosures, decommissioning of rig upon abandonment of the well and drilling site shall be restored in original condition. In the event that no economic quantity of hydrocarbon is found a full abandonment plan shall be implemented for the drilling site in accordance with the applicable Indian Petroleum Regulations.
- xxiii. Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.
- xxiv. Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11013/41/2006-IA.II(I) dated 26th April, 2011 and implemented.
- xxv. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- xxvi. Company shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and system. Measures to be taken for protection. One set of environmental manual shall be made available at the drilling site/ project site. Awareness shall be created at each level of the management. All the schedules and results of environmental monitoring shall be available at the project site office. Remote monitoring of site should be done.
- xxvii. On completion of drilling, the company has to plug the drilled wells safely and obtain certificate from environment safety angle from the concerned authority.

B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the Jharkhand State Pollution Control Board (JSPCB), State Government and any other statutory authority.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. The locations of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one stations

is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.

- iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- v. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- vi. The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
- vii. The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.
- viii. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- ix. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- x. The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- xi. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.
- xii. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and JSPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- xiii. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.
- xiv. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at

<http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

- xv. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.


9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Lalit Bokolia)
Additional Director

Copy to:-

1. The Secretary, Department of Environment, Govt. of Jharkhand, Jharkhand.
2. The Chief Conservator of Forests, Regional Office (EZ), A/3, Chandrashekharpur, Bhubaneswar, 751023. Orissa.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Jharkhand Pollution Control Board, Town Administrative Building, HEC, Dhurwa, Ranchi- 824004.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh, New Delhi
6. Guard File/Monitoring File/Record File.


(Lalit Bokolia)
Additional Director