

F. No. J-11011/106/2011- IA II (I)
Government of India
Ministry of Environment, Forests and Climate Change
(I.A. Division)

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

E-mail : lk.bokolia@nic.in
Telefax : 011: 2469 5401
Dated 4th February, 2015

To,

Shri Prem Sawhney, Chief Operating Officer
M/s Essar Oil Limited (E&P Division)
Essar Equinox (Peninsula) Technopark
4th Floor, Building-B, L.B.S. Marg, Kurla (West)
Mumbai-400 070, Maharashtra.

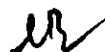
E-mail : Tarique.Arafaat@essar.com / psawhney@essar.com;
Fax No.: 022- 67082197.

Subject : Exploratory and Test Production of Coal Bed Methane (CBM) in Block: RM (E)-CBM-2008/IV, Rajmahal CBM Block, Jharkhand by M/S Essar Oil Limited (E&P Division) - Environmental Clearance reg.
Ref. : Your letter no. nil dated 20th March, 2013.

Sir,

This has reference to your letter no. nil dated 20th March, 2013 on the above mentioned subject alongwith project documents including Prefeasibility Report, Draft Terms of References, EIA/EMP, Public Hearing Report and subsequent submission of additional information vide letter dated 8th August, 2014 regarding above mentioned project.

2.0 The Ministry of Environment, Forests and Climate Change has examined your application. It is noted that the proposal is for exploration and test production of Coal Bed Methane (CBM) in Block: RM (E)-CBM-2008/IV, Rajmahal CBM Block, Jharkhand. The RM (E)-CBM-2008/IV, Rajmahal CBM Block covers an area of 1128 Km² encompassing the districts of Dumka, Pakur and Sahebganj, Jharkhand. However, 98 % of the total geographical area of the CBM block falls within Pakur District. It was noted that CBM activity will be carried out in Pakur District only. It is reported that there is no ecologically sensitive areas viz. national park, wildlife sanctuaries located within or 10 Km radius of the block boundary. Torai River, Bansloi River, Tirghana River, Pagla River and Brahmani River are flowing within 10 Km distance from block. 0.5 acre of land is required for corehole drilling and 1.5-2.0 acres land will be required for test/pilot well drilling. Land required for installation of surface facilities for CBM gas processing will be approx. 4-5 acres of land. No diversion of forest land is involved for this project. Total cost of project is Rs. 1046 Crores. Drilling will be carried out to a depth of 2000m. Following are the details of the proposed activities:



issued
09/2/15

Exploratory Core hole	30 wells
Test Wells	3 wells
Pilot wells	20 nos.
Four support wells for each pilot well(directional wells)	4 x 20 = 80 nos.
TOTAL NO. OF WELLS	133 Wells
Gas Gathering Stations	3
Main compressor stations	1
Interconnecting and transportation Pipeline (Gas & Water)	~60 km.

Following are the co-ordinates of the block:

Ref Point	Latitude (N)			Longitude (E)		
A	240	45'	21"	870	35'	51"
B	240	45'	21"	870	48'	34"
C	240	34'	48"	870	48'	34"
D	240	15'	15"	870	38'	38"
E	240	15'	31"	870	37'	58"
F	240	31'	15"	870	33'	40"
G	240	42'	13"	870	36'	45"

3.0 Elevated flaring will be done only during process upset. Adequate stack height will be provided to DG set/GG sets. The water requirement for core hole drilling (25 m³/core hole) and test /pilot drilling (75 m³ per Test Well/Pilot Well) will be met through approved local suppliers initially and subsequently from the produced water. CBM produced water (5000 m³/day) will be generated during dewatering operation from production cum development well. Produced water will be treated through pre-treatment system followed by Multi stage Reverse Osmosis (RO) (if the TDS > 2100 mg/l) to meet the CPCB discharge standard. Treated produced water will be used for beneficial purposes or discharged into nalla stream after conforming discharge standards as per CPCB/SPCB guidelines. RO rejects will be concentrated and dried by using Multiple Effect Evaporator (MEE). Evaporated salts will be sent to TSDF. Drill cuttings will be generated and separate in a solid control system and conveyed to a specially designed pit (lined with HDPE) for temporary storage and disposed in accordance with CPCB regulations specified for on-shore oil and gas industry. Power requirement will be met from DG/GG set capacity 20 kVA, 40 kVA, 125 kVA, 180 kVA, 950 kVA & 1330 kVA for drilling and operation phase. Waste oil/used oil will be sent to authorized re-processors.

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 meetings were held on 24th November, 2012 for Pakur district.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 23rd, 10th and 26th Meetings held during 30th-31st May, 2011, 29th-31st July, 2013 and 29th-30th October, 2014 respectively. Project Proponent and their EIA Consultant namely M/s SENES Consultants India Pvt. Ltd., 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 the information submitted by the project proponent, the Ministry of Environment, Forests and Climate Change hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS :

- i. Compensation for the land acquisition to the land ousters, 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.
- ii. Adequate stack height will be provided to gas fired boiler to disperse waste gases.
- 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. 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.
- vi. The company shall make the arrangement for control of noise from the drilling activity and DG/GG sets by providing necessary mitigation measures such as proper acoustic enclosures to DG/GG sets and meet the norms notified by the MoEF. Height of all the stacks/vents shall be as per the CPCB guidelines.
- vii. 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.
- viii. Total fresh water requirement shall not exceed (25 m³/core hole) and test /pilot drilling (75 m³/day) for each well during drilling phase and prior permission shall be obtained from the Competent Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar.

- 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.
- x. As proposed, produced water shall be treated through RO and RO rejects shall be concentrated/evaporated in MEE. Treated water shall be reused in drilling of other core/test wells as well as other beneficial purposes.
- 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 Bhubaneswar.
- 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 Preventer (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. In case the commercial viability of the project is established, the Company shall prepare a detailed plan for development of gas fields and obtain fresh environmental clearance from the Ministry.
- xxv. All the commitments made to the public during the Public Hearing / Public Consultation meetings held on 24th November, 2012 shall be satisfactorily implemented.
- xxvi. At least 5 % of the total cost of the project should be earmarked towards the corporate social responsibility and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program should be ensured accordingly in a time bound manner.

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.

11.0 The Environmental Clearance is issued for Exploratory and Test Production of Coal Bed Methane (CBM) in Block: RM (E)- CBM-2008/IV, Rajmahal CBM Block, Jharkhand to M/S Essar Oil Limited (E&P Division)


(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. Joint Secretary, IA II(I), Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, New Delhi.
6. Monitoring Cell, Ministry of Environment, Forests and Climate Change, Indira Paryavaran Bhavan, New Delhi.
7. Guard File/Monitoring File/Record File.


(Lalit Bokolia)
Additional Director

