

F. No. J-11011/491/2011-IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003

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Dated 26th February, 2013

To,

The Chief Operating Officer
M/s Essar Oil Ltd. (E&P Division)
Equinox Techno Park, Building No.II, L.B.S.Marg
Kulra (West), Mumbai-400070, Maharashtra.

E-mail: jarafat@essar.com ; Fax No.022-67082197:

Subject: Development & Production Wells alongwith Surface Facilities, Phase-III of CBM Block RG(E)-CBM-2001/1, Raniganj CBM Block, West Bengal by M/s Essar Oil Limited (E&P Division) – Environmental clearance reg.

Ref. : Your letter no. EOL/ Env/06-12/01 dated 11th June, 2012.

Sir,

This has reference to your letter dated 11th June, 2012 on the above mentioned subject alongwith project documents including Prefeasibility Report, Draft Terms of References, EIA/EMP, Public Hearing Report and subsequent communications vide letters dated 4th September, 2012 and 6th November, 2012 on the above mentioned subject.

2.0 The Ministry of Environment & Forests has examined your application. It is noted that the proposal is for drilling of development & production wells alongwith Surface Facilities, Phase-III of CBM Block RG(E)-CBM-2001/1, Raniganj CBM Block, West Bengal by M/s Essar Oil Limited (E&P Division). Essar Oil Ltd & Govt. of India signed a contract for exploration and production of coal bed methane (CBM) from block RG (East) – CBM-2001/1 on 26th July, 2002. Block is located in Raniganj Coal Field, West Bengal at latitude 23°21'45"N & 23°41'12"N and longitude 87°14'40E & 87°28'46E. Total block area is 500 Km² & spread in Burdwan, Birbhum and Bankura districts of West Bengal. Land requirement will be 2 acres/well site and 5 acres per GGS/MCS. Following are the Co-ordinates of block:

S.N.	Latitude (N)			Longitude (E)		
A	23°	41'	12"	87°	25'	02"
B	23°	40'	38"	87°	26'	45"
C	23°	40'	00"	87°	27'	16"
D	23°	39'	05"	87°	27'	09"
E	23°	38'	50"	87°	25'	52"
F	23°	37'	14"	87°	25'	33"
G	23°	34'	47"	87°	26'	17"
H	23°	32'	51"	87°	28'	46"
I	23°	31'	45"	87°	28'	46"

J	23°	30'	00"	87°	27'	35"
K	23°	29'	15"	87°	26'	45"
L	23°	27'	35"	87°	27'	25"
M	23°	26'	35"	87°	27'	25"
N	23°	23'	00"	87°	26'	10"
O	23°	22'	10"	87°	26'	00"
P	23°	21'	45"	87°	25'	00"
Q	23°	24'	15"	87°	20'	00"
R	23°	27'	30"	87°	16'	30"
S	23°	30'	00"	87°	14'	40"
T	23°	32'	10"	87°	15'	45"
U	23°	35'	10"	87°	18'	00"
V	23°	37'	00"	87°	20'	00"
W	23°	39'	45"	87°	25'	20"

Out of 500 Km² block area, phase –III project is proposed in 190.3 Km² block area. Out of 180.5 Km² area falls within the existing CBM block in Burdwan district, WB with an additional 9.8 Km² area located outside the block abutting the western boundary. No national park/sanctuary is located within 10 Km radius of the block. No diversion of forest land is involved. River Damodar and River Ajay are flowing in the block. Total project cost is Rs. 2866 Crore. Following activities are proposed:

- i Total no. of wells-650 (each well pad will have one vertical and several directional wells, optimized for the location and geology of the well pad) with the target depth of ~2000 m (618 wells in 180.5 Km² of block area and 32 wells in 9.8 Km² of additional area). Out of the total 650 wells, 107 wells falling within the Durgapur Municipal Corporation Boundary.
- ii 8 Nos. of Group Gathering Station (GGS) with the capacity 0.45 MMSCMD each and 1 No. of main compressor station (MCS) with capacity 3.0 MMSCMD.
- iii Interconnecting and transportation pipeline network with a diameter range of 4"-18".
- iv Total estimated production of CBM from the proposed project is 5 million m³/day. Each well is estimated to generate a peak production of 15,000 m³/day.

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 125 m³/well during drilling and 1 m³/day for GGS/MCS operation. Water based mud (WBM) and Synthetic based mud 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 50 m³/day and treated through reverse osmosis (RO) before utilizing for agriculture, domestic purposes, preparation of mud. 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 oil and gas production projects are listed at S.N. 1(b) under Category 'A' and appraised at the Central level.

5.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 30th meeting held during 15th - 16th December, 2011 and reconstituted Expert Appraisal Committee (Industry) in its 2nd meeting held during 29th – 31st October, 2012 respectively.

6.0 Public Hearing / Public Consultation meeting conducted by the W.B. Pollution Control Board on 24th May, 2012.

7.0 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. Compliance to all the environmental conditions stipulated in the environmental clearance letter nos. J-11011/660/2007-IA-II (I) dated 6th May, 2008, J-11011/351/2009-IA-II(I) dated 23.09.2011 and its subsequent amendment shall be satisfactorily implemented.
- 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. Prior permission from the Ministry of Defence shall be obtained regarding impact of proposed plant on Panagarh air base, if any.
- iv. As proposed, no forest land shall be used for the proposed facilities.
- v. 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.
- vi. Mercury shall also be analyzed in air, water and drill cuttings twice during drilling period.
- vii. 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.
- viii. The company shall make the arrangement for control of noise from the drilling activity, compressor station 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.
- ix. 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.

- x. Total fresh water requirement should not exceed 125 m³ for each well during drilling phase 1 m³/day for GGS/MCS. Prior permission shall be obtained from the Competent Authority and a copy submitted to the Ministry's Regional Office at Bhubaneswar.
- xi. During well drilling, wastewater should be segregated into waste drilling fluid and drill cuttings. Drill cutting should be stored onsite impervious HDPE lined pit for solar evaporation and drying. Effluent should be properly treated and treated effluent should conform to CPCB standards. As proposed, produced water should be treated by reverse osmosis and reuse in drilling of new wells, fire hydrant system and other beneficial purposes. Domestic effluent should be disposed off through septic tank followed by soak pit.
- xii. Ground water quality monitoring should be done to assess if produced water storage or disposal has any effect.
- xiii. 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.
- xiv. Water based drilling mud or synthetic based mud shall be used.
- xv. 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.
- xvi. The company shall take necessary measures to prevent fire hazards and soil remediation as needed. The stacks of adequate height shall be provided to flare the gas, if required, to minimize gaseous emissions and heat load during flaring.
- xvii. 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.
- xviii. 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.
- xix. 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.
- xx. 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.
- xxi. The top soil removed shall be stacked separately for reuse during restoration process.

- xxii. 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.
- xxiii. Project proponent shall comply with the environment protection measures and safeguards recommended in the EIA/EMP/risk analysis report/disaster management plan.
- xxiv. 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.
- xxv. Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.
- xxvi. 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.
- xxvii. All the commitments made to the public during the Public Hearing/Public Consultation meeting held on 24th May, 2012 shall be satisfactorily implemented and a separate budget for implementing the same shall be allocated and information submitted to the Ministry's Regional Office at Bhubaneswar.
- xxviii. At least 5 % of the total cost of the project should be earmarked towards the enterprise social commitment and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Bhubaneswar. Implementation of such program shall be ensured accordingly in a time bound manner.
- xxix. 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, 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.

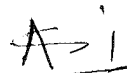
B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.
- ii. No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & 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 project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.

- iv. The project authorities must strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/disposal of hazardous wastes.
- v. 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 EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- vi. A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.
- vii. As proposed, Rs. 2.80 Crores earmarked for environment pollution control measures shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government alongwith the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.
- viii. The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.
- ix. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.
- x. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the WBPCB. The criteria pollutant levels namely; PM₁₀, PM_{2.5}, SO₂, NO_x, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- xi. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the WBPCB. The Regional Office of this Ministry / CPCB / WBPCB shall monitor the stipulated conditions.

- xii. The environmental statement for each financial year ending 31st March in Form-V as 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 put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.
- xiii. 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 WBPCB and may also be seen at Website of the Ministry of Environment and Forests 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 Regional office.
- xiv. 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 commencing the land development work.
- 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 shall 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.

This issues with the approval of the Competent Authority.


(A.N. Singh)
Dy. Director (S)

Copy to :

1. The Secretary, Department of Environment, Govt. of West Bengal, Kolkata, West Bengal.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
3. The Chairman, West Bengal Pollution Control Board, Parivesh Bhawan, 10A Block-LA Sector-III, Salt Lake, Kolkata - 700091, West Bengal.
4. The Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment and Forests, A-3, Chandrashekharapur, Bhubaneswar – 751 023, Orissa.
5. Adviser (IA-II), Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
7. Guard File / Monitoring File / Record File.


(A.N. Singh)
Dy. Director (S)