

No. J-11011/207/2004 – IA II (I)
Government of India
Ministry of Environment & Forests

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

Dated the August 4, 2005

To

The Asset Manager-Ravva
M/s Cairn Energy India PTY Limited
Wellington Plaza, 2nd Floor,
90, Anna Salai, Chennai-600002
India

Sub: Environmental clearance for infill well drilling (Development wells) in Ravva oilfield (PKGGM-1) Block in KG off shore basin, Bay of Bengal, Andhra Pradesh.

Sir,

This has reference to your letter no. HSE11/PE/04 dated 22nd November, 2004 on the above mentioned subject along with project documents including EIA/EMP report, NOC from Andhra Pradesh Pollution Control Board and public hearing report on the above mentioned subject.

2.0 Ministry of Environment and Forests has examined your application. It is noted that the project envisages drilling of 15 additional infill wells to sustain the existing production in Rava Oil and Gas field (PKGGM-I) block in KG basin in the East Coast of India in Andhra Pradesh. Drilling operations will be carried out using jack up rig. Depth of the wells will be about 2100-2300m. All the wells planned and the facilities under the proposed project will be located in the off shore block and not within the CRZ area. Public hearing of the project was held on 17.09.2004. The Andhra Pradesh Pollution Control Board has granted NOC on 18.11.2004. Cost of the project is Rs. 633 crores.

3.0. The Ministry of Environment and Forests hereby accords environmental clearance under EIA Notification dated 27th January, 1994 subject to strict compliance of the following conditions:

- (i) Use of diesel base mud is prohibited. The project authorities should ensure that only water based mud drilling fluid should be used for the proposed off shore drillings. Ministry hereby grants permission for disposal of the residual water based drilling fluid and drill cutting after proper washing subject to the following conditions:

- The chemical additives used in the water based drilling fluid should be biodegradable (mainly organic constituents) and should have toxicity of 96 hr LC 50 value $>30,000$ mg/l as per mysid toxicity or toxicity test conducted on locally available sensitive sea species.
- Thoroughly washed drill cuttings (DC) separated from WBM and unusable portion of WBM having toxicity of 96 hr LC 50 $> 30,000$ mg/l shall be discharged off-shore into sea intermittently at an average rate of 50 bbl/hr/well from a platform so as to have proper dilution and dispersion without any adverse impact on marine environment.
- Drill cuttings of any composition should not be discharged in sensitive areas notified by Ministry of Environment and forests.
- Discharge of DC from the installation located within 5 km away from shore should have no adverse impact on marine eco-system and on the shore. If, adverse impact is observed, the company should bring the DC on-shore for disposal in an impervious waste disposal pit.
- The Company should get analyzed the drill cuttings generated from each well from any recognized laboratory for its characteristics and results be submitted to MOEF/CPCB/SPCB periodically.
- M/s ONGC are required to record daily discharge of DC and DF to off-shore and also to monitor daily the effluent quality, and submit the compliance report once in every six months to MoEF.
- Company should monitor the sea surface water quality in terms of oil content around the well and submit reports to the Ministry on a monthly basis during the period of drilling operations.
- In case, DC is associated with high oil content from hydrocarbon bearing formation, then disposal of DC should not have oil content > 10 gm/kg.
- The DC wash water should be treated to conform to limits notified under the Environment (Protection) Act, 1986, before disposal into sea. The treated effluent should be monitored regularly.
- Barite used in preparation of DF shall not contain Hg > 1 mg/kg & Cd > 3 mg/kg.
- Should any, environment friendly technology emerge for substitution of DF and disposal technology, it may be brought to the notice of MoEF and regulatory agencies. If the operator desires to adopt such environment friendly technology prior approval from MoEF shall be taken.

- (ii) To address the specific operational problems during exploration like stuck pipe, overpressure and hole instability etc. M/s CEIL propose to use Synthetic Base Muds (SBMs). Ministry hereby grants permission for use of the SBMs subject to the following conditions:
- Well-wise data on quantity of SBMs used/ wastes including cuttings generated and discharged on a daily basis must be maintained and report submitted to Ministry of Environment and Forests & CPCB.
 - The chemical additives used in the SBMs should have toxicity of 96 hr LC50 value $> 30,000$ mg/l as per mysid toxicity or toxicity test conducted on locally available sensitive species. The company should ensure that various chemicals used in the proposed SBMs should be bio degradable in nature.
 - Hexavalent chromium compound should not be used in drilling fluid (DF). Alternate chemicals in place of chrome lignosulphonate should be used in drilling fluids. In case, chrome compound is used, the DF/DC should not be disposed offshore. Barite used in the drilling fluid shall not contain Hg > 1 mg/kg and Cd > 3 mg/kg.
 - Thoroughly washed drill cuttings separated from SBMs and unusable portion of SBM having toxicity of 96 hr LC50 value $> 30,000$ mg/l shall be discharged off shore into sea intermittently at a rate of 50 bbl/hr/well from a platform so as to have proper dilution and dispersion without any adverse impact on marine environment. SBM should be recycled to the maximum extent.
- (iii) The company should monitor the petroleum hydrocarbons and heavy metals concentration in the marine fish species regularly and submit report to the Ministry.
- (iv) Treated waste water (produced water or formation water or sanitary sewage) should comply with the marine disposal standards (for Oil & Gas at < 40 mg/l) notified under the Environment (Protection) Act, 1986 .
- (v) Requisite infrastructure facilities should be provided near the offshore installations so that booms and skimmers/chemical dispersants could be deployed immediately in case of oil leakage from the installations. Efforts should be made to curtail the oil slick within 500 meters of the installation and accordingly, action plan and facilities to check the oil slick beyond 500 meters should be provided.
- (vi) Approval from DG Shipping under the Merchant Shipping Act prior to commencement of the drilling operations should be obtained. At least 30 days prior to the commencement of drilling, the exact location should be intimated to the Director General of Shipping and the Company should abide by any direction he may issue regarding ensuring the safety of navigation in the area.

- (vii) The project proponent shall also comply with the environmental protection measures and safeguards recommended in the EIA/ EMP/risk analysis report as well as the recommendations of the Public hearing panel.

B. GENERAL CONDITIONS

- i. The project authority must strictly adhere to the stipulations made by the Central Government as part of any International Convention(s) or Merchant Shipping Act.
- ii. No further expansion or modifications in the plant should 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 should 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, 1989, as amended on 3rd October, 1994 and 6th January, 2000. 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 regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Wastes (Management & Handling) Rules, 2003, 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 rig area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- 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. The project authorities will provide adequate funds both recurring and non recurring 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 provided should not be diverted for any other purpose.

viii. The implementation of the project vis-à-vis environmental action plans will be monitored by Ministry's Regional Office at Bangalore. State Pollution Control Board/Central Pollution Control Board. A six monthly compliance status report should be submitted to the monitoring agencies.

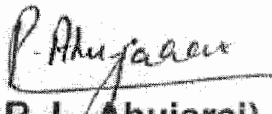
ix. The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This should 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 should be forwarded to the Regional office.

4.0. The Ministry or any competent authority may stipulate any further condition(s) on receiving reports from the project authorities. The above conditions will be monitored by the Regional Office of this Ministry located at Bangalore.

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

6.0 Any other conditions or alteration in the above conditions will have to be implemented by the project authorities in a time bound manner.

7.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention and Control of Pollution) Act, 1974 the Air (Prevention and Control of Pollution) Act, 1981 the Environment (Protection) Act, 1986, the Hazardous Wastes (Management & Handling) Rules, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr. P. L. Ahujarai)
Director

Copy to :-

1. The Secretary, State Deptt. of Environment, Government of Andhra Pradesh, Secretariat, Hyderabad.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
3. The Chairman, Andhra Pradesh State Pollution Control Board, 2nd Floor, HUDA Complex, Maitrivaram, S.R.Nagar, Hyderabad- 500 038.
4. The Chief Conservator of Forests (Central), Regional Office (SZ), Kendriya Sadan, IVth Floor, E&F Wing, 17th Main Road, Koramangala, Bangalore-560034.
5. JS(CCI-I), Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.- 110003.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi- 110003.
7. Guard file.
8. Record file.
9. Monitoring file.

(Dr. P. L. Ahujarai)
Director