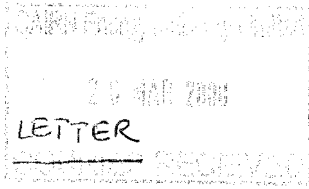


F. No. J-11011/174/2007- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)



Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail : plahujarai@yahoo.com
Telefax: 011 – 2436 3973
Dated: March 12, 2008

To,

The Director (Operation)
M/s Cairn Energy India PTY Limited
3rd & 4th Floor, Orchid Plaza,
Suncity, Sector 54
Gurgaon – 122 002

Sub : Hydrocarbon Development in Bhagyam Field in RJ-ON-90/1 Block in Barmer District Rajasthan by M/s Cairn Energy India Pvt. Ltd - Environmental Clearance reg.

Sir,

This has reference to your letter no. HSE/RS/04/BGM/07 dated 22nd November, 2007.on the above mentioned project.

2. The Ministry of Environment and Forests has examined the application. It is noted that proposal is for Environmental Clearance for Hydrocarbon development in Bhagyam field in RJ-ON-90/1 block which is spread over an area of approx. 5.2 Km². It is proposed to be developed as a Satellite field and integrated into the Mangala Processing Terminal (MPT) for processing, storage and export of the crude oil. The field is located at a distance of 17 km from Mangala Field. The Bhagyam field development plan envisages setting up of 15 well pads across the Bhagyam field area and drilling up to a maximum of 81 wells including 51 production and 30 injection wells. There would be infield pipeline network of 40 Km for fluid handling. The flow lines from the individual pads will be converged at Bhagyam field facility where the flow lines will be many folds to a common flow line from where the pipeline will run to the MPT for processing the crude. The peak production from Bhagyam filed is expected up to 40,000 Barrels of Oil Per Day (BOPD) of crude oil and 3.4 MMSCFD of associated gas. With the integration of the Bhagyam filed, the total processing capacity of Mangala terminal will increase from 100,000 BOPD to 140,000 BOPD of crude oil. Two additional crude storage tanks each of 26,500 m³ will be installed at the MPT tank farm. Additional power requirement of 12 MW will be met through setting up of additional dual fired (primary fuel Gas/stand-by fuel LDO) boiler at MPT. The common treatment facilities such as desalination plant, produced water treatment, secured landfill site for disposal of solid and hazardous wastes as being developed in Mangala terminal will be utilized. No additional land will be required for processing and power generation. However, 4.4 ha of land will be required for each well pad for housing well head facilities.

3. The total maximum water requirement during operational phase is about 7000m³/day including water injection (6837 m³/day) and process water requirement (163m³/day) which will be met from ground water source. Only saline water will be abstracted and used for which permission from the Central Ground Water Authority for abstraction of 25000 m³/d of saline water has been obtained on 6th January 2006. Produced water will be treated in ETP and re-injected in reservoir. The drill cuttings and residual mud will be collected in the HDPE lined pit and after treatment will be disposed at Mangala Waste Management Facility. The tank bottom sludge will be used in cement kiln with oily waste after plant trials in cement kiln. The used oil will be sold to the authorized reprocessors. Public hearing of the project was held on 10.10.2007. Project cost is Rs. 2300 crores.

4. Based on the information provided by you, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification, 2006 subject to strict compliance of the following Specific and General Conditions.

A. SPECIFIC CONDITIONS:

- i. The company shall pay compensation for acquisition of private land as per the Central Government/State Government norms. The compensation to be paid to the land loser shall not be less than the norms/package as per the Policy on National Resettlement and Rehabilitation Rules, 2007.
- ii. 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.
- iii. The surface facilities shall be installed as per applicable codes and standards, international practices and applicable local regulations.
- iv. The top soil removed shall be stacked separately for reuse during restoration process.
- v. Drilling waste water 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. The membership of common TSDF shall be obtained for the disposal of drill cuttings and hazardous waste. Otherwise secured land fill shall be created at the site with the Authorization of the SPCB. The design of the secured shall be approved by the SPCB.
- vi. The recyclable waste (oily sludge) and spent oil shall be disposed of to the authorized recyclers. The oily waste shall be used in the cement kiln after plant trials and conducting the feasibility study and bio remediation of drill cuttings as per the study carried by Tata Energy Research Institute.
- vii. Only water based drilling mud shall be used. The drilling mud shall be recycled. In case of use of synthetic oil based mud due to any problem due to geological formation for drilling, low toxicity, Oil Based Mud (OBM) having aromatic content < 1 % shall be used. If it is intended to use such OBM/SBM to mitigate specific hole problem, it should be intimated to Ministry of Environment and Forests/ SPCB.
- viii. Quantities of storage and chemicals and additives required for drilling mud preparation shall be below the specified threshold for specified storage permitted under the MSIHC Rules.
- ix. Pre hire rig inspection, safety meetings, tool box meeting, job safety analysis and audits shall be carried out to identify hidden /potential hazardous.
- x. 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 flaring.
- xi. The Company shall take necessary measures to reduce noise levels at the drill site by providing mitigation measures such as proper acoustic enclosures to the DG set and meet the norms notified by the MoEF. Height of all the stacks/vents shall be provided as per the CPCB guidelines.

- xii. To prevent fire and explosion at Oil and Gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.
- xiii. 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.
- xiv. To prevent well blowouts during drilling operations, Blow Out Preventor (BOP) system shall be installed. Blow Out Prevention measures during drilling shall focus on maintaining well bore hydrostatic pressure by proper pre-well planning and drilling fluid logging etc.
- xv. 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 to near 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.
- xvi. Occupational health surveillance of the workers shall be carried out as per the prevailing Acts and Rules.
- xvii. The design, material of construction, assembly, inspection, testing and safety aspects of operation and maintenance of pipeline and transporting the oil shall be governed by ASME/ANSI B 31.8/B31.4 and OISD standard 141.
- xviii. Annual safety audit shall be carried out for the initial three years by an independent agency and report submitted to this Ministry for ensuring the strict compliance of safety regulations on operation and maintenance.
- xix. The project authorities shall plant a minimum of 10 trees for every tree cut along the pipeline route in consultation with the local DFO (s).
- xx. The project authorities shall install SCADA system with dedicated optical fibre based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive installations should be provided to prevent the amount of gas going to the atmosphere in the event of pipeline failure. Intelligent pigging facility should be provided for the entire pipeline system for internal corrosion monitoring. Coating and impressed current cathodic protection system should be provided to prevent external corrosion.
- xxi. The project authorities shall patrol and inspect the pipeline regularly for detection of faults as per OISD guidelines and continuous monitoring of pipeline operation by adopting non-destructive method(s) of testing as envisaged in the EMP. Pearson survey and continuous potential survey shall be carried out at regular intervals to ensure the adequacy of cathodic protection system.
- xxii. The fire water facilities at the terminals shall be designed as per OISD-117 guidelines. However, for fighting prolonged fires, the company shall firm up a plan for assured water supply from near by ground water source/ surface water source. This must be complied before commissioning the project.
- xxiii. Proper infrastructure and sanitation facilities shall be provided for the construction workers during construction. All the construction wastes shall be managed so that there is no impact on the surrounding environment.

- xxiv. 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 authorities shall strictly adhere to the stipulations made by the Rajasthan State Pollution Control Board and the State Government.
- 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 shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous chemicals Rules, 1989 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 shall strictly comply with the rules and regulation with regarding to handling and disposal of Hazardous Wastes (Management and Handling) Rules, 1989/ 2003 wherever applicable. Authorization form 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 (85 dBA) 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 shall 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 shall not be diverted for any other purposes.
- viii. The Regional Office of this Ministry at Lucknow/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. 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 State Pollution Control Board/ Committee and may also be seen at Website of the Ministry and Forests at <http://WWW.envfor.nic.in>. This shall be advertised within seven days of the issue of this letter in at least two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.
- x. 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 commencing the land development work.

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


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

7. 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, Hazardous Wastes (Management & Handling) Rules, 1989, 2003 and the Public Liability Insurance Act, 1991 along with their amendments and rules.


(Dr. P. L. Ahujarai)
Director

Copy to:

- i) Secretary, Department of Environment and Forests, Government of Rajasthan, Jaipur.
- ii) Chief Conservator of Forests, Central Region, Ministry of Environment and Forests, B-1/72, Sector-A, Aliganj, Lucknow-226020.
- iii) Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office complex, East Arjun Nagar, New Delhi-1100032.
- iv) Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur.
- v) Monitoring Cell, Ministry of Environment & Forests.
- vi) Monitoring file/Guard File/Record File.


(Dr. P. L. Ahujarai)
Director

