

F. No. J-11011/108/2012- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

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Dated 14th June, 2013

To,

Shri P. Elango, Director(Strategy & Business Services)
M/s Cairn Energy India Pty Limited
4th Floor, Vipul Plaza
Suncity, Sector 54,
Gurgaon-122002 (Haryana)

E-mail : elango.p@cairnindia.com Fax No.: 0124-2889320

Subject: Increase in crude oil production capacity from Mangala Processing Terminal (MPT) (in RJ-ON-90/1 Block, Rajasthan) from 175,000 to 200,000 Bopd (Barrels of oil per day) and associated gas from 35 to 40 million standard cubic feet per day at village Nagana, Tehsil & District Barmer, Rajasthan by M/s Cairn Energy India Pvt. Ltd. – Environmental Clearance reg.

Ref. : Your letter no. ENV/RJ-ON/EC/12-06 dated 7th September, 2012.

Sir,

This has reference to your letter dated 7th September, 2012 on the above mentioned subject alongwith project documents including Prefeasibility Report, Draft Terms of References, EIA/EMP report on the above mentioned subject.

2.0 The Ministry of Environment & Forests has examined your application. It is noted that the proposal is for increase in crude oil production capacity from Mangala Processing Terminal (MPT) (in RJ-ON-90/1 Block, Rajasthan) from 175,000 to 200,000 Bopd (Barrels of oil per day) and associated gas from 35 to 40 million standard cubic feet per day at village Nagana, Tehsil & District Barmer, Rajasthan by M/s Cairn Energy India Pvt. Ltd. The block was awarded to CEIL-ONGC joint venture for exploration and production of hydrocarbons by the Govt. of India. The RJ-ON-90/1 block as per current retention of development areas spreads over an area of about 3112 km². The block lies within the Barmer and Jalore Districts, in the northern development area of the block comprising of Mangla, Aishwarya and Bhagyam field. No forest land is involved. Proposed increase of oil production and associated gas production will be achieved by utilizing already permitted processing facilities. No national park/wildlife sanctuary/reserve forest/eco-sensitive area is located with 10 km from MPT. Following are the existing infrastructure/facilities:

S.N.	Description	Existing Permitted Capacity
1	Processing Trains/Crude Oil Production	Three (3)/ 175,000 BOPD
2	Associated Natural Gas Production	35 million standard cubic feet per day.
3	Plant fluid handling capacity	680,000 Barrels of fluid per day
4	No. of well pads	Mangala (18), Bhagyan (15), Aishwariya (8)
5	No. of wells (Production + Injection Wells)	Mangala (390), Bhagyan (81), Aishwariya (80)
6	Captive Power Generation	62 MW (5 No. Steam Turbine

		Generators)
7	Steam Boilers	6 W + 1 SB (Each of 115 TPH)
8	Crude Oil Storage	6 Tanks /1,00,000 barrels
9	Deep Dump Wells (>1,000 m)	Six (6)
10	Hazardous Waste Landfill Capacity with Incinerator	185,000 m ³ & Incinerator (500 Kg/d)

3.0 Following is the important features of the proposed project:

- i. Number of wells and well pads required for the proposed production capacity will be within the total permitted numbers. Therefore no additional facilities/wells required other than those already permitted.
- ii. The permitted fluid handling capacity at MPT is 680,000 bopd constituting of crude oil and water. This is sufficient to cater for production of 200,000 bopd of crude oil operating on early filed life of a low water cut profile.
- iii. The associated gas produced from the well fluid separation is used as fuel for steam boilers and gas engines.
- iv. The power requirement for the MPT is based on total fluid processing, pumping and heating requirements. Since the total fluid handled is within the existing capacity, no additional power is required for the production increase.
- v. No increase in hazardous waste generation. The landfill capacity is based on 20 years waste generation, hence adequate capacity exists for waste produced due to the proposed production increase.
- vi. No additional emission source other than what has already been permitted.
- vii. No additional land is required for the MPT as there is no new facility proposed to cater for increase in production.
- viii. No surface discharge /produced water re-injection for reservoir pressure support.

4.0 Three additional vapour recovery units will be provided to recover low pressure gas/ vapour vented from various production equipments. Total requirement of saline water will be 32,500 m³/day, which will be sourced from the Thumbli saline water well field. Fresh water requirement will be met by desalination plant of 4,200 m³/day of saline water. Produced water will be treated in the produced water treatment plant. The rejects from the desalination process will be comingled with the treated produced water/injection water and injected back into the oil reservoir for pressure maintenance. Sewage will be treated in sewage treatment plant (STP). Incinerator will be designed as per CPCB guidelines. Incinerated ash and ETP sludge will be sent to treatment storage disposal facility (TSDF) for hazardous waste. Organic process waste and spent carbon will be incinerated. Waste oil/spent oil will be sold to registered recyclers/re-processors.

5.0 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.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its 36th and 3rd meetings held during 11th-12th June, 2012 and 3rd-5th December, 2012 respectively. The Committee recommended the proposal for environmental clearance.

7.0 Public hearing/consultation was exempted under para 7(ii) of EIA Notification, 2006.

8.0 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 specific and general conditions mentioned in environmental clearance letters nos. J-11011/382/2005-IAII (I) dated 21st March, 2006, J-11011/174/2007-IAII(I) dated 12th March, 2008, J-11011/98/2019-IAII(I) dated 23rd November, 2010 and 16th October, 2012 shall be ensured.
- ii. The stack emissions from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.
- iii. Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.
- iv. The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the RSPCB. The levels of PM₁₀, SO₂, NO_x, CO and non-methane hydrocarbon in ambient air and emissions from the stacks shall be monitored and/ displayed at a convenient location near the main gate of the company and at important public places.
- v. As proposed, three additional vapour recovery units shall be provided to recover low pressure gas/ vapour vented from various production equipments.
- vi. Total saline ground water requirement from Thumbli aquifer shall not exceed 32,500 m³/day.
- vii. Treated wastewater (produced water/desalination rejects/ CPP blow down/ formation water/sanitary sewage) shall comply with the standards notified under the Environment (Protection) Act, 1986. As proposed, the produced water generated shall be treated in the produce water treatment plant to separate solids and oil traces through induced gas floatation process. No water shall be discharged outside the facility boundary.
- viii. Domestic wastewater shall be treated in Sewage Treatment Plant (STP) and recycle/reuse entire treated wastewater for green belt development and various activities at the site.
- ix. Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- x. Adequate numbers of ground water quality monitoring stations by providing piezometers around the captive landfill site and project area shall be set up. Sampling and trend analysis monitoring must be made on monthly a basis and report submitted to Rajasthan Pollution Control Board and this Ministry.
- xi. The drill cutting (DC) wash water shall be treated to conform to limits notified vide GSR.546(E) dated 30th August, 2005 under the Environment (Protection) Act, 1986

before disposal of solid waste, drill cutting and drilling fluids for onshore drilling operation. The treated effluent shall be monitored regularly.

- xii. The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from RSPCB shall be obtained for disposal of solid / hazardous waste in the TSDF.
- xiii. Incinerator comprising primary and secondary chamber shall be designed as per CPCB guidelines. SO₂, NO_x, HCl and CO emissions shall be monitored in the stack regularly.
- xiv. Green belt shall be developed at least in 33 % of the plant area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.
- xv. Company shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and monitoring system. 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.
- xvi. All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.
- xvii. At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need , issues raised during the earlier public hearing meeting and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Lucknow. Implementation of such program should be ensured accordingly in a time bound manner.
- xviii. The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/ procedure to bring into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.

B. GENERAL CONDITIONS:

- i. The project authorities shall strictly adhere to the stipulations made by the Rajasthan State Pollution Control Board.
- 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 National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16th November, 2009 shall be followed.

- iv. 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 station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
- 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 Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- vi. The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- vii. 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.
- viii. 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.
- ix. 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.
- x. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- xi. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- xii. 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.
- xiii. 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.
- xiv. 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 RSPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- xv. 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.

- xvi. 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 www.moef.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.
- xvii. 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.

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

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

11.0 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.

(V P Upadhyay)
Director

Copy to:-

1. Secretary, Department of Environment and Forests, Government of Rajasthan, Jaipur, Rajasthan.
2. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -110032.
3. Chairman, Rajasthan State Pollution Control Board, 4, Institutional area, Jhalana, Doongri, Jaipur, Rajasthan.
4. Chief Conservator of Forests (Central), Ministry of Environment and Forests, Region Office (Central), Kendriya Bhawan, 5th Floor, Sector-H, Aliganj, Lucknow – 226 024, U.P.
5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Guard File/Monitoring File/Record File/Notice Board.

(V P Upadhyay)
Director