



F. No. J-11011/234/2007-IA II (I)  
Government of India  
Ministry of Environment, Forest and Climate Change  
(I.A. Division)

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Dated: 31<sup>st</sup> October, 2016

To,

Shri Harikrushna Patnaik  
General Manager  
M/s Cairn India Ltd.  
4<sup>th</sup> Floor, Vipul Plaza,  
Sunsity, Sector-54,  
Haryana-122002

**Subject:** Expansion in exiting crude oil carrying capacity from 200,000 bopd to 300, 000 bopd and Natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Raageshwari to Palanpur in Existing project to Bhogat (Gujarat) pipeline, dist. Barmer, Rajasthan by M/s Cairn India Ltd. reg EC.

**Ref.:** Your online proposal no. IA/GJ/IND2/27615/2014; dated 7<sup>th</sup> May, 2015

Sir,

This has reference to your online proposal no. IA/GJ/IND2/27615/2014; dated 7<sup>th</sup> May, 2015 along with project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report along with Public Hearing Report regarding above mentioned project.

2.0 The Ministry of Environment, Forests and Climate Change has examined the application. It is noted that proposal is for Expansion in existing crude oil carrying capacity from 200,000 bopd to 300, 000 bopd and Natural gas carrying capacity from 6.3 mmscfd to 40 mmscfd along with development of new gas pipeline from Raageshwari to Palanpur in Existing project to Bhogat (Gujarat) pipeline, dist. Barmer, Rajasthan by M/s Cairn India Ltd. The Cairn India Limited operates the Mangala Development Pipeline, consisting of an approx. 680 km long, 24 " heated, insulated and buried crude oil pipeline running from Mangala Processing Terminal in Barmer, Rajasthan to Bhogat Terminal in Devbhoomi Dwarka district, Gujarat with a permitted flow rate of 200,000 bopd and, an approx. 590 km long, 8" buried natural gas pipeline running from Raageshwari Gas Terminal (RGT) in Rajasthan to Bhogat Terminal to provide fuel for heating of crude oil pipeline with a permitted flow rate 6.3 mmscfd. There are 38 nos. of Above-Ground Installations (AGIs) located approx. every 18 km along pipeline route serving as pipeline heating installations and pigging stations. Viramgam Terminal (VGT) has intermediate storage capacity of 60,000 bbls, mainline pumps (3 x 90,000 bbls), 8 MW captive natural-gas

based power generation and pigging facilities. Bhogat Terminal has intermediate storage capacity of 36,00,000bbls, marine export pumps and 18 MW captive natural-gas based power generation. Export facilities originating from Bhogat Terminal consist of 24" heated insulated crude oil pipeline and Single Point Mooring (SPM) in the Arabian Sea for export of crude. The proposed Facility development of Mangala Development Pipeline, which includes the following:

- Increase in crude oil flow in existing pipeline from 200,000 to 300,000 bopd to evacuate 300,000 bopd using Drag Reducing Agent in crude oil pipeline at AGIs 9 & 26 and VGT; additional mainline crude oil pumps at AGI-9 and AGI-26 (3 x 160,000 bopd at each facility), and VGT (2 x 90,000 bopd); booster pumps at VGT (5 x 90,000 bopd), 5 TPH boiler; and additional crude oil storage at VGT of 300,000 bbls; and
- Increase in natural gas flow in existing pipeline from 6.3 to 40 mmscfd to meet captive power requirements for crude oil flow and sales, by addition of gas compressors (2W+1S) at 9 locations (AGIs 6, 7, 8, 11, 16, 18, 20 & 25 and VGT).

Project has the following two components:

(i) Component 1: Augmentation of existing Mangala Development Pipeline (MDP) from RJ-ON-90/1 Block (Barmer, Rajasthan) to Bhogat Terminal (Gujarat). This consists of the following:

(a) Augmentation of 24" crude oil pipeline carrying capacity from 200,000-300,000 bopd and 8" natural gas pipeline carrying capacity from 6.3-40 mmscfd; and

(b) Augmentation of natural gas based captive power generation capacity of Bhogat Terminal from 18 to 40 MW.

(ii) Component 2: Development of new 30" pipeline from Raageshwari Gas Terminal(RGT) to Palanpur for 280 mmscfd natural gas sales.

The existing and proposed facilities are as follows:

S.N.	Location	Facilities	Existing	Proposed additions
<b>Crude oil pipeline capacity augmentation</b>				
1	Adjacent to AGI-9 & AGI-26	Mainline crude oil pumps	Nil	3 pumps (2W+1S) x 160,000 bopd, run on natural gas turbine drives (capacity 14 MW) at each location
		Back-up captive power generation	0.39 KVA Gas Engine Generator	1 MW diesel generator
		DRA injection skids	Injection through skid planned to achieve 200,000 bopd	Injection skid to achieve 300,000 bopd
2	Inside	Mainline crude	3 (2W+1S) x	2 x 90,000 bopd

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	Viramgam Terminal	oil pumps	90,000 bopd	
		Booster pumps	Nil	5 pumps (4W+1S) x 90,000 bopd
		Crude oil storage tanks	60,000 bbls (3 nos. tanks x 20,000 bbls)	300,000 bbls (2 nos. tanks x 150,000 bbls)
		Boiler for tank heating	1 x 1 TPH	1 x 5TPH
		Gas Turbine Generator	2 x 4 MW	2 x 6 MW and 1x4MW Standby
<b>Natural gas pipeline capacity augmentation</b>				
3	Adjacent to AGI 6, 7, 8, 11, 16, 18, 20 & 25 and inside Viramgam Terminal	Gas compressors & filtration skid	Nil	3 compressors (2W+1S) run by natural gas based turbine drives (capacity 9 MW) and gas filtration skid
		Back-up captive power generation	0.39 KVA Gas Engine Generator	1 MW diesel generator

3.0 During construction phase, water required for civil works and domestic use will be 15 m<sup>3</sup>/day and 135 litres/ day/ person at each site. Water required for hydro testing of tanks and pipelines will be 25525 m<sup>3</sup>/tank and 705 m<sup>3</sup> per km respectively. During operation phase, additional water required for industrial and domestic use at Viramgam Terminal is 15m<sup>3</sup>/day and 5m<sup>3</sup>/day respectively. At other facilities, there is no water requirement for industrial use and requirement for domestic use is 5m<sup>3</sup>/day. Additional water requirement at Viramgam Terminal will be met from existing approved ground water source and at other facilities will be met from local Panchayat or municipality or other approved sources. Effluent generated at VGT during operations phase will be handled in the existing treatment facilities. There will be no additional trade effluent generation at other facilities and sanitary effluent will be treated in STP/septic tank and soak pits.

4.0 Public Hearing / Public Consultation meeting was conducted on 12<sup>th</sup> December, 2014.

5.0 All Oil and Gas transportation pipeline (crude and refinery/petrochemical products), passing through national parks/sanctuaries./coral reefs /ecologically sensitive areas including LNG Terminal is listed at S.N. 6(a) under category 'A' and appraised at Central level. Existing and proposed facilities do not pass through national parks/sanctuaries/coral reefs/ ecologically sensitive areas. Environment Clearance under project/activity 6(a) of Schedule of EIA Notification 2006 is not applicable to the new pipeline. However, Crude oil storage at Viramgam Terminal falls under 6 (b) under category 'B' in the schedule of the EIA Notification, 2006. Considering integrated project of pipeline, proposal was appraised at Central level.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 44<sup>th</sup> meeting held during 20-21<sup>st</sup> July, 2015, 6<sup>th</sup> meeting held during 30<sup>th</sup> March-2<sup>nd</sup> April, 2016 and 8<sup>th</sup> meeting held during 26<sup>th</sup>-27<sup>th</sup> May, 2016 respectively. Project Proponent and the EIA Consultant namely M/s Engineers India 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 and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14<sup>th</sup> September 2006, subject to the compliance of the following Specific and General Conditions:

**A. SPECIFIC CONDITIONS:**

- i. The project authority shall ensure restoration of the Right of Way to preconstruction level as soon as construction activity completed. To ensure prevention of soil erosion, backfilled areas should be properly compacted.
- ii. Adequate stack height shall be provided to gas based power plant. Low NOx burners shall be provided to control NOx emissions.
- iii. Adequate buffer zone around the crude oil tankages, as may be required as per OISD or other statutory requirements.
- iv. Regular monitoring of VOC and HC in the work zone area in the plant premises should be carried and data be submitted to Ministry's Regional Office at Bhopal, CPCB and State Pollution Control Board.
- v. Total fresh water requirement for Viramgam Terminal from ground water source shall not exceed 20 m<sup>3</sup>/day and prior permission should be obtained from the CGWA/SGWA.
- vi. Annual safety audit should 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.
- vii. The construction of pipeline particularly at the river and stream crossing should be done during dry seasons to avoid disturbance of breeding seasons and soil erosion. The riverbed, embankments and / dykes should be restored adequately after installation of crossings.
- viii. Pipeline wall thickness and minimum depth of burial at river crossings and casings at rails, major road crossings should be in conformity with ANSI/ASME requirements.
- ix. The company should follow horizontal drilling technique for laying of pipeline while passing through major rivers.
- x. The project authorities should install SCADA system with dedicated optical fiber based telecommunication link for safe operation of pipeline and Leak Detection System. Additional sectionalizing valves in the residential areas and sensitive location should be provided to prevent the leaking 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.
- xi. The project authorities should 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 should be carried out at regular intervals to ensure the adequacy of cathodic protection system.

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- xii. All the recommendations mentioned in the risk assessment report should be implemented.
- xiii. All the issues raised during the public hearing/consultation meetings held on 12<sup>th</sup> December, 2014 should be satisfactorily implemented.
- xiv. Necessary approvals from Chief Controller of Explosives must be obtained before commission of project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.
- xv. The company should obtain all requisite clearances for fire safety and explosives and should comply with the stipulation made by the respective authorities.
- xvi. Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.
- xvii. The Company should harvest surface as well as rainwater from the rooftops of the buildings proposed in the project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.
- xviii. At least 2.5 % of the total cost of the project should be earmarked towards the Enterprises Social commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's regional office at Bhopal. Implementation of such progamme 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 Gujarat and Rajasthan State Pollution Control Board (SPCBs), 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 National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16<sup>th</sup> November, 2009 shall be followed.
- 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, ZilaParisad/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 GSPCB. 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 31<sup>st</sup> 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 <http://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.

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.

  
(Lalit Bokolia)  
Additional Director

**Copy to:-**

1. The Principal Secretary, Forests & Environment Department, Government of Gujarat, Sachivalaya, 8<sup>th</sup> Floor, Gandhi Nagar - 382 010, Gujarat.
2. The Chief Conservator of Forests (Western Zone), Ministry of Environment & Forests, Regional Office, E-5, Arera Colony, Link Road -3, Bhopal -462 016, M.P.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhawan, Sector 10 A, Gandhi Nagar-382 043, Gujarat.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Parayavaran Bhawan, Aliganj, Jor Bagh Road, New Delhi.
6. Guard File/Monitoring File/Record File.

  
(Lalit Bokolia)  
Additional Director

