

Environment and Social Compliance Audit

Project Number: 47928
October 2013

IND: Dahej Liquefied Natural Gas Terminal Expansion Phase III

Prepared by Vimta Labs Ltd. for Petronet LNG Limited

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Environmental and Social Compliance Audit

Submitted to:
Asian Development Bank, Manila

Project Proponent:



Petronet LNG Limited
New Delhi

Prepared by:



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IND: Dahej Liquefied Natural Gas Terminal Expansion Phase III

Environmental and Social Safeguards Compliance Audit and Corrective Action Plan

I. DESCRIPTION OF CURRENT FACILITIES

Petronet LNG Limited (PLL) is an Indian natural gas company formed on the behest of government of India to import liquefied natural gas (LNG) and set up LNG terminals in the country. PLL has set up its first LNG handling facility within India's first Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) corridor at Dahej, Bharuch District in the state of Gujarat. The LNG handling facility would receive and store LNG that is unloaded from ship tankers and regassify the LNG into natural gas for delivery to a pipeline.

The LNG terminal is located near Luvara village, Vagra Taluka, Baruch District in the state of Gujarat. Notified industrial area at Dahej has all the infrastructure such as power, water supply, access roads, transportation, communication etc. to support the industrial development.

Initially, the Dahej terminal started operations with 5 Million Metric Tonnes Per Annum (MMTPA) (Phase-I) in April 2004 and its construction has started in March 2001. Govt. of Gujarat (GoG) has allocated 48 Ha of land within the notified industrial areas on a long term lease basis to PLL to set up this plant. The 5 MMTPA terminal has a jetty, trestle and onshore facility including LNG storage tanks and regasification facilities with natural gas delivery to pipeline. Further, it has expanded to a capacity of 10 MMTPA (Phase-II) in April 2009 whereas its construction started in April 2006 and no additional land has been acquired. To have operational flexibility, PLL has proposed a second jetty and started its construction in March 2011 and is expected to be operational by June 2014.

Capacity of Dahej Terminal is proposed to be expanded from 10 MMTPA to 15 MMTPA (Phase-III) by end of 2017 and further to 20 MMTPA.

PLL has received Environmental Clearance from Ministry of Environment and Forests (MoEF), New Delhi to set up the facilities of 5 MMTPA, expansion to 10 MMTPA and to construct second jetty. Further, PLL has obtained Consent to Operate (CTO) from Gujarat Pollution Control Board (GPCB) to operate the 10 MMTPA facility with a jetty and the CTO is valid till 15th March 2014. PLL has also obtained Consent to Establish (CTE) from GPCB on 26th August 2009.

Geographically the terminal is located at 21° 42' 34" Latitude N and 72° 32' 07" Longitude E. The existing LNG terminal is located at a distance of about 1.5-km, N from State highway-206. The nearest airport at Vadodara is about 130-km away towards E and the nearest sea coast i.e. Arabian sea is about 0.3-km, W. The nearest village Luvara is located 1.5 km from the boundary of the LNG terminal. There 5 habitated villages namely Luvara, Lakhigam, Jageshwar, Ambheta, and Dahej with 10-km radius of the terminal with a total population of about 14391 as per census 2001. The location set up reflects typical rural environment on flat terrain with an elevation ranging between 5-m to 7-m above mean sea level.

There are no Protected areas as per Wildlife Protection Act,1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves

and conservation reserves), wild life corridors, mangroves and Physical Cultural Resources (such as Archaeological, Paleontological, Historical, Architectural, Religious, Aesthetic/ Tourist Attractions or other cultural significance places of local/ regional/ national/ international importance) within 15-km radius from the terminal.

II. LEGAL AND STATUTORY FRAME WORK - ENVIRONMENTAL LAWS, REGULATIONS, AND STANDARDS

Statutory Framework in India

The existing LNG handling terminal at Dahej is covered under the Environmental Impact Assessment (EIA) Notification, 2006 and amendments promulgated under Environment (Protection) Act (EPA), 1986.

Ministry of Environment and Forests (MoEF) is the nodal agency for drafting the new environmental legislations and giving the Environmental Clearance (EC) to the Greenfield and Brownfield projects. Gujarat State Pollution Control Board (GSPCB) is responsible for implementing environmental legislation and issuing the Construction and Operating permits for Greenfield and Brownfield projects with certain conditions, keeping in view of Local regulations and environmental issues within Gujarat state where the project is located. Apart from the above, other relevant national and local statutory regulations that are to be followed by existing LNG terminal (Phase-I & Phase-II) are given below:

The key environmental legislations pertaining to the present operations include:

- The Water (Prevention and Control of Pollution) Act, 1974;
- The Air (Prevention and Control of Pollution) Act, 1981;
- The Environment Protection Act, 1986, Rules there under (with amendments);
- Environmental Impact Assessment Notification, 2006(with amendments); and
- The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules 2011.

Various Acts under Indian legislation including workers' health and safety laws, relevant to the Industry are listed as under:

- Workmen's Compensation Act, 1923
- The Trade Unions Act, 1926
- The Petroleum Act, 1934 and the Petroleum Rules
- Payment of Wages Act, 1936
- The Industrial Disputes Act, 1947
- Factories Act, 1948
- Minimum Wages Act, 1948
- Employees State Insurance Act, 1948
- Employees Provident Fund and Miscellaneous Provisions Act, 1952
- The Maternity Benefits Act, 1961
- Personal Injuries (Emergency Provisions) Act, 1962
- Contract Labour (Regulation and Abolition) Act, 1970
- The Payment of Gratuity Act, 1972
- The Child Labour (Prohibition and Regulation) Act, 1986
- Public Liability Insurance Act, 1991
- The National Environment Tribunal Act, 1995

- The Building & Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996
- The Batteries (Management and Handling) Rules, 2001
- Electricity Act, 2003
- Right to Information Act, 2005

Safeguard Policy Statement (2009) of ADB

Asian Development Bank's Safeguard Policy Statement (SPS) sets out the policy objectives, scope and triggers, and principles for three key safeguard areas and safeguard requirements are given in:

- Safeguard Requirements 1: Environment,
- Safeguard Requirements 2: Involuntary Resettlement,
- Safeguard Requirements 3: Indigenous Peoples

Performance Standards of IFCs

International Finance Corporation (IFC) applies the Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. The Performance Standards establish standards to be met throughout the life of an investment by IFC or other relevant financial institution. There are eight performance standards of IFC:

- 1 Social and Environmental Assessment and Management System
- 2 Labour and Working Conditions
- 3 Pollution Prevention and Abatement
- 4 Community Health and Safety
- 5 Land Acquisition and Involuntary Resettlement
- 6 Biodiversity Conservation and Sustainable Natural Resource Management
- 7 Indigenous People
- 8 Cultural Heritage

III. AUDIT AND SITE INVESTIGATION PROCEDURE

The compliance audit has been conducted by site visit during 6th September 2013 to 8th September 2013. This audit supplements the audit conducted last July 2013 (**Annexure-I**). The audit team was represented by the following persons:

1. Mr. E. Shyam Sundar
Vice President (Environment), Vimta Labs Limited, Hyderabad

The audit team visited the site during 6th and 7th of September 2013. The team has interacted with the following persons during the site visit:

1. Mr. S.B. Singh
GM- Plant Head, Petronet LNG Limited
2. Mr. S. Baitahlik

GM- Projects, Petronet LNG Limited

3. Mr. Hemanth Bahura
Chief Manager - HR & Admin, Petronet LNG Limited
4. Mr. Venugopal
Manager (HSE), Petronet LNG Limited
5. Mrs. Mukta Das
Manager - Finance
6. Mr. Jathin Joshi
Sr. Manager – Coordination, Petronet LNG Limited
7. Mr. Rao
Deputy Manager – Horticulture, Petronet LNG Limited
8. Vikash Maheshwari
Deputy Manager – Finance (Corporate), Petronet LNG Limited

Plant team has detailed through the presentation about the project activities, various Corporate Social Responsibility (CSR) activities that are undertaken.

Mr. Hemanth Bahura has detailed about the social policies and welfare activities for work force and open door policy on CSR for surrounding villages.

Mr. Vanugopal has provided a very detailed insight into the inbuilt safety aspects of the plant, accident warning & control systems, emergency preparedness, safety policies, training on safety to own employees and contractor employees, employee grievance redressal, pollution control, compliance statement (being submitted to MoEF & GPCB by PLL on every half yearly basis).

The following documents have been collected from the Health, Safety and Environment (HSE) Department and were reviewed.

- The Quality, Health, Safety and Environment policy,
- ISO 9001:2008 certificate,
- ISO 14001:2004 certificate,
- OHSAS 18001:2007 certificate,
- Standard Operating Procedures (SOP) on Incident Management,
- SOP on Safety Training,
- Format for Training Attendance (for safety training on 17/08/2013)
- Consent to Operate (permit) for the existing plant from GPCB
- Compliance statement

The ISO 9001:2008, ISO 14001:2004 and the OHSAS 18001:2007 certificates are attached as **Annexure-II**. The site visit photographs are enclosed as **Annexure-III**.

IV. AUDIT FINDINGS

This shall discuss Company's Past and Present Performance on Environmental Impact Assessment, Environmental Management Plan (EMP), Environment, Health and Safety (EHS) Plan, Involuntary Resettlement and Indigenous Peoples Safeguards.

Phase 1 and Phase 2

1. Environment

PLL Dahej terminal has obtained the following Environmental Clearances (EC) from MoEF (**Annexure-IV**):

Phase I: 5 MMTPA	Letter no.J-17011/II/2000-IA-III dated 27 th December 2000
Phase II: 10 MMTPA	Letter no.J-17011/II/2000-IA-III dated 23 rd November 2005
Second Jetty:	Letter no.J-17011/11/2000-IA-III dated 14 th November, 2008

Dahej Terminal also has the valid permit - Consent to Operate from GPCB for 10 MMTPA capacity and is valid up to 15th March 2014.

- Environmental assessment
 - No particulate matter and SO₂ emissions from process, NO_x emissions are controlled below 50 ppm by using dry low NO_x (DLN) burners;
 - Flaring only during emergency conditions
 - No ground water is being extracted
 - No process waste water generation. Sewage waste water is being disposed into soak pits
 - Limited noise generating sources (within limits)
 - Mangrove plantation is being undertaken - completed in 600 acres and in progress in another 500 acres
 - Limited hazardous solid wastes generated. About 1.0 kl/annum waste oil generated is being disposed to GPCB authorized recyclers
 - Established EHS cell is in operation
 - Six-monthly compliance reports being submitted to MoEF and GPCB
 - Corrective action required include (in compliance to Phase-II & 2nd Jetty EC conditions)
 - ✓ Sewage treatment plant shall be set up as disposing the sewage wastewater into soak pits near shore is not recommended. EC for Phase-II recommends STP
 - ✓ Piezometers shall be installed to check the marine water ingress
 - ✓ Green belt to be strengthened

- Environmental planning and management (ADB safeguard requirement 1-2)

The project is assessed to be compliant with environmental planning and management requirements of ADB. An EIA (for Phase 1) and an IEE (for Phase II) were prepared and the environmental management and monitoring plans have been satisfactorily implemented.

- Monitoring and reporting

- Environmental monitoring is being undertaken by engaging recognized third party consultant from Surat on monthly basis and being submitted to GPCB regularly
 - Attributes such as ambient air, source emissions, noise levels are covered
 - Six-monthly compliance reports being submitted to MoEF and GPCB
- Health and safety
 - Well established EHS cell is in place having laid down procedures and SOPs for Health & Safety on training to employees and contract labor, safety procedures, mock drill procedures, safety permitting, accident recording.

2. Social

(i) Land Acquisition and Resettlement Impacts

Existing plant has been set up within an area of 48 Ha. Govt. of Gujarat (GoG) has allocated about 64 Ha of the land at various stages as long term lease basis to PLL. Balance 16 Ha land is being used for the proposed expansion.

There were no habitation within the plant site and the land has been transferred by GoG, there were no physical and economical displacement. Neither setting up of LNG handling terminal has affected any buildings.

It has been confirmed by PLL that there were no outstanding grievances or litigations pending pertaining to land acquisition. No resettlement issues were involved.

PLL require about 38.62 Ha apart from above land. PLL has been allocated another 6 hectares of land on long term leases by GIDC in south side of the existing plot, which is already in the possessions of PLL. Additionally about 22.62 hectares of land on south side of existing plot is allocated by Forest Department to PLL and Stage-I clearance is accorded by Forest Department.

The land transfer letter from GoG and Letter from Forest Department, GoG are enclosed as **Annexure-V**.

(ii) Indigenous Peoples

The site is in a designated industrial area. The construction of the facilities of 5 MMTPA LNG terminal were undertaken in March 2001. During the discussions, PLL has confirmed that prior to the construction of the facilities; there were no private individuals or communities, scheduled tribes or otherwise, residing or carrying out subsistence activities within the project area. Therefore, no impacts on indigenous peoples due to the construction and operation of the LNG terminal are envisaged.

PLL is engaging many semi-skilled and un-skilled local population from the surrounding villages during construction activities. These people also include Scheduled Tribes (STs). Some of the local population were also engaged by PLL within the plant on contractual basis. It was observed that they speak the local language - Gujarati and are not dependent on subsistence based livelihood.

1. Stakeholder Engagement

PLL Dahej plant has an open door policy in interacting with the surrounding villagers and other stock holders. The HR & Admin Dept. is interacting with the local villagers regularly. The Public Hearing held on 19/06/2013 was convened by Regional Officer, GPCB and presided over by Resident District Collector. The meeting was attended by about 200 stakeholders including representatives from villages within 10-km radius, representatives from industries, NGO's and other stakeholders.

Ongoing Construction (2nd Jetty)

1. Environment

PLL has obtained Environment Clearance and Coastal Regulation Zone (CRZ) Clearance from MoEF vide letter no. J-17011/11/2000-IA-III dated 14th November 2008.

Construction phase would lead to temporary and localized impacts which are reversible. The impacts would include:

Land degradation in the sea shore and inter tidal zone:

During the site visit it was observed that civil construction of trestle and jetty has been completed and other integration works are in progress. It was also observed that land restoration in the intertidal zone and along the shore area has been completed.

Impact on micro and macro flora and fauna in marine water and marine sediments:

The impacts would be localized and temporary in nature and marine life will be regenerated once the construction is completed.

Impacts during the operation phase of Jetty:

The movement of vessels/ tankers and liquid waste/ ballast water disposal would impact the marine life. No ballast water will be used in LNG vessels. Only waste water generated will be sewage and other service water which are non-polluting and not contaminated with oil. This will be managed as per Gujarat Maritime Board (GMB) prevailing surveillance program.

2. Social

(iii) Land Acquisition and Resettlement Impacts

Existing plant has been set up within an area of 48 Ha. Govt. of Gujarat (GoG) has allocated about 64 Ha of the land at various stages as long term lease basis to PLL. Balance 16 Ha land is being used for the proposed expansion.

There were no habitation within the plant site and the land has been transferred by GoG, there were no physical and economical displacement. Neither setting up of LNG handling terminal has affected any buildings.

It has been confirmed by PLL that there were no outstanding grievances or litigations pending pertaining to land acquisition. No resettlement issues were involved.

PLL require about 38.62 Ha apart from above land. PLL has been allocated another 6 hectares of land on long term leases by Gujarat Industrial Development Corporation

(GIDC) in south side of the existing plot, which is already in the possessions of PLL. Additionally about 22.62 hectares of land on south side of existing plot is allocated by Forest Department to PLL and Stage-I clearance is accorded by Forest Department.

The land transfer letter from GoG and Letter from Forest Department, GoG are enclosed as **Annexure-V**.

(iv) Indigenous Peoples

The site is in a designated industrial area. The industrial area was notified in the year 2001 and the construction of the facilities of 5 MMTPA LNG terminal were undertaken in March 2001. During the discussions, PLL has confirmed that prior to the construction of the facilities; there were no private individuals or communities, scheduled tribes or otherwise, residing or carrying out subsistence activities within the project area. Therefore, no impacts on indigenous peoples due to the construction and operation of the LNG terminal are envisaged.

PLL is engaging many semi-skilled and un-skilled local population from the surrounding villages during construction activities. These people also include Scheduled Tribes (STs). Some of the local population were also engaged by PLL within the plant on contractual basis. It was observed that they speak the local language - Gujarati and are not dependent on subsistence based livelihood.

2. Stakeholder Engagement

PLL Dahej plant has an open door policy in interacting with the surrounding villagers and other stake holders. The HR & Admin Dept. is interacting with the local villagers regularly. The Public Hearing held on 19/06/2013 was convened by Regional Officer, GPCB and presided over by Resident District Collector. The meeting was attended by about 200 stakeholders including representatives from villages within 10-km radius, representatives from industries, nongovernment organizations (NGO's) and other stakeholders.

PLL's HR & Admin Department is in close coordination with the surrounding villages and is also responsible for implementation of CSR activities and peripheral development in the vicinity. PLL has spent Rs. 10 millions in 2008, Rs. 25 millions in 2009, Rs. 15 millions in 2010 and Rs. 30 millions in 2011 and Rs. 9.1 millions in 2012-13 towards various CSR activities and peripheral developmental activities. PLL has budgeted about Rs. 283.5 lakhs during 2013-14 in the areas of health, education and infrastructure development.

V. CONCLUSIONS

(i) Environment Performance of Audited Subprojects

It has been observed that PLL – Dahej terminal is complying with conditions stipulated by MoEF and GPCB as mentioned in the Environmental Clearance and Consent to Operate.

PLL – Dahej terminal has engaged a recognized laboratory from Surath to conduct the post project environmental monitoring for Ambient Air Quality, Water Quality, Noise Levels. All the parameters were observed to be well within the limit as per GPCB and MoEF norms.

PLL is required to submit six-monthly compliance on all the conditions of Environmental Clearances to MoEF and GPCB which is being done on a regular basis.

PLL has well documented procedures for EHS and also documented all the training records to employees and sub-contracted work force.

No non-conformities were observed in general with respect to the EHS activities. PLL has recorded 4.3 million accident-free man-hours till 31/08/2013.

(ii) Social Performance of Audited Subprojects

No Resettlement and rehabilitation issues arose/pending due to the land acquisition;

No indigenous people/ tribal population affected due to the project land acquisition and plant operations.

VI. CORRECTIVE ACTION PLAN

A. Improving the Environmental and Social Performance of Audited Plants

1. Environmental Safeguards.

Activity	Indicative Budget	Implementation Schedule
Setting up of Sewage treatment plant, recycling the treated sewage waste water	Rs. 10 millions	Immediate
Piezometers at 3 locations covering the entire plant	Rs. 6 millions	Immediate
Strengthening Greenbelt	Rs. 5 millions	In next 2 years

2. Public Consultation and Grievance Redress Mechanism.

PLL shall develop a structured procedure and organizational setup for public consultation and redressal mechanism.

Annexure-I

Environmental and Social Compliance Verification Audit



CONFIDENTIAL

Draft REPORT

Project Proponent:



PETRONET LNG LIMITED
New Delhi

Environmental & Social Compliance Verification Audit

Prepared by

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July 2013

1. Introduction

Petronet LNG Limited (PLL) is operating its existing LNG Import, Storage and Re-gasification facilities with a capacity of 10 MMTPA in Gujarat. This facility (hereafter referred to as subject facility) is located at distance of 5.8-km from Dahej town in SW Direction in Baruch District, Gujarat state. PLL is proposing to expand the capacity of subject facility to 20 MMTPA.

PLL would like to perform a Compliance Audit of the subject facility and requested Vimta Labs Limited, Hyderabad (Vimta) to carry out the same. In response to the above request, Vimta has prepared a preliminary report based on the documents made available by PLL. The subject facility was not specifically visited but has been discussed with PLL's corporate project cell. A comprehensive Environmental and Social Compliance Verification Audit report will be prepared after site visit to the subject facility at a later date.

The Environmental & Social Compliance and Performance Review of the subject facility integrates compliance audit and license reviews with ongoing industrial activities/ operation. These reviews include assessing compliance with legislative requirements and review of best environmental management practices. Industry, licensees, state agencies, local government, the community and other stakeholders have been considered during the review program.

Vimta has completed a preliminary review focusing on various environmental and social issues pertaining to the subject facility and its scale of operations. The object of this review is to increase the awareness of:

- Activities and practices that have the potential to affect the environment and social aspects and their compliance with respect to the regulatory frame work;
- Best environmental management practices to handle environment and social aspects in and around the subject facility.

2. Brief Description of the Project

Subject facility would receive and store LNG that is unloaded from ship tankers and regassify the LNG into natural gas for delivery to a pipeline. The terminal would be expected to operate continuously, with a design capacity of 20 MMTPA after proposed expansion. Existing LNG terminal consists of the following facilities:

- A) Marine
 - Jetty with unloading platform & unloading arms;
 - Trestle;
 - Berthing & mooring dolphins LNG Jetty; and
 - Stand by jetty (under construction)

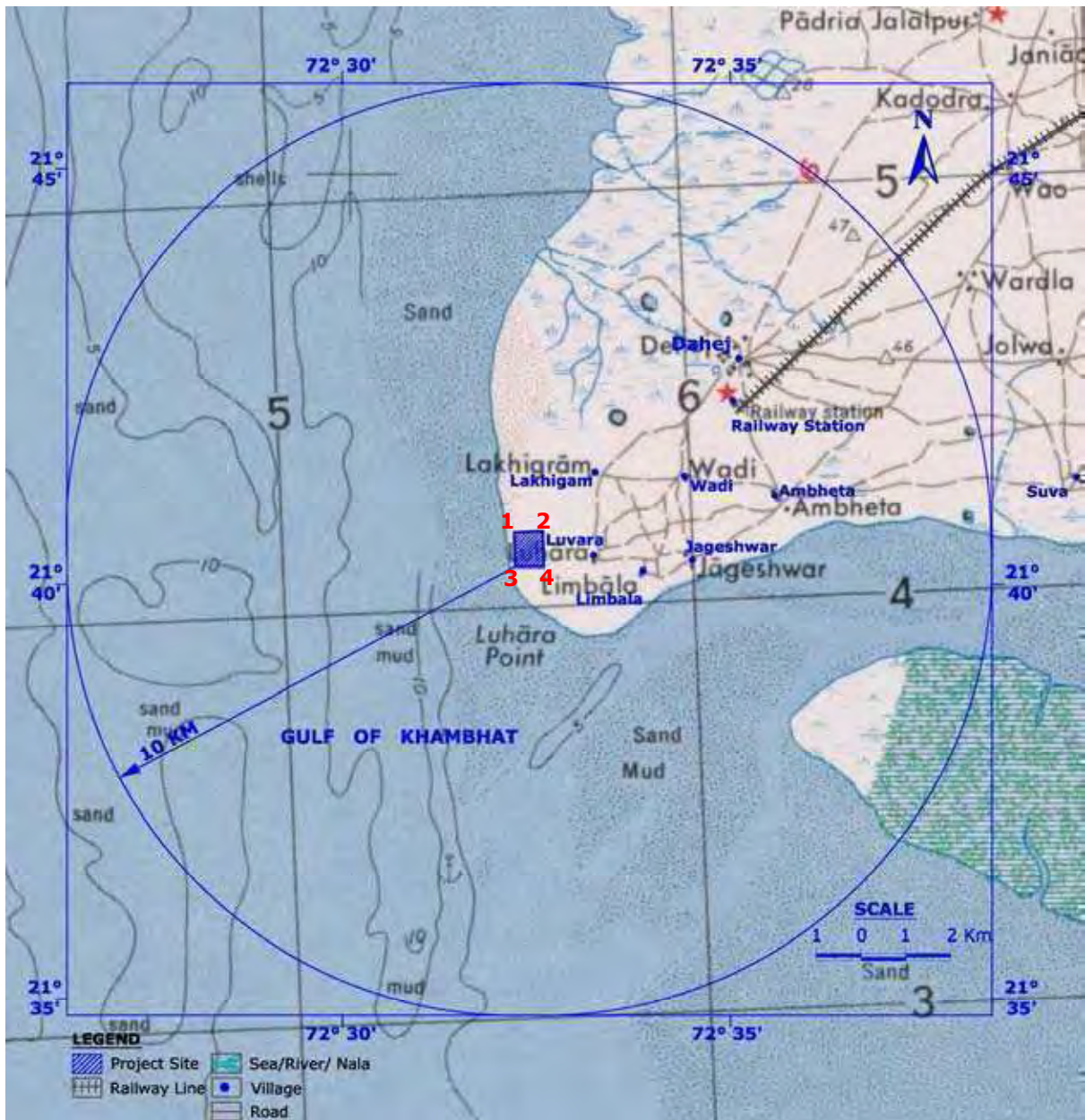
- B) Onshore
 - Storage Tanks
 - LP & HP Pumps;
 - Vaporizers; and
 - Utilities.

The index map showing the location of the subproject facility are given in Figure-1 and Figure-2, respectively. The plant lay-out and photographs of the existing facility are given in Figure-3 and Figure-4, respectively.



FIGURE-1

INDEX MAP SHOWING THE PROJECT SITE



	<u>Latitude</u>	<u>Longitude</u>
1	21° 40' 43.63''N	72° 31' 59.29'' E
2	21° 40' 43.93''N	72° 32' 20.73'' E
3	21° 40' 17.89''N	72° 32' 21.13'' E
4	21° 40' 17.66''N	72° 31' 59.70'' E

FIGURE-2
STUDY AREA OF THE PROJECT SITE

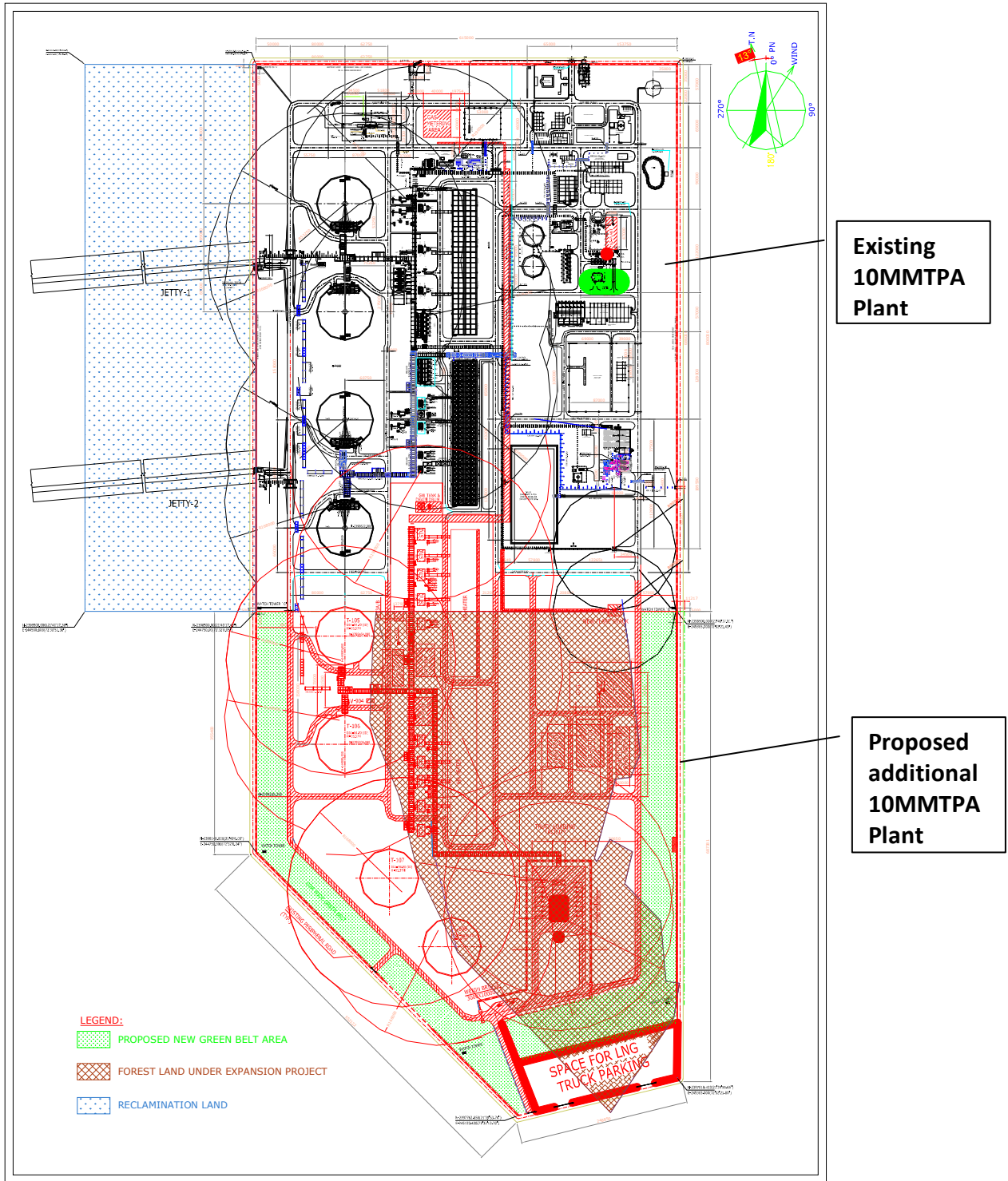


FIGURE-3
SITE MAP SHOWING FACILITIES



FIGURE-4
PHOTOGRAPHS OF THE EXISTING LNG FACILITIES

PLL's existing facility has been set up within a land of 48 Ha located within the notified industrial area of Gujarat Industrial Development Corporation (GIDC). No private land has been acquired and hence no displacement of habitation involved while setting up the existing facility.

3. Process Description

LNG at atmospheric pressure and (-)162°C will be transported by sea from LNG exporter by means of specially designed and dedicated LNG vessels of 80,000 m³ to 2,66,000 m³ capacity at the captive jetty of the subject facility at Dahej. LNG will be unloaded at the rate of 15,000 m³ by using unloading arms from LNG vessels. Annual throughput of LNG at the jetty is expected to be 5~10 MMTPA. The unloaded LNG will be pumped through dedicated pipelines to the LNG storage area. Capacity of LNG storage tanks has been firmed up after detailed engineering of the LNG terminal. Subsequently LNG will be gasified in the regasification area.

Regasification will occur by means of heat exchange using Gycol water in a close loop. After regasification, Natural Gas (NG) will be made available to various NG consumers' e.g., power industry, fertilizer manufacturers, glass industries, steel industry etc. It is to be noted that LNG provides the most economical and most environmental friendly option.

As per optimization strategy, closed loop waste heat recovery Shell & Tube LNG vaporizers will be installed to recover waste heat from flue gases from gas turbine generator exhaust. Also cold energy from LNG will be utilized for air conditioning of buildings. Typical LNG unloading and regasification facilities process flow is shown in **Figure-5**. Process flow diagram of LNG vaporization and send-out facilities is shown in **Figure-6**.

4. Regulatory Framework

The relevant legislations under which project would be evaluated have been listed below:

- Petroleum and Natural Gas Rules, 1989;
- The Forest (Conservation) Act, 1980;
- The Water (Prevention and Control of Pollution) Act, 1974;
- The Air (Prevention and Control of Pollution) Act, 1981;
- The Environment Protection Act, 1986, Rules there under (with amendments);
- Environmental Impact Assessment Notification, 2006;
- Public Insurance Liability (PIL) Act, 1995;
- The Factories Act, 1948;
- The Explosives Act 1984 and Rules 1993;
- Gas Cylinder Rules 1981;
- Coastal Regulation Zone Notification- 2011;
- Land Acquisition Act;
- Nation Rehabilitation & Resettlement Policy;
- Gujarat Rehabilitation & Resettlement Policy; and
- Any other Legislation pertaining to H & S;

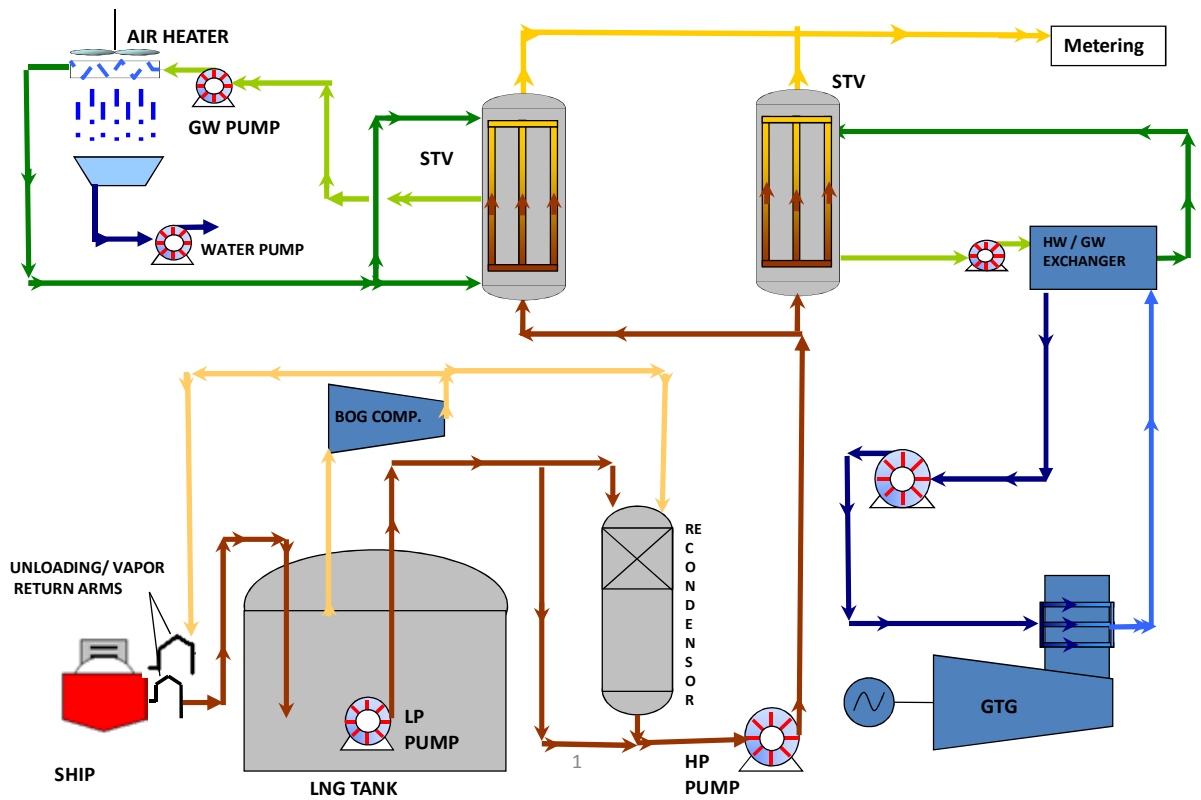
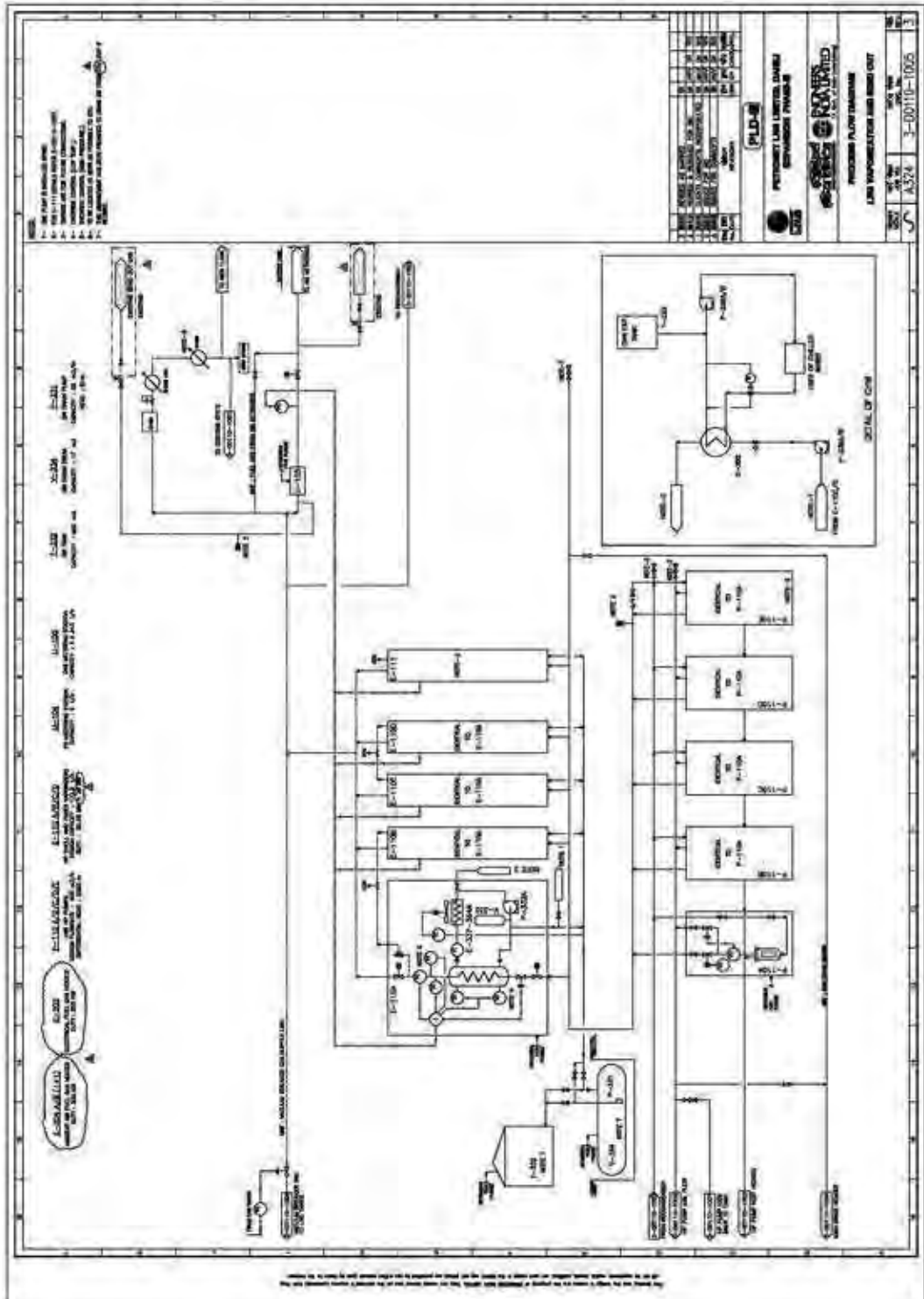


FIGURE-5
PROCESS FLOW CHART – LNG TERMINAL



**FIGURE-6
PROCESS FLOW DIAGRAM OF LNG VAPORIZATION AND SEND-OUT FACILITIES**

5. Scope and Methodology

Vimta has been requested to conduct an Environmental & Social Compliance and provide an independent review of performance of the subject facility. A brief preliminary review has been conducted in coordination with the corporate project team at Delhi and a draft report has been prepared in view of the paucity of time.

This will follow a detailed site visit and audit of the existing facility with respect legislative frame work as described above. A comprehensive report on Environmental & Social Compliance will be submitted as follow-on of the present study

6. Verification Audit

This section presents findings based on preliminary review of the documents provided by PLL corporate project team at New Delhi. The results are presented in **Table-1** and this table describes the relevant environmental and/or social parameter which could be impacted by the operations of subject facility. There are some general aspects which relate to the Project and these are described in **Table-1**.

7. Conclusions

This report presents findings of a verification audit which is based on a review and conversations/ meetings with the Project team.

During the course of our review, no significant issues were noted that have affected the environmental and social status of the facility of PLL. Facility operations are being carried out in such a way that appropriate environmental and social mitigations were adopted. It has been noted that the subject facility has obtained all the required permits from Gujarat Pollution Control Board (GPCB) and is complying with the conditions mentioned there in. These permits are valid upto 15/3/2014. Further, it is also noted that all relevant social and environmental risks and potential impacts have been addressed while operating the existing plant.

The findings of this draft audit have been discussed with PLL's corporate project team at Delhi.

TABLE-1
COMPLIANCE REPORT STRUCTURE REQUIREMENTS

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
General	Grievance mechanism and Grievances received	<p>PLL's existing plant has been set up in an area of 48 Ha of GIDC land. No private land has been acquired and hence there was no displacement of habitation involved while setting up the plant.</p> <p>However, PLL has maintained cordial relation with the surrounding villages and regular meetings of PLL land, social and environmental team in the villages gave people in these villages an opportunity to express their concerns and ask questions.</p> <p>An open door policy will be maintained to all persons from the following:</p> <ul style="list-style-type: none"> • Representatives of affected persons or the affected persons directly; • Representatives of the local governments or administration; • Workers; and • Members of the public with projects related questions or concerns 	<p>PLL has spent Rs. 8 crores towards Corporate Social Responsibility and peripheral development since the inception of the plant till 2011.</p> <p>The amount has been spent in villages Luvara, Lakhigam, Muler.</p> <p>PLL on its own and in co-operation with CODEGAZ, the CSR arm of GDF Suez, plan to do the welfare activities in the field of health, education, sanitation and such other welfare measures in and around the plant site.</p>	<p>No significant issues noted.</p> <p>The grievance register shall be set up at the project site for registering any grievances with respect to environmental and social issues, including:</p> <ul style="list-style-type: none"> • Queries regarding pollution status, CSR activities, • Potential impacts of the Project, in particular related to local ecology and the seacoast • The potential to be offered employment. <p>PLL shall identify staff who is assigned responsibility for administering the grievance mechanism which provides confidence that comments / grievances are likely to be logged and followed up.</p>

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
	Stakeholder Engagement	<p>65% of the employees are Gujarati. Local villagers were given preference in employment depending on the skill levels. Many of the local villagers have obtained secondary employment due to the operations of the existing plant.</p> <p>As there are no common properties involved neither water drawl from any surface water body is involved. Hence, there would be no involvement of stakeholders.</p>	Meetings with stakeholders specifically regarding the LNG terminal.	<p>No significant issues noted.</p> <p>Public Information Centre shall be established to manage public communications in a face-to-face manner. Though its not a necessity in the absence of stakeholders, establishing Public Information Centre may boost the public image of PLL with respect to pollution control and socio-economic well being of surrounding villages.</p>
	Training of Labour	PLL is formally sponsoring the training of people from surrounding villages.	As part of CSR activities, PLL is sponsoring the development of ITI in the region.	No significant issues noted.
	Employment of local people on Project sites	<p>PLL employed 65% of Gujarati local people during construction and 2000 local people during operation phase of project.</p> <p>All employment contracts were written in line the Labour Code.</p> <p>Wherever possible, PLL adopted the Government policies e.g. all employees were at least 18 years old and suitable for the task being assigned to them.</p>	Incorporation of requirements similar to the Government within the employment contracts	<p>No significant issues noted.</p> <p>The use of locals to undertake construction activities within their capability is a requirement of the agreement to construct the Project.</p>
Dahej	Required land use	The necessary land was acquired from the GIDC.	Not applicable	<p>No significant issues noted.</p> <p>No physical displacement has been</p>

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
		<p>No grazing land was taken for the LNG terminal in this area.</p> <p>No cropland was taken for the LNG terminal in this area.</p> <p>No physical displacement was necessary for the LNG terminal in this area.</p>		necessary as part of the LNG terminal in this area, plus no grazing land, cropland or any fruit trees were taken as part of the LNG terminal in this area.
	Applied compensation scheme and legislation for acquired land	Gujarat Industrial Development Corporation (GIDC) has allocated the required land as per terms and conditions for PLL Dahej.	Not applicable	No significant issues noted.
	Health and Safety at Construction Sites	PLL supervised and trained the employed along with contractors and personnel with international management in basic site safety and significant site hazards.	<p>A health and safety induction was given to all staff prior to commencement of the project.</p> <p>Issuing of personal protective equipment (PPE).</p> <p>Employment of a site supervisor</p>	<p>No significant issues noted.</p> <p>Vimta to review the various records, during the next site visit, pertaining to employing the local people local people employed on the site had attended and understood the health and safety induction, distribution of PPE, training on safety, the format of the Accident Investigation Report etc.</p>
	Affected Habitat – Critical Habitat	No critical habitat areas were recorded.	Not applicable	<p>No significant issues noted.</p> <p>No critical habitat areas were impacted in this location</p>
	Affected Habitat – Tree removal	Rs. 93.31 lakhs spent for development of Greenbelt/ Mangrove plantation during the year	Not applicable	<p>No significant issues noted.</p> <p>Extensive plantation was developed</p>

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
		2011-2012.		<p>by PLL along the boundary.</p> <p>PLL has planted about 356 Ha with Mangrove plantation along various places on Gujarat Coast in association with Gujarat Ecology Commission</p>
	Pollution prevention and control	<p>The impacts on the various environmental attributes are mitigated using appropriate pollution control equipment. The Environment Management Plan has been prepared for the LNG terminal aims at minimizing the pollution at source.</p> <p>Fugitive and stack emissions from the LNG terminal were monitored. The ambient air quality and stack emissions found within permissible limit prescribed by CPCB/MoEF.</p> <p>There is no generation of any liquid effluent from the process area. The domestic sewage generated is routed to soak pits</p> <p>Noise generating equipments are designed to conform to noise levels prescribed by regulatory authorities. Acoustic barriers and shelters has been provided in noisy workplaces.</p>		No significant issues noted.

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
		Personal Protective Equipments (PPE) such as earplugs, earmuffs to the workers working in high noise level area are provided by PLL.		
	Noise and Vibration Dust Site Traffic	The closest human dwellings are more than 1.5 km away and as a result experienced little or no disturbance in relation to noise / vibration, dust or site traffic. PLL has commitment to participate in traffic control management plan, which is prepared by Gujarat Maritime Board.		No significant issues noted. It was confirmed that there were no immediately apparent sensitive receptors within the vicinity of the plant. Although impacts were considered to be unlikely (given the remote location of nearest sensitive receptors), the supervision approach represented an appropriate way of managing any impacts associated with noise / vibration, dust and site traffic.
	Solid Waste and Disposal	PLL is not generating of any non-hazardous or inert solid waste from the process of LNG terminal. Approximately 3 KL/year of waste oil and 500 kg/year waste residue containing oil are being generating from the maintenance of LNG terminal. Hazardous waste is collected and stored at specific identified area at site.		No significant issues noted. Construction materials used and associated waste streams will have been limited to the following; <ul style="list-style-type: none"> • Crushed rock • Excess membrane • Timber off-cuts • Packing materials (such as plastic) • General waste (food waste, plastic, tins, glass)

Location	Parameter	The PLL Audit Discussion / Findings	PLL Mitigation Measures	Vimta Labs Findings and Comments
		Authorized agency is hired for the collection and disposal of Hazardous waste.		<p>Volumes generated are expected to have been relatively low. It is understood that waste generated was collected at the end of each working day and taken to local waste disposal facilities. There was no evidence of any refuse on the site during the site visit.</p> <p>All vehicle maintenance activities were undertaken by the transport contractors and therefore there was no oil / lubricant / fuel which needed to be disposed of or handled at the work site.</p>
	Coastal and Marine Ecology	There is no intake of seawater and out flow of water in the sea, hence it is felt that a marine ecology is not affecting.		No significant issues noted.

Annexure-II

**ISO 9001:2008, ISO 14001:2004 and the OHSAS 18001:2007
Certificates**



DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 19288-2008-AQ-IND-UKAS Rev. 02

This is to certify that

Petronet LNG Limited

at

GIDC Industrial Estate, Plot No. 7/A, Bharuch - 392 130, INDIA

has been found to conform to the Quality Management System Standard:

ISO 9001:2008

This certificate is valid for the following scope:

**PORT OPERATION, RECEIPT OF LNG,
STORAGE, RE-GASIFICATION AND DISPATCH OF RLNG AND LNG**

Initial Certification date:

21 January 2005

This Certificate is valid until:

21 January 2014

*The audit has been performed under the
supervision of:*

Sameer Saxena
Lead Auditor



Place and date of Issue:

Chennai, 11 January 2011

for the Accredited Unit:

DET NORSKE VERITAS CERTIFICATION B.V.,
THE NETHERLANDS

Bhupalam Ajit
Management Representative



DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 19286-2008-AE-IND-UKAS Rev. 01

This is to certify that

Petronet LNG Limited

at

GIDC Industrial Estate, Plot No. 7/A, Bharuch - 392 130, INDIA

has been found to conform to the Environmental Management System Standard:

ISO 14001:2004

This certificate is valid for the following scope:

**PORT OPERATION, RECEIPT OF LNG,
STORAGE, RE-GASIFICATION AND DISPATCH OF RLNG**

Initial Certification date:

21 January 2005

This Certificate is valid until:

21 January 2014

*The audit has been performed under the
supervision of:*

Sameer Saxena
Lead Auditor



Place and date of Issue:

Chennai, 11 January 2011

for the Accredited Unit:

DET NORSKE VERITAS CERTIFICATION B.V.,
THE NETHERLANDS

Bhupalam Ajit
Management Representative



DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 19290-2008-HSO-IND-DNV Rev. 01

This is to certify that

Petronet LNG Limited

at

GIDC Industrial Estate, Plot No. 7/A, Bharuch - 392 130, INDIA

has been found to conform to the Occupational Health and Safety Management System Standard:

OHSAS 18001:2007

This certificate is valid for the following scope:

**PORT OPERATION, RECEIPT OF LNG,
STORAGE, RE-GASIFICATION AND DISPATCH OF RLNG**

Initial Certification date:

21 January 2005

This Certificate is valid until:

21 January 2014

*The audit has been performed under the
supervision of:*

Sameer Saxena
Lead Auditor

Place and date of Issue:

Chennai, 11 January 2011

for the Certifying Unit:

DET NORSKE VERITAS AS
MUMBAI, INDIA



Bhupalam Ajit
Management Representative

Annexure-III Site Visit Photographs



Annexure-IV
Environmental Clearances from MoEF

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No. J-17011/11/2000-1A-III
Government of India
Ministry of Environment & Forests

Paryavaran Bhavan
C.G.O. Complex, Lodhi Road,
New Delhi-110003

December 27, 2000

Sub: Construction of LNG Import Terminal at Dahej, Gujarat by M/s Petronet LNG Limited - Environmental Clearance Regarding.

Reference is invited to the letter no. ENV-10-2000-181-P1 dated 29th September, 2000 from Forest and Environment Department, Government of Gujarat and subsequent clarifications furnished vide their letter dated 13th December, 2000 regarding the subject mentioned above. Clarification furnished by M/s Petronet LNG Limited vide their letters no. PLL/ND/D-7/2K, dated 21st November, 2000 and 7th December, 2000 have been considered.

It is noted that proposal involves construction of a jetty and breakwater, LNG storage tanks (2 Nos), pumping and regasification facilities as well as utilities. The capacity of the LNG terminal is 5 MMTPA in the first phase. The estimated cost of the project is Rs. 2800 crores. It is also noted that the proposal does not involve any dredging. The regasification of LNG will be done using ambient air and glycol water in closed loop for vapourisation. The public hearing for the proposal has been held on 19th November, 1999. The Gujarat Pollution Control Board has accorded NOC for the LNG storage tanks on 2nd February, 2000.

The proposal has been examined in the Ministry of Environment & Forests and environmental clearance to this project is hereby accorded subject to effective implementation of the following conditions.

(a) Specific Conditions

- (i) Necessary approval for diversion of 10.5 ha forest land involved in the project shall be obtained under the provisions of the Forest (Conservation) Act, 1980 and a copy furnished to this Ministry prior to commencement of construction at site.
- (ii) The plant lay out shall be so planned to ensure that no portion of LNG storage and re-gasification facilities fall within CRZ I(i). The final lay out plan along with demarcation of CRZ areas and their classification shall be submitted to this Ministry prior to commencement of construction at site.
- (iii) No change in the scope of work shall be made without prior approval of this Ministry.

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- (iv) No dredging (capital or maintenance) shall be carried out in the project. If at any stage, necessity of dredging is felt, specific approval for the same shall be obtained.
 - (v) A proper location map clearly showing the various project activities with respect to the high tide line (duly demarcated by one of the authorised agencies) and the corresponding CRZ classification of the area shall be furnished within one month.
 - (vi) A quantitative risk analysis of the LNG terminal and associated facilities shall be carried out taking into account the worst case scenario and based on firmed up engineering design. The report should be submitted within 6 months. The Central Control Room must be located well outside the risk zone.
 - (vii) Based on the risk analysis, Disaster Management Plan should be prepared and submitted to this Ministry within 6 months.
 - (viii) A clarifications may be obtained from the State Pollution Control Board to the effect that the NOC issued by them is for the entire project and not restricted to two storage tanks. This may be provided within one month.
 - (ix) The details of the facilities to be provided by the company to the local population may be furnished within one month.
 - (x) The project proponents should make specific arrangements for rain water harvesting in the project design and the rain water so harvested should be optimally utilised.
 - (xi) All the conditions stipulated by the Forest and Environment Department Government of Gujarat vide their letter no. ENV-10-2000-1S1-P.1 dated 29th September, 2000 should be effectively implemented.
 - (xii) All the conditions stipulated by Gujarat Pollution Control Board in their NOC should be effectively implemented.
 - (xiii) The jetty will be constructed on piles to enable the free flow of water across the jetty.
 - (xiv) The construction material shall be obtained only from approved quarries. In case new quarries need to be opened up specific approval for the same shall be obtained.
- (b) General Conditions
- (i) Construction of the proposed structures should be undertaken meticulously conforming to the existing Central/Local rules and regulations including CRZ

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Notification 1991 & its amendments. All the construction designs / drawings relating to the proposed construction activities must have approvals of the concerned State Government Departments / Agencies

- (ii) The proponent shall ensure that as a result of the proposed constructions, ingress of the saline water into the ground water does not take place. Piezometers shall be installed for regular monitoring for this purpose at appropriate locations on the project site.
- (iii) Handling, manufacturing, storage and transportation of all hazardous chemicals should be carried out in accordance with MSIH Rules, 1989 and subsequent amendments. All approvals from State & Central nodal agencies including OISD, Chief Controller of Explosives, Chief Inspectorate of Factories must be obtained. A comprehensive contingency plan in collaboration with the concerned authorities must be formulated before commissioning of the project to meet any eventuality in case of an accident.
- (iv) A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up so as to ensure that the quality of ambient air and water conforms to the prescribed standards. The laboratory will also be equipped with qualified manpower including a marine biologist so that the marine water quality is regularly monitored in order to ensure that the marine life is not adversely affected as a result of implementation of the said project. The quality of ambient air and water shall be monitored periodically in all the seasons and the results should be properly maintained for inspection of the concerned pollution control agencies. The periodic monitoring reports at least once in 6 months must be sent to this Ministry (Regional Office at Bhopal) and SPCB.
- (v) Adequate provisions for infrastructure facilities such as water supply, fuel for cooking, sanitation etc. must be provided for the laborers during the construction period in order to avoid damage to the environment. Colonies for the laborers should not be located in the CRZ area. It should also be ensured that the construction workers do not cut trees including mangroves for fuel wood purpose.
- (vi) To prevent discharge of sewage and other liquid wastes in to the water bodies, adequate system for collection and treatment of the wastes must be provided. No sewage and other liquid wastes without treatment should be allowed to enter into the water bodies.
- (vii) Appropriate facility should be created for the collection of solid and liquid wastes generated by the barges/vessels and their safe treatment and disposal should be ensured to avoid possible contamination of the water bodies.

- (viii) Necessary navigational aids such as channel markers should be provided to prevent accidents. Internationally recognised safety standards shall be applied in case of barge/vessel movements.
- (ix) The project authorities should take appropriate community development and welfare measures for the villagers in the vicinity of the project site, including drinking water facilities. A separate fund should be allocated for this purpose.
- (x) The quarrying material required for the construction purpose shall be obtained only from the approved quarries / borrow areas. Adequate safeguard measures shall be taken to ensure that the overburden and rocks at the quarry site do not find their way into water bodies.
- (xi) The dredging operations to be undertaken with the prior approval of this Ministry, shall be executed with appropriate safeguard measures to prevent turbidity conditions in consultation with the expert agencies such as CWPRS/NIO.
- (xii) For employing unskilled, semi-skilled and skilled workers for the project, preference shall be given to local people.
- (xiii) The recommendations made in the Environment Management Plan and Disaster Management Plan, as contained in the EIA and Risk Analysis Reports of the project shall be effectively implemented.
- (xiv) A separate Environment Management Cell with suitably qualified staff to carry out various environment related functions should be set up under the charge of a Senior Executive who will report directly to the Chief Executive of the Company.
- (xv) The project affected people, if any should be properly compensated and rehabilitated.
- (xvi) The funds earmarked for environment protection measures should be maintained in a separate account and there should be no diversion of these funds for any other purpose. A year-wise expenditure on environmental safeguards should be reported to this Ministry.
- (xvii) Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and State Pollution Control Boards by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans, including the action taken reports in respect of mitigative measures and other environmental protection activities.
- (xviii) In case of deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental

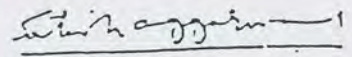
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protection. The project proponents should be responsible for implementing the suggested safeguard measures.

- (xix) This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.
- (xx) This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.
- (xxi) The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at <http://www.envfor.nic.in>
- (xxii) The Project proponents should 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 Land Development Work.

The above mentioned stipulations will be enforced among others under 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 Chemicals (Manufacture, Storage and Import) Rules, 1989, the Coastal Regulation Zone Notification, 1991 and its subsequent amendments and the Public Liability Insurance Act, 1991 and the Rules made thereunder from time to time. The project proponents should also ensure that the proposal complies with the provisions of the approved Coastal Zone Management Plan of Gujarat State and the Supreme Court's order dated 18th April, 1996 in the Writ Petition No. 664 of 1993 to the extent the same are applicable to this proposal.


(Dr S K: Aggarwal)
Additional Director

To
1 The Director (Technical)
Petronet LNG Limited,
World Trade Centre,
1st Floor, Babar Road, Barakhamba Lane,
New Delhi - 110001

2 Shri J K. Vyas,
Director (Environment)
Forests & Environment Department,
Government of Gujarat,
Block No. 14, 8th Floor, Sachivalaya, Gandhinagar - 382010

“Annexure B”

“Annexure B”

No.J-17011/11/2000-IA-III
Government of India
Ministry of Environment and Forests
(IA-III Division)

Paryavaran Bhavan,
CGO Complex, Lodhi Road,
New Delhi - 110003.

Dated the 23rd November, 2005

Sub: Expansion of LNG Project i.e., Phase-II at Dahej, District Bharuch by M/s Petronet LNG Limited - regarding.

Reference is invited to the letter No.ENV-10-2004-117-P, dated 28.7.2005 from Forests and Environment Department, Government of Gujarat and subsequent clarifications furnished vide letter No.PLL/ND/D-7/2K5, dated 5.7.2005, dated 18.8.2005, dated 7.9.2005 from M/s Petronet LNG Limited regarding the subject mentioned above. No Objection Certificate from Gujarat Pollution Control Board vide their No.PC/BRCH-CCA-611/28337, dated Nil has also been obtained. The earlier clearance accorded by Monsieur of Environment and Forests for the Phase-I of the project issued vide letter No.17011/11/2000-IA.III, dated 27.12.2000 has also been taken into account.

The proposal is for the proposed expansion of LNG project (Phase-II) at Dahej, District Bharuch. The present proposal is for expansion of the existing plant which includes installation of two additional LNG storage tanks, two numbers of 160,000 m³ each with 81 m dia and 55 metre height. Further, one additional regassification unit for handling 5 MMTPA. The cost of the project is estimated to be Rs.1,100 crores. No additional marine facilities are proposed. Two more Gas Turbine Generators (GTGs) are being added with capacity of 7.7 MW each. No new flare and other utility systems are proposed.

The above activity falls within the Coastal Regulation Zone area of the existing project site, which is about 48 ha. No additional land is proposed to be procured for Phase-II of the project. No new facilities are also proposed to be undertaken in the marine area, since the existing foreshore facilities will be utilized for the present expansion project. This 48 ha of land also involves 10 ha of forestland for which Forest Clearance letter has been obtained vide letter No.FCA-102000-174-A, dated 23.8.2001 from Government of Gujarat, Forest and Environment Department.

The proposal has been examined in the Ministry of Environment & Forests under the provisions of Coastal Regulation Zone Notification facilities for receipt, storage and degasification of LNG are permissible in CRZ area except in CRZ-I (i).

A. SPECIFIC CONDITIONS:

- (i) All the conditions stipulated by the Ministry vide Ministry's letter of even number dated 27.12.2000 and also Forests and Environment Department, Government of Gujarat vide their letter No.ENV-10-2004-117-P, dated 28.7.2005 should be effectively implemented.
- (ii) All the conditions stipulated by Gujarat Pollution Control Board in their NOC No.PC/BRCH-CCA-611/28337, dated Nil should be effectively implemented.

- (iii) Quantitative Risk Analysis of the LNG Terminal and associated facilities should be carried out taking into account the worst case scenario and based on formed up engineering design. The report should be submitted six monthly. The Central Control Room should be located well outside the risk zone.
- (iv) Based on the risk analysis, Disaster Management Plan should be prepared and submitted to this Ministry within 6 months.
- (v) The details of the facilities to be provided by the company to the local population should be furnished within one month.
- (vi) The construction material shall be obtained from the approved quarries. In case new quarries need to be opened up, specific approval for the same should be obtained.
- (vii) No change in scope of work should be made without prior approval of this Ministry.
- (viii) It should be ensured that no project activities including pipelines shall fall within Coastal Regulation Zone-I(i).
- (ix) Expansion of existing service road into Coastal Regulation Zone-I(i) areas is strictly prohibited.
- (x) The construction design relating to the project should be reviewed to ensure their safety keeping in view the seismic potential of the area.
- (xi) No ground water should be used for the project.
- (xii) The project proponents should make specific arrangement for rainwater harvesting in the project design and the rainwater so harvested should be optimally utilized.
- (xiii) The project proponent will undertake mangrove afforestation in consultation with Forest Department, Government of Gujarat in the adjacent area abutting the site. A detailed plan should be worked out in this regard and submitted to this Ministry within 3 months.
- (xiv) The budget allocated for environment safeguard measures shall not be diverted for any other purpose.

B. GENERAL CONDITIONS:

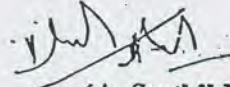
- (i) Construction of the proposed structure should be undertaken meticulously conforming to the existing Central/local rules and regulations including Coastal Regulation Zone Notification, 1991 and its amendments. All the construction designs/drawings relating to the proposed construction activities must have approvals of the concerned State Government Departments/Agencies.
- (ii) The proponent shall ensure that as a result of the proposed constructions, ingress of the saline water into the groundwater does not take place. Piezometers shall be installed for regular monitoring for this purpose at appropriate locations on the project site.
- (iii) Handling, manufacturing, storage and transportation of all hazardous chemicals should be carried out in accordance with MSIHC Rules, 1989 and subsequent amendments. All approvals from State and Central nodal agencies including OISD, Chief Controller of Explosives, Chief Inspectorate of Factories must be obtained. A comprehensive contingency plan in collaboration with the concerned authorities must be formulated before commissioning of the project to meet any eventuality in case of an accident.
- (iv) A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up so as to ensure that the quality of ambient air and water conforms to the prescribed standards. The laboratory will also be equipped with qualified manpower including a marine biologist so that the marine water quality is regularly monitored in order to ensure that the marine life is not adversely affected as a result of implementation of the said project. The quality of ambient air and water shall be monitored periodically in all the seasons and the results should be properly maintained for inspection of the concerned pollution control

- agencies. The periodic monitoring reports at least once in 6 months must be sent to this Ministry (Regional Office at Bangalore) and State Pollution Control Board.
- (v) Adequate provisions for infrastructure facilities such as water supply, fuel for cooking, sanitation etc. must be provided for the labourers during the construction period in order to avoid damage to the environment. Colonies for the laborers should not be located in the Coastal Regulation Zone area.
 - (vi) To prevent discharge of sewage and other liquid wastes into the water bodies, adequate system for collection and treatment of the wastes must be provided. No sewage and other liquid wastes without treatment should be allowed to enter into the water bodies.
 - (vii) Appropriate facility should be created for the collection of solid and liquid wastes generated by the barges/vessels and their safe treatment and disposal should be ensured to avoid possible contamination of the water bodies.
 - (viii) The project authorities should take appropriate community development and welfare measures for villagers in the vicinity of the project site, including drinking water facilities. A separate fund should be allocated for this purpose.
 - (ix) The quarrying material required for the construction purpose shall be obtained only from the approved quarries/borrow areas. Adequate safeguard measures shall be taken to ensure that the overburden and rocks at the quarry site do not find their way into water bodies.
 - (x) For employing unskilled, semi-skilled and skilled workers for the project, preference shall be given to local people.
 - (xi) The recommendations made in the Environment Management Plan and Disaster Management Plan, as contained in the Environmental Impact Assessment and Risk Analysis Reports of the project shall be effectively implemented.
 - (xii) A separate Environment Management Cell with suitably qualified staff to carry out various environmental studies/analysis should be set-up under the charge of a Senior Executive who will report directly to the Chief Executive of the Company.
 - (xiii) The project affected people, if any should be properly compensated and rehabilitated.
 - (xiv) The funds earmarked for environment protection measures should be maintained in a separate account and there should be no diversion of these funds for any other purpose. A year-wise expenditure on environmental safeguards should be reported to this Ministry.
 - (xv) Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and State Pollution Control Boards by the project proponents during their inspection for monitoring purposes by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.
 - (xvi) In case of deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection. The project proponents should be responsible for implementing the suggested safeguard measures.
 - (xvii) This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.
 - (xviii) This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary for environmental protection, which shall be complied with.
 - (xix) The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the

State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at <http://www.envfor.nic.in>. The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry at Bhopal.

- (xx) The Project proponents should 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 Land Development Work.

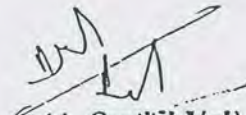
The above mentioned stipulations will be enforced among others under the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (protection) Act 1986, the Hazardous Chemicals (Manufacture, Storage and Import) Rules 1989, the Coastal Regulation Zone Notification, 1991 and its subsequent amendments and the Public Liability Insurance Act, 1991 and the Rules made thereunder from time to time. The project proponents should also ensure that the proposal complies with the provisions of the approved Coastal Zone Management Plan of Gujarat and the Supreme Court's order dated 18th April, 1996 in the Writ Petition No.664 of 1993 to the extent the same are applicable to this proposal.


(A. Senthil Vel)
Additional Director

To
General Manger (LNG),
Petronet LNG Limited,
World Trade Centre,
First Road, Babar Road,
Barakhamba Lane,
New Delhi -110001.

Copy to:

1. Shri Deepak Srivatava, Dy. Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (Western Region), Kendriya Paryavaran Bhavan, Link Road No.3, Ravi Shankar Nagar, Bhopal - 462 016.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 110032.
3. Shri J. K. Vyas, Director (Environment), Forests & Environment Department, Government of Gujarat, Block No.14, 8th Floor, Sachivalaya, Gandhinagar - 382 010.
4. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhavan, Sector 10-A, Gandhinagar - 382 010, Gujarat.
5. DIG (SU), Regional Office Cell, Ministry of Environment & Forests, New Delhi.
6. Director (EI), Ministry of Environment & Forests, New Delhi.
7. Guard File.
8. Monitoring Cell.


(A. Senthil Vel)
Additional Director

25.11.8
Sr VP (Dahej & Kochi)

No.J-17011/11/2000-IA-III
Government of India
Ministry of Environment and Forests
(IA-III Division)

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110003

Dated the 14th November, 2008

Sub: Environmental clearance for setting up of standby LNG jetty at Dahej, District Bharuch in Gulf of Khambhat, Gujarat by M/s Petronet LNG Limited – regarding.

Reference is invited to the letter No.ENV-10-2004-117-E, dated 5.9.2008 from Forest and Environment Department, Government of Gujarat and letters No.ND/LNG/D-7/2K7, dated 30.11.2007, dated 11.12.2007, dated 2.1.2008 and No.ND/LNG/D-7/2K8, dated 8.9.2008 from M/s Petronet LNG Limited regarding the subject mentioned. Subsequently, information has been received vide letter No.ND/LNG/D-7/2K8, dated 8.10.2008 from M/s Petronet LNG Limited. No Objection Certificate has been obtained vide letter No.GPCB/BRCH/NOC-3524/(CCA-611/22470, dated Nil. The Ministry had earlier accorded clearance for the Phase-I on 27.12.2000 and for the Phase-II on 23rd November, 2005. The proposal involved storage of LNG, regassification plant and marine facilities.

2. The project involves construction of a standby LNG jetty at Dahej to handle LNG of over 5MMTPA. With the construction of this standby jetty there will be no increase in the capacity of the terminal which will be 10MMTPA after expansion. The terminal will have 4 storage tanks after expansion with a capacity of 10 MMTPA for which environmental clearance has already been obtained from Ministry of Environment and Forests vide letter of even number dated 8.1.2008. The jetty will involve an approach trestle, unloading platform and mooring dolphin which will form a landfall point at the shore. No extra storage facility will be required. Further, no additional land will also be required for the project. For the project during construction 50 m cu of water would be required. The capital cost of the project is Rs.1,200 crore.

3. The project was considered in the Expert Committee meeting held on 27th & 28th December, 2007 and 22nd & 23rd October, 2008 and recommended the project. Keeping in view the above facts, the proposal has been examined in the Ministry of Environment & Forests and environmental clearance from Environmental Impact Assessment Notification, 2006 and Coastal Regulation Zone Notification, 1991 is hereby accorded to this project subject to effective implementation of the following conditions:-

(A) Specific Conditions:

- i) Adequate safety measures for the offshore structure and ship navigation shall be taken in view of the high current in the area.
- ii) The shore line changes in the area shall be monitored periodically.
- iii) The recommendation of the Scour study shall be incorporated in the design.
- iv) The recommendations of the risk assessment shall be implemented. Any change in the design the project shall come before the committee for seeking necessary approval.
- v) Mangrove plantation to be done in consultations with the GEER/GEC of Forest Department, a detailed plan shall be submitted within six months from the date of receipt of this letter.
- vi) It shall be ensured that during construction and post construction of the proposed jetty the movement fishermen vessels of the local communities are not interfered with.

- vii) Relocation of the fishermen community shall be done strictly in accordance with the norms prescribed by the State Government. The relocated fishermen community shall be provided with all facilities including health care, education, sanitation and livelihood.
- viii) Marine ecology monitoring shall be done regularly during construction of Breakwater and dredging operation.
- ix) Regular monitoring of air quality shall be done in the settlement areas around the project site and appropriate safeguard measures shall be taken to ensure that the population is not subjected to higher levels of air pollution.
- x) Sewage arising in the port area shall be disposed off after adequate treatment to conform to the standards stipulated by Gujarat State Pollution Control Board and shall be utilized/re-cycled for gardening, plantation and irrigation.
- xi) Adequate plantation shall be carried out along the roads of the Port premises and a green belt shall be developed.
- xii) There shall be no withdrawal of ground water in CRZ area, for this project.
- xiii) Specific arrangements for rain water harvesting shall be made in the project design and the rain water so harvested shall be optimally utilised. Details in this regard shall be furnished to this Ministry's Regional Office at Bhopal within 3 months.
- xiv) Land reclamation shall be carried out only to the extent that it is essential for this project.
- xv) No product other than those permissible in the Coastal Regulation Zone Notification, 1991 shall be stored in the Coastal Regulation Zone area.

B. General Conditions:

- (i) Construction of the proposed structures, if any in the Coastal Regulation Zone area shall be undertaken meticulously conforming to the existing Central/local rules and regulations including Coastal Regulation Zone Notification 1991 & its amendments. All the construction designs / drawings relating to the proposed construction activities must have approvals of the concerned State Government Departments / Agencies.
- (ii) Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. shall be ensured for construction workers during the construction phase of the project so as to avoid felling of trees/mangroves and pollution of water and the surroundings.
- (iii) The project authorities must make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc. must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests under the Environment (Protection) Act, 1986, whichever are more stringent.
- (iv) The proponent shall obtain the requisite consents for discharge of effluents and emissions under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (prevention and Control of Pollution) Act, 1981 from the Gujarat Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.
- (v) The sand dunes, corals and mangroves, if any, on the site shall not be disturbed in any way.
- (vi) A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.
- (vii) The funds earmarked for environment protection measures shall be maintained, in a separate account and there shall be no diversion of these funds for any other purpose. A year-wise expenditure on environmental safeguards shall be reported to this Ministry's Regional Office at Bhopal and the State Pollution Control Board.

- (viii) Full support shall be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and State Pollution Control Boards by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.
- (ix) In case of deviation or alteration in the project including the implementing agency, a fresh reference shall be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection.
- (x) This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.
- (xi) This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.
- (xii) The project proponent shall advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at <http://www.envfor.nic.in>. The advertisement shall be made within 7 days from the date of issue of the clearance letter and a copy of the same shall be forwarded to the Regional Office of this Ministry at Bhopal.
- (xiii) The Project proponents shall inform the Regional Office at Bhopal 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 Land Development Work.
- (xiv) Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.

6. The above mentioned stipulations will be enforced among others under 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 Chemicals (Manufacture, Storage and Import) Rules, 1989, the Coastal Regulation Zone Notification, 1991 and its subsequent amendments and the Public Liability Insurance Act, 1991 and the Rules made thereunder from time to time. The project proponents shall also ensure that the proposal complies with the provisions of the approved Coastal Zone Management Plan of Gujarat State and the Supreme Court's order dated 18th April, 1996 in the Writ Petition No.664 of 1993 to the extent the same are applicable to this proposal.




(Dr. A. Senthil Vel)
Additional Director

To

Director (Environment),
Forests & Environment Department,
Government of Gujarat, Block No.14,
8th Floor, Sachivalaya, Gandhinagar – 382 010.

Copy to:

1. The Chief Conservator of Forests, Ministry of Environment & Forests, Ministry of Environment & Forests, Regional Office (Western Region), Kendriya Paryavaran Bhavan, Link Road No.3. Ravi Shankar Nagar, Bhopal – 4620 16.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 110032.
3. The Chairman, Gujarat State Pollution Control Board, Paryavaran Bhavan, Sector 10-A, Gandhinagar – 382 010, Gujarat.
4. Director (Technical), M/s Petronet LNG Limited, World Trade Centre, First Floor, Babar Road, Barakhamba Lane, New Delhi-110001.
5. DIG (SU), Regional Office Cell, Ministry of Environment & Forests, New Delhi.
6. Guard File.
7. Monitoring Cell.
8. Direct (EI), Ministry of Environment & Forests, New Delhi.


(Dr. A. Senthil Vel)
Additional Director

ANNEXURE-V
RECLAMATION AND FOREST LAND DOCUMENTS



GMB/N/PVT/183(10)/ 557-9686 **GUJARAT MARITIME BOARD**
November 3, 2011

To, ⁵
Mr R K Garg,
Sr, VP-Fin. & Company Secretary
✓ Petronet LNG Limited
World Trade Centre, First floor
Babar Road,
Baramhamba Lane
New Delhi-110 001

Sub: *Land on waterfront at Dahej LNG Terminal.*

Sir,

Please refer your letter No: PLL/GMB/DHJ-006 dated April 18, 2011 submitting consent on reclaimed land proposal submitted to GMB on June 12, 2009.

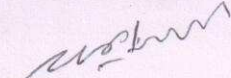
In view of this, the Board of GMB resolved to grant In – Principle approval to M/s PLL for reclamation of land admeasuring 800x250 mt adjacent to the waterfront allotted for LNG facilities at Dahej subject to following conditions.

1. M/s PLL shall have to obtain necessary approvals/clearance from the concerned authorities of Government of Gujarat and Government of India including Environment Clearance & CRZ Clearance prior to the commencement of reclamation of the proposed land.
2. M/s PLL shall have to take approval of GMB under section 35(1) of GMB Act 1981 prior to the commencement of reclamation of the proposed land after the receipt of necessary approvals/clearances including Environment Clearance & CRZ Clearance.
3. Detailed Design Drawings for protection, bunding & reclamation shall have to be submitted to GMB by M/s PLL along with the Detailed Project Report for the proposed reclamation for the approval of GMB.
4. The proposed reclamation shall not create any hindrance in the navigational channel.
5. The mitigation of the adverse impact, if any, arise due to the proposed reclamation shall be sole responsibility of M/s PLL.
6. M/s PLL shall have to submit quarterly progress report to Head Office, GMB under intimation to Port Officer, Dahej, GMB.

ANNEXURE-V
RECLAMATION AND FOREST LAND DOCUMENTS

7. The ownership of all the land to be reclaimed as proposed by M/s PLL shall vest with GMB
8. M/s PLL shall have to submit an undertaking on judicial stamp paper that the proposed reclaimed land shall not form a part of contract assets and therefore, no compensation shall be payable at the end of the concession period or on termination, as the case may be prior to commencement of reclamation of the proposed land.
9. A separate supplementary lease & possession agreement for the proposed reclaimed land shall have to be executed with GMB by M/s PLL for the period in concurrent with Concession Agreement executed between GMB and M/s PLL subject to the approval of the GoG, and terms and conditions as may be decided by the GoG for the allotment of proposed reclaimed land will be binding upon M/s PLL.

Yours' faithfully



Advisor
Privatisation Cell.

Copy to: The Port Officer, Gujarat Maritime Board, Station Road Bharuch. - for information & necessary action.



GOVERNMENT OF GUJARAT

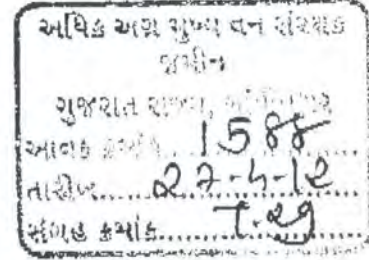
Forest & Environment Department
ANNEXURE-V
RECLAMATION AND FOREST LAND DOCUMENTS
14/8, Sardar Bhavan, Sachivalaya, Gandhinagar-382010.

Ph.079-23251071 Fax 079-23252156

No. FCA-1012/10-13/(11)/S.F-31/F

Date: 26 APR 2012

To,
The Chief Conservator of Forests(Central)
Ministry of Environment & Forest,
Regional Office, Western Region,
Kendriya Paryavaran Bhavan,
Link Road No.3, E-5, Arera Colony,
BHOPAL(M.P.)-462016



Subject: Diversion of 22.62 ha. Forest land for the Construction of LNG Tanks, Regassification, Truck loading facility and associated utilities at village Luvara, Ta. Vagra, Dist. Bharuch in favour of Petronet LNG Limited.

Sir,

Please refer to the proposal submitted by Sr.VP(Projects), Dahej LNG Terminal. Petronet LNG Limited. At. Dahej, Ta. Vagra, Dist: Bharuch. The details of the proposal are as under.

Sr.No.	Name of road	Total Area Sq.m.
1	S.No.215 Village Luvara, Ta. Vagara Dist:Bharuch	22.62
	Total	22.62

The area involved has been declared as a Protected Forest vide Government of Gujarat Notification No.AKH-144/FLD-1665/73387-P dt. /1965.

3100 trees are required to be cut in the demanded area. Girth class wise list of trees is enclosed.

The Scheme of Compensatory Afforestation has been prepared for raising plantation in 28.38 ha.(Revised 22.62 ha.) pt.15,7601 ha land at Village:Sanala S. No.258/2pt.1/7,8,S.No.258 pt.3,S.No.258pt.2 Ta. Plitana, Dist.Bhavnagar and 13.1758 ha. land at Village :Ratanpura S.No.63/1 pt. Ta. Mahuva, dist:Bhavanagar Compensatory afforestation scheme is enclosed.

The user agency has given an undertaking to pay the cost of Compensatory Afforestation and NPV and has also given an undertaking

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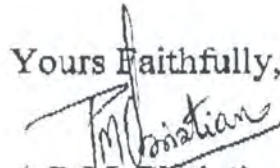
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ANNEXURE-V
RECLAMATION AND FOREST LAND DOCUMENTS

that in case of upward revision of NPV they will pay the difference. The requisite information in the prescribed proforma, Maps etc. is enclosed.

In view of above, I request you to approve the proposal under the Forest (Conservation) Act, 1980.

Yours Faithfully,



(**P.M.Christian**)

Joint Secretary to the Government,
Forest & Environment Department.

copy to:-

- ✓ 1. The Nodal officer (FCA), Pr. Chief Conservator of Forest's office, Gujarat State, 'Aranya Bhavan' Sector-10/A, Gandhinagar, for information.
- 2, **Sr. VP(Project),**
Pertonet LNG Limited, Dahej LNG Terminal,
GIDC Industrial Estate, Plot No: 77A, Dahej.
Ta.Vagara, Dist.Bharuch. Pin No.392 130
3. The Select File.