

COMPLIANCE REPORT of CRZ Clearance no. J-16011/26/2001-IA-III vide your letters dated 02nd JUNE 2003 for the Construction of LNG Import Terminal at Puthuvypeen Island, Kochi, Kerala by M/s Petronet LNG Ltd.

Point-wise compliance to stipulated terms and conditions of the above EC & CRZ Clearance is as follows:

i. All the conditions stipulated by the Science Technology and Environment Department, Government of Kerala vide their Letter No. 4215/B1/2000/STED, dated 9th February-2001 should be effectively implemented.

- **Conditions mentioned in the Letter No. 4215/B1/2000/STED, dated 9th February-2001 does not specifies and conditions for compliance.**
- **Conditions mentioned in the Letter No. 1143/A2/2005/STED dated 14th October-2005 from Kerala coastal Zone Management Authority are and PLL compliance remarks are as under:**

Sr. No.	Conditions mentioned	PLL Compliance remarks
1.	No activities will be undertaken in the Mangrove area or in the buffer zone of the mangrove. The route of the pipeline and other activities shall have minimum of 50m from the nearby mangroves and forest land if any in the CRZ area.	PLL's plot is not in the mangrove area, it is about 100 m away from the buffer zone. All activities including the laying of pipelines are confined within the PLL's plot.
2.	Expansion of existing service road in the Costal Regulation Zone-I shall not be carried out.	Expansion of the existing service road in the Costal Regulation Zone-I belongs to Panchayat and PLL will not do any expansion of the service road.
3.	No groundwater shall be tapped for the project	PLL will not tap any ground water during operation of the terminal as water requirement will be met from the condensed water from air. During construction stage, requirement of water was met by outsourcing. At present the water requirement is met by procuring the water from vendors.
4.	The proponent shall obtain necessary No Objection Certificate (NOC) from Kerala State Pollution Control Board.	PLL has obtained required NOC from Kerala State Pollution Control Board in 1999 vide NOC No. PCB/NOC/EK/117/98 dated 17th September-1999 which was renewed every time (mostly 2 years) before

		expiry of its validity period. Consent to Operate with no. PCB/HO/EKM/ICO-R/12/2016 dated 28 th February 2016, and is valid up to 31 th March 2018.
5.	EIA document including risk analysis and disaster management plan should be submitted directly to MoEF for environment clearance, under intimation to this office.	Comprehensive EIA of 2.5 MMTPA Terminal and EIA with QRA and Site emergency response plan of 5 MMTPA terminal has already been submitted with vide letter ND/LNG/K22/2K1 dated 16 th Feb-2001 and letter dated 22 nd Sept-2011 respectively.

ii. All the conditions stipulated by Kerala Pollution Control Board in their NOC No. PCB/NOC/EK/117/98 dated 17.9.99 should be effectively implemented.

- **Conditions mentioned by KSPCB in the CTE No. PCB/NOC/EK/117/98 dated 17.9.99 are and PLL compliance remarks are as under:**

Sr. No.	Conditions mentioned	PLL Compliance remarks
1	No.3: The applicant shall comply with the instructions that the Board may issue from time to time regarding prevention and control of air, water, land and sound pollution.	PLL will comply with any such instructions from the Board regarding prevention and control of air, water, land and sound pollution.
2	No.4: The effluent treatment facilities proposed namely sewage treatment plant/septic tank, oil traps, hot water cooling facilities etc. shall be provided before commissioning the industry. Addition facilities required, if any to achieve the effluent standards laid down by the Board under section 17(1)(g) of Water (Prevention and Control of Pollution) Act' 1974 shall also be made along with.	PLL is generating only sewage waste and is being handled through septic tank and soak pit in individual building; details of STP have been submitted to KSPCB. PLL will comply with effluent standard of Water Act and if additional facilities are required then PLL will provide those facilities for treatment of effluent.
3	No.5: Air pollution control devices required shall be installed before commissioning the industry for controlling air pollution. Minimum stack/chimney height shall be as detailed below: 69.0 m above ground level for flare stack	PLL is using Natural Gas as fuel for GTGs. GTGs are inbuilt with DLE burner (Low NOx burners) and CEMS. PLL had received letter from KSPCB dated 18-10-2010

		regarding change in this condition, wherein the flare stack height reduced from 69.0 m to 43.2 m, a copy of this letter had already been submitted with six monthly report dated 30 th September-2013.
	5.5 meter above the roof level of Generator room for the Gensets of capacity 750KVA	PLL has provided the stack discharge at 3.5 meter above the roof level of Generator room.
4	No.6: For bringing into use any outlet to discharge and for the discharge of sewage/trade effluent, the applicant shall obtain consent to discharge from the Board under the Water (Prevention and Control of Pollution) Act'1974 before commissioning the industry.	PLL is generating only sewage waste and is being handled through individual building's septic tank and soak pit. PLL has obtained Consent to Operate with no. PCB/HO/EKM/ICO-R/12/ 2016 dated 28 th February 2016, and is valid up to on 31 th March 2018.
5	No.7: The applicant shall obtain the "Consent to Operate" from the Board under the Air (Prevention and Control of Pollution) Act'1981 before commissioning the industry.	We have obtained Consent to Operate with no. PCB/HO/EKM/ICO-R/12/ 2016 dated 28 th February 2016, and is valid up to on 31 th March 2018.
6	No.8: The sign board showing the name of the industry shall be displayed at the entrance of the site.	PLL has displayed the sign board showing name of the industry at the entrance of the site.
7	No.9: Suitable species of trees shall be planted and maintained within and along the periphery of the factory premises, forming a green belt to improve the environment.	Green Belt area has been developed along the periphery of the factory premises with trees like Gulmohar, Amaltas, Neem etc.
8	No.10: The date of commissioning of the industry shall be intimated to the Head Office and Regional office concerned of the Board at least one month in advance.	PLL has inform the date of commissioning of the industry vide letter no PLL/KOCHI/KSPCB/2013-14/C-06 dated 07 th August-2013, A copy of this letter has already been submitted with six monthly report dated 30 th September-2013.
9	No.11: There shall not be any fugitive emission from the plant/premises.	There will not be any fugitive emission from the plant/premises.



10	No.12: The location of the industry shall be as shown in the drawing attached. No change or alteration to the above shall be made.	There is no change made in the location of the industry, Location of the industry is as per the drawing.
11	No.13: The temperature difference between cooling water discharged and the receiving water body (sea water) temperature shall not be more than 50C and monitoring arrangements for the same shall be provided.	PLL will not discharge cooling water into sea or any other water body.
12	The ambient sound level measured at a distance of 1 m away from the boundary shall not exceed 65 dB (A) during day time and 55 dB (A) during night time.	Ambient sound levels measured at a distance of 1 m away from the boundary walls are well within the limits. Ambient sound level monitoring is done every month by KSPCB approved agency and the compiled report for the period of October-16 to March-17 is enclosed as Annexure-1 .
13	Consent to establish shall be obtained prior to setting up of captive power plant in futures.	PLL has incorporated the details of GTG, used for captive power generation, in the subsequent application of the renewal for Consent to Establish.

iii. No change in scope of work shall be made without prior approval of this Ministry.

- **Any change in scope would be carried out only with the prior approval of the Ministry.**

iv. Project proponent shall take all safety measures and take into account the dynamics of the marine/coastal area before constructing the break waters. The recommendations made by CWPRS shall be duly implemented. The dredged materials shall be disposed of as per the recommendations by CWPRS.

- **The location and size of the basin has been arrived at after detailed model studies conducted by CW&PRS and further revalidated by HR Wallingford. The dredged material is being disposed off at the prescribed off-shore dumping ground identified as per CWPRS recommendations for Cochin Port Trust.**
- **The Cutter suction Dredger's dredging material is dumped on the western side of the terminal as per the Cochin Port Trust allocated area for dumping. The Trailer Suction Dredger's dredging material is being dumped at the designated dumping site of Cochin Port at outer sea, about 15.6 km from the shore.**

v. No activities will be undertaken in the mangrove area or in the buffer zone of the mangroves. The route of the pipeline and other activities shall have minimum of 50 meters distance from the nearby mangrove



and forest lands, if any, in the CRZ area. Expansion of existing service road into Coastal Regulation Zone-I (I) shall not be carried out.

- **PLL plot is not in the mangrove area and is at about 100m from the buffer zone. All activities and pipelines are confined to this plot. The existing service road which belongs to Panchayat has not been expanded into the Coastal Regulation Zone-I (i) area.**
- vi. The laying and commissioning of the pipelines shall be in accordance with the established procedures; practices and rules. LNG facilities shall be designed, constructed and operated as per existing international standards. The pipelines shall be provided with in-built gas leakage detection and warning system. Adequate measures for monitoring pressures in excess of those for which the pipeline is designed shall be ensured to prevent leakage of gas.
- **The terminal construction complies with all existing International codes and best practices. Sufficient safety measures and warning systems are being in built into the system for detection of gas leakage, overpressure and other deviations in operating parameters. Details regarding the same has already been submitted with six monthly report dated 30th September-2013.**
 - **Standards such as OISD-194, EN: 1473, NFPA 59A and others are followed during the terminal construction.**
- vii. Design and alignment of the pumping platform/jetty and other structures should be chosen in such a way that it causes minimum resistance to the flow of tidal waters.
- **Jetty structure was designed and constructed after due consideration of this aspect. Jetty foundation is built on piles structure to cause minimum disturbance to tidal waters.**
- viii. The pipelines related to effluent discharge, sea water intake and pumping of LNG should be laid on sea floor after trenching. Trenching operations should be restricted to minimum area to minimize damage to benthic fauna.
- **PLL has already submitted to MoEF the change of the regasification process of the terminal and Sea water intake is not required in Shell and Tube Vaporizers (STVs). It may be noted that PLL will not use sea water in any manner nor will discharge any effluent into the sea during operation of the terminal. Pipelines for LNG pumping from jetty to tanks are laid above ground along with trestle.**
- ix. Disposal facilities should be completed prior to the commissioning of project activities. As per the thermal Plume Studies by NIO, Goa, the return water should be discharged at a location having water depth of about 3 m. Post monitoring should be carried out at definite intervals in order to ensure mid-course corrections, if any, for maintenance of environmental quality.

- **PLL has already submitted to MoEF the change of the regasification process of the terminal and Sea water intake is not required in Shell and Tube Vaporizers (STVs). It may be noted that PLL will not use sea water in any manner nor will discharge any effluent into the sea during operation of the terminal. As PLL is not using sea water in any manner this condition is not applicable.**
- x. Fish eggs, larvae and small fish as well as plant and animal plankton pass through the water intake screen and at times through the trash bars. Accordingly, the water intake for regasification purpose is to be provided with a velocity cap, trash bars, and low intake velocity be maintained to minimize the entry of debris and fish.
- **PLL has already submitted to MoEF the change of the regasification process of the terminal and Sea water intake is not required in Shell and Tube Vaporizers (STVs). As PLL is not using sea water in any manner this condition is not applicable.**
- xi. No groundwater shall be tapped for the project.
- **PLL did not tap groundwater during construction stage and will not during operation phase. Water requirement during operation of the terminal will be generated and met from the condensed water from air. At present the water requirement is met by procuring the water from vendors due to running of terminal at low output.**
- xii. Specific arrangement for rainwater harvesting should be made in the project design and the rainwater so harvested should be optimally utilized.
- **Rainwater collection system is in place for LNG storage tanks top and the water collected is being used in the terminal.**
- xiii. The Bathymetric survey of the dredged material disposal site should be carried out regularly and it should be ensured that there is no navigational hazard due to reduction of navigational depth as a result of project activities. Location of dumping site should be informed to all concerned.
- **The dredged material disposal site is Common dumping site at outer sea, 15.6 km away from shore and managed by Cochin Port Trust. The survey is being carried out by Cochin Port Trust.**
- xiv. Regular surveys shall be conducted to identify changes in the channel morphology so that navigational hazards are minimal.
- **The channel belongs to Cochin Port and its Morphology survey is done by Cochin Port Trust.**

- xv. Mangrove afforestation will be promoted in consultation with the expert agencies and the local NGOs in the area. A detailed plan shall be worked out in this regard and submitted to this Ministry within 3 months.
- **A Detailed plan for Mangrove afforestation has already been submitted with six monthly report dated 30th September-2013.**
 - **In FY 2014-2015 Petronet LNG Ltd, Kochi, arrived at an agreement with Kerala State Social Forestry for a mangrove afforestation project in Ernakulum district, the total cost of the project is 71.05 lakhs. Petronet LNG Limited have already transfer fund of Rs.30.00 lakh for the Mangrove Afforestation Project which is entitled "Project for Mangrove afforestation in Ernakulam district" All details with regard to this project had already been submitted with six monthly compliance report dated 30th March-2015. An updated progress report of the project is enclosed as Annexure # 2.**
- xvi. Marine environment shall be periodically monitored to assess changes, if any, in the ecology and suitable remedial measures, if any required, shall be taken.
- **PLL is conducting marine water sampling and analysis by a KSPCB approved third party M/s. Cochin test house and the report suggest no adverse change in the marine environment.**
 - **Latest copy of the marine water sampling report dated February-17 is enclosed as Annexure # 3.**
- xvii. The budget allocated for environment safeguard measures shall not be diverted for any other purpose.
- **Budget allocated for environment safeguard is not diverted for any other purposes. PLL has provided budget for the environment safeguard and details of the expenditure is enclosed as Annexure# 4.**
- xviii. The comprehensive Environmental Impact Assessment report shall be completed early and the final report submitted to this Ministry within one year from the date of this clearance letter. Based on the comprehensive EIA report, additional environmental safeguards, as required, shall be implemented by the proponents.
- **Comprehensive EIA of 2.5 MMTPA Terminal and EIA with QRA and Site emergency response plan of 5 MMTPA terminal has already been submitted with vide letter ND/LNG/K22/2K1 dated 16th February-2011 and letter dated 22nd September-2011 respectively.**
- xix. Based on the risk analysis, Disaster Management Plan should be prepared and submitted to this Ministry within 6 months. Necessary safety norms for the movement of LNG ships are to be laid down by Cochin Port Trust Authorities within their jurisdiction and communicated to the project proponent for strict compliance with a view to prevent collision, grounding or ramming or any other major accidents.

- EIA with QRA and site emergency response plan (for 5 MMTPA terminal) submitted to MoEF vide letter dated 22nd September-2011 for EAC recommendations.
- Emergency Response and Disaster Management Plan of Petronet LNG Ltd, Kochi terminal was submitted with six monthly compliance report dated 05th April-2013.



5. 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.	The construction drawings have been approved by the concerned State Government Department/Agencies like Department of Factories and Boilers, Fire and rescue Services etc. Copy of the approvals of Factories and Boiler, Fire rescue services has already been submitted with six monthly compliance report dated 05 th April-2013.
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.	<ul style="list-style-type: none"> ▪ PLL is continuously ensuring that there is no ingress of saline water into the ground water by periodic analysis of ground water, and for the same we have installed two Piezometers at appropriate locations. ▪ Sampling of the water drawn from Piezometers is being carried out by approved third party. The latest Ground water analysis report is of the month of December-16 and is enclosed as Annexure#5.
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	<ul style="list-style-type: none"> ▪ We have applied for NOTIFICATION OF SITES to Factories & Boilers department vide letter no. PLL/KOCHI/F&B/2012-13/C-04 dated 28th November 2012 as per requirement of MSIHC rules 1989. The same has already been submitted with six monthly compliance report dated 05th April-2013. ▪ We have received final clearance from Chief Controller of Explosive for commissioning of Jetty, LNG unloading line, LNG tanks, and Regasification facilities with letters dated 04th February-2013. We have already submitted the same with six monthly compliance reports, dated 05th April-2013. ▪ Permit to construct and plan approvals were obtained from Director of Factories and Boilers. We have already submitted the details regarding the same with six monthly compliance



		<p>report, dated 05th April-2013.</p> <ul style="list-style-type: none"> ▪ We have received the renewed factory license dated 06th January 2017, valid till 31th December-2017; a copy of the same is enclosed as Annexure#6. ▪ We have prepared Emergency response and Disaster Management Plan and it was submitted to District collector office vide letter no. PLL/KOCHI/ERDMP/DC/2014-15/C-01 dated 5th April-2014. ▪ A comprehensive contingency plan was prepared in collaboration with the concerned authorities before commissioning of the project to meet any eventuality in case of an accident ▪ All approvals as necessary were obtained before the commissioning of the project. Terminal was commissioned on 20th August-2013 and all activities related to commissioning were completed by 10th September 2013.
iv.	<p>Minor oil spills are likely to be caused due to ship movement in the port. Engine room waste, oil ballast and tank wash water have to be discharged to the shore reception for treatment by port authorities or by certified contractors. In case of major oil spills due to accidents. Petronet LNG Limited should interact with Kochi Port to ensure full preparedness to undertake all combat operations.</p>	<p>Oil spill Contingency plan is formulated to take care of such eventualities. We have already submitted details regarding the same with six monthly compliance report dated 05th April-2013.</p> <p>PLL is having one PFI 1 tug with required boom barrier and other oil spill control related equipments. PLL jetty falls under the Cochin Port Trust (CPT), and the Oil Spill Contingency Management Plan is prepared by CPT. PLL has provided the information required from the terminal to be incorporated in the Oil Spill Contingency Management Plan. Coast guard is also part of the Oil spill contingency plan.</p>
v	<p>Control room/tower should be equipped with modern communication and control device to act instantaneously if spill/leakage occurs. At the jetty, loading arm should be equipped with latest Emergency Release Systems (ERS) and monitoring device for LNG services. Articulated cargo transfer arm should</p>	<ul style="list-style-type: none"> ▪ Control room is equipped with modern communication and control facilities including emergency shut-down systems in the event of spill occurring. ▪ Loading arms are equipped with latest Emergency Release System (ERS). ▪ We do not handle LPG at our jetty so the condition stand complied.

	be used at the unloading jetty. It shall be ensured that LPG and LNG tankers are scheduled properly to avoid bunching and also that LPG will not be unloaded from the ship when the LNG tanker is at berth.	
vi.	Dry chemical firefighting extinguishers should be provided at all levels of the jetty to permit personnel to fight small fires. Water spray for dispersing un-ignited vapour clouds should be kept as standby. Full- fledged firefighting facilities should be provided at jetty.	<ul style="list-style-type: none"> • Full-fledged firefighting facilities is provided in the jetty to handle any emergencies in the event of a fire. • DCP extinguishers are provided at every level of jetty. Water curtain system is also provided at required locations. <p>Brief note on Fire protection facilities have already been submitted with six monthly compliance report dated 30th September-2013.</p>
vii.	A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up 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.	<ul style="list-style-type: none"> ▪ A well-equipped laboratory with suitable Equipments for monitoring the quality of air and water is in place, with Qualified and competent personals. However, PLL is carrying out periodic monitoring of environmental parameters by KSPCB approved agency. ▪ Ambient air monitoring is carried out once in a month at four different locations and analysis report for the month of October-16 to March-17 is enclosed as Annexure # 7. ▪ PLL is conducting marine water quality analysis, once in six month. The latest test report, dated February-17 is enclosed as Annexure # 3.
viii.	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 Coastal Regulation Zone area. It should also be fuel wood purpose	<ul style="list-style-type: none"> ▪ During the construction phase, PLL has provided adequate infrastructure facilities such as water supply, fuel for cooking, sanitation, etc. to the labourers. ▪ Labour colonies were not located in Costal Regulation Zone area.

ix.	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.	Individual Septic tanks with soak pits have been provided for collection of sewage. The collected sewage is regular disposal through authorized agency of Cochin corporation. No sewage or waste from PLL will be allowed to enter water bodies
x.	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	Vessels and tugs will dispose their garbage as per the guidelines of Annex V of Marpol (IMO). We have already submitted the related details with six monthly compliance report dated 05 th April-2013.
xi.	Necessary navigational aids such as channel markers should be provided to prevent accidents. Internationally recognized safety standards shall be applied in case of barge/vessel movements	PLL has provided 4 Nos. of Buoy as instructed by Cochin Port Trust. In future, if required, more navigation aids will be provided as per instruction/guidance of Cochin Port Trust. All required safety standards will be applied to vessel movements as per directions of Cochin Port Trust.
xii.	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.	A separate fund for CSR is kept aside by PLL and we have carried out various activities for the community development and welfare of villagers. PLL is carrying out community development and welfare measures for villagers of nearby village; Rs 67.51 Lakhs was spent on CSR activity for the period of October-16 to March-17. Details regarding the CSR activity is enclosed as Annexure # 8.
xiii.	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.	PLL sourcing of quarrying material is only from Government approved quarries. We have already submitted the details regarding the same with six monthly compliance report on dated 05 th April-2013.
xiv.	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.	PLL has obtained Environmental clearance from the MOEF vide their order No. J-16011/26/2001-IA-III dated 16 th November-2010 for undertaking dredging operations of the basin. Dredging operations are completed and PLL has handed over the basin to M/s Cochin Port Trust for maintenance.

xv.	For employing unskilled, semi-skilled and skilled workers for the project, preference shall be given to local people.	During the project, PLL had given preference to locals while employing unskilled, semi-skilled and skilled worker wherever possible based on their qualification and merits.
Xvi.	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.	All recommendations made in Environment Management Plan and Disaster Management Plan, as contained in Environment Impact Assessment and Risk Analysis Report of the project are effectively implemented.
Xvii.	A separate Environment Management Cell with suitably qualified staff to carry out various environment issues should be set up under the charge of a Senior Executive who will report directly to the Chief Executive of the Company.	An Environment Management Cell has been set up under Vice-president – Operation & Maintenance, and Its members are qualified personals from HSE, Civil & Laboratory Operation Department and they are capable to address any environment issues.
Xviii.	The project affected people, if any should be properly compensated and rehabilitated.	No people affected directly as the project was on uninhabited land. Some Land was acquired by Cochin Port Trust for constructing new access road for the project and those affected were provided with infrastructure like road, drain, electricity and water as per guideline by authorities.
xix.	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.	Budget allocated for environment safeguard will not be diverted for other purposes.
xx.	Full support should be extended to the officers of this Ministry's Regional Office at Bangalore 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.	PLL will extend full support to the officers of this ministry's Regional Office, Bangalore and the officers of the Central and State Pollution Control Board during the inspection for monitoring purpose by furnishing full details and action plans including the action taken reports in respect of mitigate measures and other environmental protection activities.
xxi.	In case of deviation or alteration in the project including the implementing agency, a fresh	PLL has not carried out any deviation or alteration in the project.



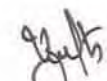
	reference should be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection. The project proponents should be responsible for implementing the suggested safeguard measures.	PLL will comply with this requirement and will take permit from the Ministry prior to any deviation, alteration and modification in the project.
xxii.	This Ministry reserves the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	PLL is aware of the Ministry's right to revoke clearance for not complying with the conditions stipulated in the clearance.
xxiii.	This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary for environmental protection, which shall be complied with.	PLL will comply with any additional conditions stipulated by the ministry or any other competent authority.
xxiv.	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 Committee 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 Bangalore.	PLL had advertised regarding environmental clearance accorded by the Ministry of Environment & Forest in two local newspapers widely circulated in the region around the project. Copy of the advertisement given in the two local newspapers has already been along with the six monthly compliance report dated 30 th September-2013.
xxv.	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.	Site appraisal clearance obtained on 28 th Feb 2011. No separate land developmental work was required, as this involved only augmentation of equipment in the same land.



Ambient Noise Monitoring Report, October-16 to March-17

Sr. No.	Avarage, Month		Oct-16		Nov-16		Dec-16		Jan-17		Feb-17		Mar-17	
	Location	Limit	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
	1	East side Gate Outside boundary wall		55.80	44.40	55.20	45.60	54.20	44.40	55.60	43.80	56.10	42.80	53.80
2	North side Gate Outside boundary wall		56.20	46.80	54.60	46.00	55.80	46.40	56.10	44.60	56.40	44.20	53.50	47.80
3	West side Gate Outside boundary wall		55.60	47.40	56.20	44.80	53.60	46.20	54.10	45.80	53.90	44.90	53.90	47.70
4	South side Gate Outside boundary wall		56.40	46.80	57.40	45.40	55.20	43.60	54.80	44.10	54.60	45.30	61.30	45.80
	Avg (Year)		56.00	46.35	55.85	45.45	54.70	45.15	55.15	44.58	55.25	44.30	55.63	47.88


Officer HSE


Sr. Officer HSE

E2-461/2014

Office of Assistant Conservator of Forests
Social Forestry Division, Ernakulam
Manimala Road, Edappally
Ph:0484 2344761
Email: acf.sf-ekm@forest.org.in
Date: 23-12-2016

From
K.J. Martin Lowel
Assistant Conservator of Forests

To
The Vice President (O&M)
Petronet LNG Ltd.
Sir,

Sub: Project on Mangrove Afforestation in Ernakulam Dist. – progress report -reg.

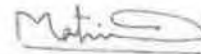
Ref: That office let. No. PLL/KOCHI/HSE/2013-14/C-02

I am submitting herewith progress report of the Mangrove Afforestation Project funded by Petronet LNG Ltd. Up to the period of 30.11.2016 for your kind perusal. The project was launched in March 2015 since then a lot of activities were undertaken as per the project proposal. A progress report in this regard has been submitted in March 2016. This report cover entire activities done under this project and activities done after the submission of last progress report (ie. this financial year) has been separately mentioned with expenditure incurred. The bills for payment of about five lakh ruppies is pending in this office for want of money. The bills are pertains to wages of mazdoors engaged for protection and maintenance of mangrove seedlings planted at Kumbalangi, Njarakkal and Malippuram areas, habitat improvement works and development of mangrove information centre at Malippuram. The works of Mangrove information centre is reached in a finishing stage and it shall be inaugurated within a short period.

I request your goodself to kindly deposit second instalment of the project fund so that we shall continue our project in the current pace and start production of seedlings for next year palnting season. More areas have been Identified for planting at Kadamakkudy and Vpin for coming palnting season.

Wishing you a happy and prosperous new year

With Regards



K.J. Martin Lowel
Assistant Conservator of Forests
Social Forestry, Ernakulam

**Progress Report of Mangrove Afforestation Project in Ernakulam Dist., Kerala as on
30.11.2016**

Background of the Project:

The coastal region of the Ernakulam dist. blessed with rich natural heritage of mangroves were severely destructed for various reasons such as setting up of developmental projects, shortages land for housing of indigenous communities, higher land value, changes in lifestyle, lack of awareness on importance of mangrove ecosystem etc. As an attempt to compensate the ecological loss due to mangrove destruction, Petronet LNG Ltd. has provided financial assistance to Kerala Forest Department through implementation of the project called "Mangrove Afforestation in Ernakulam District". This project is implemented by Social Forestry Division, Ernakulam. The major components of the project are 1) Mangrove planting 2) Protection of existing mangroves by taking up habitat improvement programmes 3) Providing incentives to owners of mangrove areas 4) Conducting awareness programmes 5).Establishment of mangrove information centers (Mangrove Park) etc.

Implementation of the Project:

First installment of the project cost of Rs. 30 lakhs was handed over to Kerala Forest Department on 16.3.2015.

a) **Planting Operations:** Forest department raised mangrove seedlings suitable to the locality and carried out planting through indigenous people especially fishermen community. Planting was done mainly by women group called "Kundumbasree". The details of the planting are given below

Sl. No.	Name of place and status of land	Species planted	No. of seedlings planted
1	Kadaekurishu Canal Bank in Nayarambalam Panchayath land (on22.06.2015)	<i>Rhizophora mucronata</i>	4000
2	Canal bank at Pachuvekkar (North), Nayarambalam Panchayath land (on 23.06.2015)	<i>Rhizophora mucronata</i>	2500
3	Vijayan Canal Thodu, Chellanam Panchayath land (on 09.07.15)	<i>Rhizophora mucronata</i>	2500
4	Banks of Pvt. Fish Farm at Chellanam, owned by Sri. Thankachan (on 07.10.15)	<i>Rhizophora mucronata</i>	1500
		<i>Bruguiera gimnorrizha</i>	1500
5	Canal bank at Pachuvekkar (south), Nayarambalam Panchayath land (on 04.12.2015)	<i>Bruguiera gimnorrizha</i>	2500

6	Along the banks of Anjiliathara bund road, Kumbalangi, Kumbalangi Panchayath land (on 27.01.16)	<i>Bruguiera gimnorrizha</i>	2200
Total no. of mangrove seedlings planted			16700



Three months old *Rhizophora mucronata* seedlings



Transporting seedlings for planting



Panchayath President and Ward Member
Planting seedlings at Kadkusheri on 22.06.2015



A view after planting (23.6.15)



Mangrove planting at Pachuvekkar North by Panchayath Member Sindhu and Uthaman(23.6.15)



V P (O&M) inaugurating planting of mangroves
At Chellanam on 07.10.2015



V P (O&M), Manager (HSC), ACF (SF) at planting
area, Chellanam on 07.10.2015



Inauguration of Mangrove planting at Pachuvekker South by Panchayath Member on 04.12.2015



Assistant Conservator, Social Forestry Ernakulam District planting mangrove seedlings (4.12.15)



A view of *Bruguiera gimnorrhiza* nursery at Kumbalangi



Seedlings transported for field planting



A view of established *Bruguiera gimnorriszha* seedlings at Kumbalangi (photo taken on 26.03.16)



Seedlings of *Bruguiera gimnorriszha* growing at Pachuvekker south (29.01.2016)



Seedlings of *Bruguiera gimnorriszha* growing at Pachuvekker south (29.01.2016)



Seedlings of *Rhizophora mucronata* growing at Njarakkal Panchayath area (26.03.2016)

- b) Incentives to mangrove owners:** Wide publicity was given through mass media such as newspaper for inviting application to prove incentives to mangrove owners. Some of such news appeared in leading news dailies are given below. Even though, a lot of queries were received via. telephone a very few people was willing to participate in the project. This is because they feared that once they received any benefit from forest department they could not use their land for any other purposes in future. When compared to land cost, benefit they get is also less. Only because of the hard work of forest department staff a few are now come forward to participate in the project. Fish fingerlings were supplied to persons who are willing to participate in the project. In the coming years more people are expected to be involved in this programme.



Deccan Chronicle- 30.7.15



Mathrubhoomi -26.7.15



Forest Dep. notification-24.7.15



Malayala Manorama-11.7.15



Hindu - 22.6.15



V P (O&M) inaugurating distribution of Fingerlings to Farmer at Chellanam on 07.10.2015



Farmer releasing fingerlings to pond (7.10.15)

c) **Extension Activities:** One of the objectives of this project is to create awareness among the local people on ecological and socio-economic importance of mangrove ecosystem and involve them in the protection of existing mangrove forests. In connection with this, several training classes was conducted for indigenous community especially for fishermen. The self-help group of women was given primary importance. In addition to indigenous groups, students, citizen conservators, elected members of Panchayaths, nature clubs etc. were also included in extension programmes. Details of classes are given below.

Sl. No.	Date	Place or where camp/class conducted	No. of Days	Target group	Topic/ subject dealt with	Name and designation of faculty	No. of person attended classes
1	25.07.2015	Nayarambalam Panchayath	1	Kudumbasree members Ward-12	Planting, protection, conservation of mangroves and nature awareness	Rajendran D., DCF (Retd)	77
2	27.07.2015	Nayarambalam Panchayath	1	Kudumbasree members Ward-5	"	Rajendran D., DCF (Retd)	68
3	29.07.2015	Chellanam Panchayath	1	Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	61
4	08.08.2015	Vazhachal	1	Ghadhi Vichara Dhara, Ghandi Padanakendram, Njarakkal	Importance of wet lands and mangroves	Joseph Puthuserry, Citizen Conservator	57

5	03.09.2015	Mangalavanam	1	Citizen Conservators	Mangrove Conservation & Tree felling in public places	K.J. Martin Lowel, ACF, Social Forestry, Ernakulam	30
6	30.12.2015	Edavanakkad Gramapanchayath	1	Kudumbasree members & students of balasabha	Planting, protection, conservation of mangroves and nature awareness	John C.V., Environmentalist & Citizen Conservator	125
7	04.01.2016	Kumbalangi	1	Kumbalangi Gramapanchayath Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	67
8	14.01.2016	S.S. Araya U.P. School, Pallipuram	1	Students	"	Rajendran D., DCF (Retd)	60
9	15.01.2016	Mangalavanam, Ernakulam	1	Hidayathul Islam H.S.S. Students	"	John C.V., Environmentalist & Citizen Conservator	65
10	16.01.2016	Mangalavanam, Ernakulam	1	St. Mary's U.P.S., Njarakkal	"	John C.V., Environmentalist & Citizen Conservator	52
11	02.02.2016	Malippuram Aquarium Hall	1	High School, Edavanakkad	Importance of wetland & mangroves	K.J. Martin Lowel, ACF, Social Forestry, Ernakulam.	40
12	17.03.2016	Chellanam Grama Panchayath	1	Kudumbasree members	"	John C.V., Environmentalist & Citizen Conservator	100
13	21.03.2016	Elamkunnappuzha Panchayath Hall	1	Selected members of Panchayaths, Academicians, Govt. Officials	Importance of mangrove forests & water conservation	Dr. C.M. Joy Professor & head of Botany Dep. SH College, Thevara	45



Mangrove awareness class at Nayarambalam for Kudumbasree Members on 27.7.15 & 28.7.15



Meeting of Citizen Conservators at Mangalavanam on 3.9.15.



Camp at Vazhachal on 8.8.2015



ACF, SF & Panchayath President, Kumbalangi Inaugurating training on mangrove planting at Kumbalangi Panchayath Hall on 04.01.16



Petronet LNG Engineer Sri. Nishanth Addressing gathering in a Citizen Connect workshop on Mangrove Conservation held at Elakunnapuzha Panchayath Hall on 21.03.2016



ACF, SF, Ernakulam addressing gathering in Citizen Connect workshop on Mangrove Conservation held at Elakunnapuzha Panchayath Hall on 21.03.2016



Petronet Officials discussing mangrove conservation issues with renowned environmentalist Prof. Seetha Raman on World Wet Land Day celebration held at Malippuram

In addition to various training classes and workshops, several Boards showing importance of mangroves were installed at various places



One of the board (6 x4 feet size) written the message “why should we conserve mangroves” is exhibited at Malippuram (26.03.2016)

d) Setting up of Mangrove Information Centre: A mangrove Information Centre was developed in 2 acre mangrove forest owned by Fisheries Department adjacent to Malippuram Fish Farm where a large numbers of people are visited everyday as part of Aqua Tourism. The Mangrove Park is on the way to the Fish Farm. This park will give good information on ecological importance of mangrove ecosystems and necessity for conserving mangrove forests. The work of the Park is expected to complete by the end of May 2016. People will have a resting facility and could feel the beauty of mangrove forests. Details of plants, animals and birds found in mangroves will be exhibited scientifically inside the Park.



View of Mangrove Information Centre before development (9.10.15)



Entrance of Mangrove Information Centre (Park) at Malippuram (26.03.2016) - after development



View of Entrance of Mangrove Park, Malipuram (26.3.16)



Inside view of Park (IInd and IIIrd bridges)



Inside view of Mangrove Park at Malippuram (26.3.16)



Saplings of mangrove associated species planted along the way to Mangrove Park (26.3.16)

e) **Habitat Management:** Many people treating mangrove areas as a site for waste dumping. It promotes mosquito population and it becomes a big problem to local people. Due to scarcity of land, waste disposal is a big issue for Panchayath / Municipal Corporation authorities. As the part of this project waste dumped in mangrove areas are taken up with the involvement of local people. Removal of plastics and cutting of climbers were done occasionally which helped several mangrove plants to grow up well.



Plastic waste deposited in mangrove area at Malipuram (1.2.16)



Removal of waste by Women group at Malippuram on 02.02.2016



Inaguration of Habitate Improvement programme in Mangrove area at Kumbalangi Paresh Prest on 12.01.2016



Mangroves infested by climbers at Kumbalangi

Women group cutting climbers at Kumbalangi on 12.01.15



Habitate improvement work by school students at Malippuram mangrove area on 2.2.16

Petronet staff along with students in habitate improvement programme at Malippuram on 2.2.16

Activities undertaken since 1.4.2016 onwards

- a. **Production of mangrove seedlings:** 7500 seedlings of *Bruguiera gimnorrizha*, a mostly preferred species by local people were raised. Five thousand was raised at Kumblangi and 2500 seedlings at Elamkunnappuzha. *Bruguiera gimnorrizha* (Kara kandal) is one of the mangrove tree species widely preferred by public because of its straight bole and attractive foliage and flowers. It is used for fencing purpose. Production of seedlings of *Bruguiera gimnorrizha* is very difficult when compared to *Rhizophora* and other mangrove species and its survival percentage is also very less. However, these seedlings were raised because of large acceptance by public.



Three months old seedlings of *Bruguiera gimnorrizha*

- b. **Planting of mangrove seedlings:** Five thousand seedlings of *Bruguiera gimnorrizha* was planted at Azhikkal Srevaraham Farm land owned by Devaswam at Kumbalangi. Planting was done in June 2016. A care taker has been posted for protection and maintenance of seedlings. Now the seedlings are growing well.



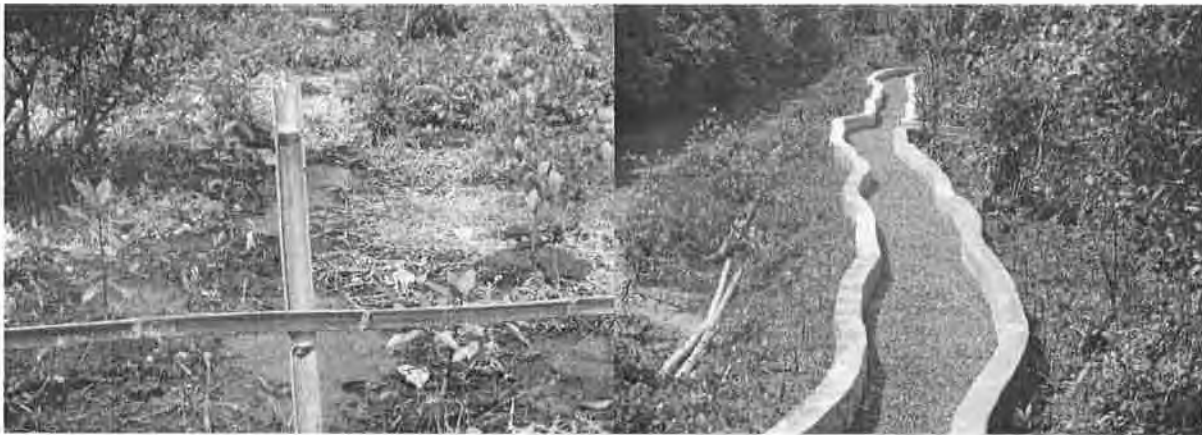
View of mangrove seedlings planted at Azhikkal Srevaraham Farm land at Kumbalangi

One thousand seedlings each was planted in Fish farms at Njarakkal and Malippuram owned by fisheries department. In both places caretakers were posted for protection and maintenance of

seedlings. Four hundred seedlings were planted at Malipuram Mangrove Information Centre and 100 seedlings were planted at Kdamakkudy in Kadamakkudy Panchayath area. Planting was done during June and July 2016



Mangrove seedlings planted at Njarakkal fish farm Seedling planted at Malippuram fish farm



Mangrove seedlings planted at Malippuram Mangrove Information Centre in August 2016

Demonstration garden: a demonstration garden to familiarize different mangrove species growing in Kerala is established in Mangrove Information Centre at Malippuram. Seedlings are planted in concrete rings filled with slurry. The work is in progress



A view of mangrove demonstration garden at Malippuram (work in progress)

c). Habitat Improvement Programme: Habitat improvement programme was carried out at four locations with the objective of improving the habitat of mangrove ecosystem and associated areas. The removal of plastic wastes and other debris and cutting of climbers and weeds which prevents growth of mangroves and associated species were taken up in habitat improvement programme. Most of these activities were taken up in association with college students and local community. Waste collected was handed over to LSGs for safe disposal. Prior to habitat improvement work an awareness class was given to students regarding importance of mangrove ecosystem and its role in reduction of impact of global warming.



Habitat improvement programme taken up at Fortcochi region on 03/8/2016 in association with Nature Club members of UC College, Aluva



Habitat improvement programme at Edavanakkad on 22.08.16 & 24.08.16 in association with Student Police cadets of HISH and SDPY Schools, Edavanakkad



Habitat improvement work at Chakkiyath area on 15.08.2016



Habitat improvement work at Cherrai on 27.8.16 to 30.8.16 in association with NSS members of Gov. Polytechnique, Kalamassery and Kudumbasree unit Cherrai

d). Providing Drinking Water Facility: One of the components of the project is to provide drinking water facility to people living in and around mangrove areas. This incentive is to be given for people those who are protecting mangrove area. As the part of this objective ten water purifier having 20 lit capacity was supplied to class rooms of Gov. Higher secondary school at Kadamakkudy as an incentive to plant and conserve mangrove trees by Forestry Club members of the school. It was done on 6.4.2016.

e). Development of Mangrove Information Centre, Malippuram: The works of development of Mangrove Information Centre is in progress and is near to the completion. Works of exhibiting information boards are remaining. Clearing of non mangrove species, planting of mangrove species, development of demonstration garden consists of different mangrove species in Kerala, exhibition of sculptures of birds and animals seen in mangroves with their ecological significance, construction of walkways, providing resting facilities to visitors etc. are the major works undertaken. Payment is pending for some of the works done for want of fund. As soon as funds receive rest of the works shall be completed and inauguration of the Information Centre shall be done immediately.



Resting facility for visitors and boundary at entrance region of at Malippuram Mangrove information centre



Sculpture of Bird fixed at Malippuram



Seating facility at Malipuram Mangrove Centre

f) **Mangrove Conservation Board:** Awareness boards to conserve mangrove forests and its ecological importance have been placed at some of the areas in Ernakulam. One of such board is given below



g.) **Monitoring and Evaluation:** Head of Forest Force and Principal Chief Conservator of Forests was inspected sites of mangrove conservation programme taken up under Petronet LNG scheme on 17.09.2016. The same was done by Principal Chief Conservator of Forests (Social Forestry) on 12.05.2016.



Principal Chief Conservator of Forests (Social Forestry) inspecting mangrove information centre at Malippuram on 12.05. 2016

h). **Expenditure Incurred from 1.4.2016 to 30.11.2016**

Sl no.	Particulars of work	Quantity	Amount
1	Production aand maintenance of mangrove seedlings	7500 nos	1,27,723.00
2.	Planting and maintenance cost of seedlings	7500 nos	4,13,433.00

3.	Habitat improvement programme	4 sites	17,898.00
4.	Conducting awareness class and incentives to Kadamakkudy Gov. Higher Secondary School	1 class and 10 water purifier	22,850.00
5.	Signages (boards)	2 nos	3000.00
6.	Ecotourism initiatives and entry point activities (development of mangrove information centre)	One site	3,10,244.00
	Total		Rs. 8,95,148.00

Progress report of Mangrove Afforestation and Protection Project funded by Petronet LNG Limited up to 30.11.2016

Total outlay of Project : 71.50 Lakhs
 Amount deposited in A/C : 30,00,000.00
 Expenditure as on 31.11.2016 : 29,30,878

Sl. No.	Physical				Expenditure incurred	Remarks
	Particulars of work 2015-16					
	As per Project		Work actually executed			
	Name of work	Qty.	Name of work	Qty.		
1	Production of Mangrove seedlings	12500 Nos.	Production of Mangrove seedlings	19500 Nos.	351,890.00	
2	Planting of mangrove seedlings	12500 Nos.	Planting of 12000 mangroves at Kadaekurisu River Bit I, Bit II, Pasuvekkar Fish farm, Vijayan Canal, Anjilithara areas, Sreevaraham Fish farm	24200 Nos.	988,843.00	4200 seedlings raised under Forest Department scheme.
3	Habitat improvement including climber cutting, waste and plastic removal Etc.	3 Sites	Habitat improvement works done at Kumbalanghi, Kadaekurisu & Malippuram	3 sites	78,198.00	
4	General Awareness & Extension Activities	30 Nos.	Awareness Class, seminar Etc. and other extension activities	11 Awareness classes, 2 Seminars, and procurement of documentization and exhibition aids.	125,595.00	
5	Signages	18 Nos	Acrylic board for mangrove conservation message, Bord of mangrove areas etc.	6 Nos	89,500.00	
6	Silvi-fisheries	LS	Silvi-fisheries	54300 Nos.	25,000.00	
8	Incentives to existing mangrove owners	LS	Mangrove planting in private land and incentives by supplying fishes.	3000 mangrove plants planted & 14 KG Crabs	267,458.00	

				given as incentives.		
7&9	Eco tourism initiatives involving the local community and Other Entry point activities	LS	A mangrove Information Centre has developed at Malippuram owned by Fisheried Department Mangrove area (2 Acre), Construction of walk way, Bridges, entrance arch etc.	1 No.	906,758.00	
10	Overhead charges and other office expenses	LS	TA of staff & other office expenses	ls	84826	
11			Engaging Man Mazdoor for conducting survey of of Mangrove areas in Ernakulam Dist.		12810	
			TOTAL		2,930,878.00	

Assistant Conservator of Forests
Social Forestry, Ernakulam



SAVE MANGROVES, SAVE LIFE

Thank



COCHIN TEST HOUSE

ANALYTICAL SERVICES & TESTING LABORATORY

V / 78, Kollanpady, Murungaliparambu Road, Irumpanam P.O., Kochi - 682 309

Mob.: 9446332556, 9387381780, 9846551014, Tel. : 0484 - 2782672

E-mail: cochintesthouse1@gmail.com, Web : www.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board

TEST REPORT

Report No : CTH/LR/17/NN/152

Issue Date : 02.03.2017

Name and Address of customer

M/s. Petronet LNG Limited,

Survey No. 347,

Puthuvypu, Kochi-682 508

Sample Drawn By

Cochin Test House

Particulars of the sample

Water Sample

Sample code

17/NN/152

Date of receipt of sample

15.02.2017

Dates of Analysis

15.02.2017-01.03.2017

Description of the sample by the customer

Marine Water

Sl.No.	Parameters	Unit	Method	Result
1.	pH	-	IS : 3025 (Pt.11)	8.09
2.	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	25300
3.	Turbidity	mg/l	IS :3025 (Pt.10)	7.7
4.	Chloride	mg/l	IS : 3025 (Pt. 32)	17985
5.	Iron (as Fe)	mg/l	IS :3025 (Pt.53)	0.59
6.	Fluoride	mg/l	APHA 22 nd Ed 4500F D	1.53
7.	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	2365
8.	Conductivity	µs/cm	IS : 3025 (Pt .14)	51200
9.	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10.	Lead	mg/l	APHA 22 nd Ed 3111 B	0.79
11.	Copper	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.1)
12.	Hexavalent Chromium	mg/l	APHA 22 nd Ed 3500 Cr. B	BDL(MDL-0.1)
13.	Zinc	mg/l	APHA 22 nd Ed 3111 B	0.12
14.	Temperature	°C	IS : 3025 (Pt.9)	26.1
15.	Salinity	ppt	CTH/SOP/55	29.649
16.	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL - 4.0)
17.	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	6.42
18.	BOD at 27°C, 3 days	mg/l	IS : 3025 (Pt. 44)	5.5
19.	COD	mg/l	IS : 3025 (Pt. 58)	81
20.	Cyanide as CN	mg/l	IS : 3025 (Pt. 27)	BDL(MDL-0.02)
21.	Cadmium as Cd	mg/l	APHA 22 nd Ed , 3111 B	0.1
22.	Insecticide	µg/l	APHA 22 nd Ed , 6630 c	ND
23.	Pesticide	µg/l	CTH/SOP/56	ND
24.	Color	Colour units	IS :3025 (Pt.4)	2.0
25.	TSS	mg/l	IS :3025 (Pt.17)	21.5
26.	Arsenic	mg/l	APHA 22 nd Ed , 3114 C	BDL(MDL-0.01)
27.	Nickel	mg/l	APHA 22 nd Ed , 3111 C	0.78
28.	Total Hardness (asCaCO ₃)	mg/l	IS:3025(Pt. 21)	5917

Page 1 of 2

Verified By



K.P. Yacob
Authorised Signatory
Chemical
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

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E-mail: cochintesthouse1@gmail.com, Web : www.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board

29.	Nitrate as NO ₃	mg/l	IS:3025 (Pt. 34)	BDL(MDL - 0.1)
30.	Calcium as Ca	mg/l	IS:3025 (Pt. 40)	389.2
31.	Magnesium as Mg	mg/l	IS:3025 (Pt. 46)	1204.6
32.	Sodium	mg/l	IS:3025 (Pt. 45)	9775
33.	Borate as Boron	mg/l	IS:3025 (Pt. 57)	BDL(MDL - 0.05)
34.	Potassium	mg/l	IS:3025 (Pt. 45)	369
35.	Aluminum as Al	mg/l	IS:3025 (Pt. 55)	BDL(MDL - 0.02)
36.	Silica	mg/l	IS:3025 (Pt. 35)	0.92
37.	Total Bacterial Count	cfu/ml	IS:1622:1981	126
38.	Faecal Coliform	MPN/100ml	IS:1622:1981	7
39.	E Coll	MPN/100ml	IS:1622:1981	80


ND: Not Detected, BDL- Below Detection Limit; MDL-Minimum Detection Limit End of report.




Rajitha K B
Authorised Signatory
Microbiology
COCHIN TEST HOUSE

Page 2 of 2

Verified By 


K.P. Yacob
Authorised Signatory
Chemical
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

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Annexure-04

Environment Expenditure For FY 2016-2017 in Rupees		
Particulars	Budget	Consumed
Environment Monitoring	595980	565356
Training & Awareness	348284.99	292050
Hazardous Waste Handling & Disposal	59606.22	59606.22
Licence Fees	0	0
Audits	2112000	586400
Afforestation	1500000	1500000
Other	109000	109000
Total	4724871.21	3112412.22



COCHIN TEST HOUSE

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Mob.: 9446332556, 9387381780, Tel. : 0484 - 2782672

E-mail: cochintesthouse1@gmail.com, Web : ww.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board ('A' Grade)

TEST REPORT

Report No : CTH/LR/16/12/1345

Issue Date : 16.12.2016

Name and Address of customer : M/s. Petronet LNG Limited, Survey No. 347,
Puthuvypu, Kochi-682 508
Sample Drawn By : Cochin Test House
Particulars of the sample : Water Sample
Sample code : 16/NN/1345
Date of receipt of sample : 08.12.2016
Dates of Analysis : 08.12.2016-16.12.2016
Description of the sample by the customer : Bore Well (West Side)

Sl.No.	Parameters	Unit	Method	Result
1	pH		IS : 3025 (Pt.11)	7.55
2	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	356
3	Turbidity	mg/l	IS :3025 (Pt.10)	14.8
4	Chloride	mg/l	IS : 3025 (Pt. 32)	33.5
5	Iron (as Fe),	mg/l	IS :3025 (Pt.53)	2.19
6	Fluoride	mg/l	APHA 22 nd Ed 4500F D	0.17
7	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	34.12
8	Conductivity	µs/cm	IS : 3025 (Pt. 14)	658
9	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10	Lead	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
11	Copper	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.1)
12	Chromium	mg/l	APHA 22 nd Ed 3500 Cr. B	BDL(MDL-0.05)
13	Zinc	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
14	Temperature	°C	IS : 3025 (Pt.9)	27.8
15	Salinity	ppm	CTH/SOP/55	55.22
16	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL- 4.0)
17	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	7.31
18	BOD at 27°C 3 days	mg/l	IS : 3025 (Pt. 44)	BDL(MDL- 2.0)
19	COD	mg/l	IS : 3025 (Pt. 58)	37
20	Cyanide as CN	mg/l	IS : 3025 (Pt. 27)	BDL(MDL-0.02)
21	Cadmium as Cd	mg/l	APHA 22 nd Ed , 3111 B	BDL(MDL-0.1)
22	Insecticide	µg/l	APHA 22 nd Ed , 6630 c	ND
23	Pesticide	µg/l	CTH/SOP/56	ND

ND: Not Detected, BDL- Below Detection Limit; MDL-Minimum Detection Limit.

End of report

Verified by
[Signature]

[Signature]
K.P. Jacob
Authorised Signatory
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

The test report shall not be reproduced except in full without the written approval of the laboratory.



GOVERNMENT OF KERALA
DEPARTMENT OF FACTORIES AND BOILERS

Form-4

(Prescribed under Rule 5)

License is hereby granted to Shri/Smt. RAJENDER SINGH, DIRECTOR (TECHNICAL)() for the premises detailed hereunder for the use as a factory within the limits specified in the Permit (s) and for the manufacturing process stated herein after subject to the provision of the Factories Act 1948 and the Kerala Factories Rules 1957.

The license shall remain in force till the 31st day of December 2017.


1.	Registration No	D09/CHN/03/286/2013	5.	Permit No & Date	175/2012 (17-07-2012)
2.	Name & Address of the Factory	PETRONET LNG LTD PUTHUVYPU P.O,ERNAKULAM, KOCHI, KERALA - 682 508.	6.	Name of the Region	Ernakulam
3.	Registration Date	09-05-2013	7.	Name of the Division	Kochi
4.	Details of the premises		8.	Manufacturing Process & NIC Code	
	Panchayat	Elamkunnappuzha		1. STORING PUMMPING AND RE- GASIFICATIO OF LIQUIFIED NATURAL GAS AND DISTRIBUTION OF COMPRESSED NATURAL GAS (52109)	
	Village	Puthuvaippu			
	Survey No	347			
	Taluk	Kochi			
	District	Ernakulam			

Place : Ernakulam

Date : 06-01-2017

Annexure-07

Ambient Air Monitoring Report, (October 2016 to March 2017)									
LOCATION NO.	Location of Ambient Air Sampling	Month & Date of Sampling	PM (<10 microns) in Micrograms/m ³ ; Limit 100 Micrograms/m ³	PM (<2.5 microns) in Micrograms/m ³ ; Limit 60 Micrograms/m ³	SOx as SO ₂ in Micrograms/m ³ ; Limit 80 Micrograms/m ³	NOx, Oxides of Nitrogen in Micrograms/m ³ ; Limit 80 Micrograms/m ³	Carbon Monoxide (CO); mg/m ³ 4.0 mg/m ³	OZONE Micrograms/m ³ ; Limit 180 Micrograms/m ³	Hydrocarbons (HC); Micrograms/m ³
1	Watch tower-2 near MGH building	Oct-16	31.06	15.04	16.93	19.19	0	8.32	0
		Nov-16	33.2	13.63	12.15	14.3	0	5.54	0
		Dec-16	35.29	15.28	11.28	17.48	0	8.31	0
		Jan-17	34.69	15.61	15.25	19.62	0	10.39	0
		Feb-17	35.69	16.23	8.89	13.08	0	7.62	0
		Mar-17	35.13	12.89	10.17	14.53	0	11.78	0
		Average	34.18	14.78	12.45	16.37	0.00	8.66	0.00
2	Near Fire Station Building	Oct-16	34.11	11.96	10.42	13.94	0	5.54	0
		Nov-16	35.46	15.94	14.25	16.28	0	8.32	0
		Dec-16	30.86	11.99	15.14	13.17	0	6.24	0
		Jan-17	29.55	9.87	10.43	18.36	0	6.93	0
		Feb-17	31.68	14.25	12.04	20.27	0	11.78	0
		Mar-17	38.12	15.21	15.25	18.89	0	8.32	0
		Average	33.30	13.20	12.92	16.82	0.00	7.86	0.00
3	Fire water Reservoir+ Watch Tower-5	Oct-16	36.29	12.44	14.39	15.81	0	9.01	0
		Nov-16	34.19	16.41	17.82	13.55	0	9.7	0
		Dec-16	38.28	16.89	16.08	19.47	0	6.93	0
		Jan-17	31.09	12.59	9.37	13	0	7.62	0
		Feb-17	39.11	14.27	10.43	15.34	0	9.7	0
		Mar-17	33.43	15.06	8.89	13	0	9.01	0
		Average	35.40	14.61	12.83	15.03	0.00	8.66	0.00
4	Watch tower-3 near Tank T-101	Oct-16	30.37	13.42	11.58	16.29	0	6.24	0
		Nov-16	31.81	11.21	15.23	17.08	0	7.62	0
		Dec-16	32.68	14.57	13.36	15.02	0	9.01	0
		Jan-17	37.11	11.7	12.04	15.26	0	8.32	0
		Feb-17	37.16	13.28	16.52	17.81	0	6.24	0
		Mar-17	31.84	11.41	13.38	17.08	0	6.24	0
		Average	33.50	12.60	13.69	16.42	0.00	7.28	0.00


Officer HSE


Sr. Officer HSE



Annexure-8

CORPORATE SOCIAL RESPONSIBILITY

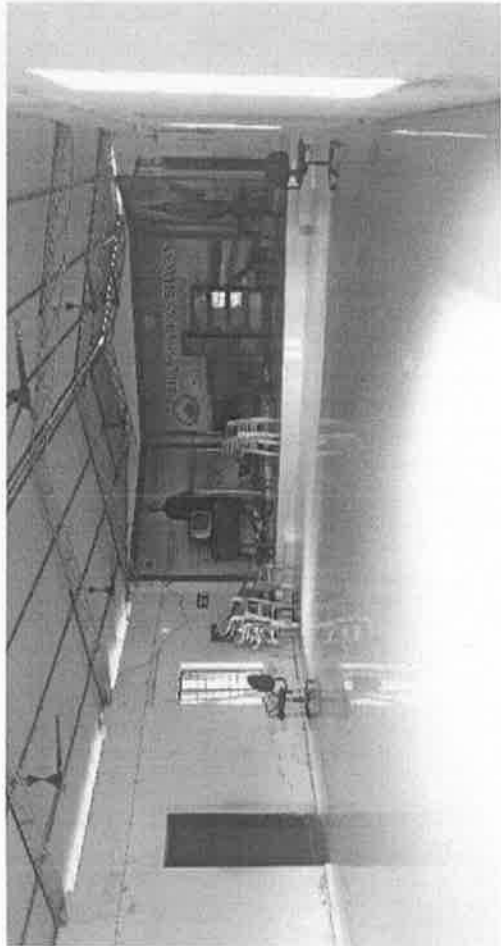
MOEF Six Monthly Compliance
Oct'16 to Mar'17



PETRONET LNG LIMITED
KOCHI



Cleanliness Drive



Renovation of Community Hall at Puthuvyppe for Community Dispensary at Puthuvyppe Village



Construction of Casualty Complex at Thrikakara Municipal Cooperative Hospital



Providing Infrastructure Support (Desks and Benches) at the Elamkunnappuzha New LP School



Construction of Ayurveda Hospital at Edavanakad

CSR Expenditure (October 2016 to March 2016)				
S N	Approval Ref. No	Vertical	Name of the Project & Location	Amount (In INR)
1	PLL/KOCHI/2016-17/CSR/010	Healthcare	Cleanliness Drive - Materials and Financial Support to Dheevara Yuvajana Sabha for Cleaning the beaches	25,000.00
2	PLL/KOCHI/2016-17/CSR/011	Healthcare	Renovation of Community Hall at Puthuvype for Community Dispensary at Puthuvype Village	3,78,000.00
3	PLL/KOCHI/2016-17/CSR/012 & 013	Rural Development Projects	Construction of Road, Drain, Pathways at the Elamkunnapuzha Grama Panchayath across Several Wards	40,74,582.00
4	PLL/KOCHI/2016-17/CSR/014 & 021	Healthcare	Construction of Casualty Complex at Thrikakara Municipal Cooperative Hospital (Ongoing project)	12,86,100.00
6	PLL/KOCHI/2016-17/CSR- 023	Education	Providing Infrastructure Support (Desks and Benches) at the Elamkunnapuzha New LP School	28,800.00
7	PLL/KOCHI/2017-18/CSR- 026	Healthcare	Construction of Ayurveda Dispensary at the Edvanakad Grama Panchayath with Vypin Block Panchayath	9,58,975.00
Total Spent				67,51,457.00

Summary	
Vertical	Amount (INR)
Healthcare	26,48,075.00
Rural Development Projects	40,74,582.00
Education	28,800.00
Total	67,51,457.00

COMPLIANCE REPORT of CRZ Clearance no. J-16011/26/2001-IA-III vide your letters dated 13th MARCH 2006; for the Construction of LNG Import Terminal at Puthuvypeen Island, Kochi, Kerala by M/s Petronet LNG Ltd.

Point-wise compliance to stipulated terms and conditions of the CRZ Clearance is as follows:

A. SPECIFIC CONDITIONS

- i. All conditions stipulated in the clearance letter of even number dated 2nd June, 2003 should be strictly implemented. Also, all conditions stipulated by the State Coastal Zone Management Authority vide their letter No.1 143/A212005/STED, dated 14th October, 2005 should be complied.
 - **Conditions mentioned in the Letter No. 4215/B1/2000/STED, dated 09th February-2001 does not specifies and conditions for compliance.**
 - **All conditions mentioned in the Letter No. 1143/A2/2005/STED dated 14th October-2005 from Kerala coastal Zone Management Authority are complied with. Point wise compliance status is given as Annexure-1.**
- ii. No Objection Certificate/consent should be obtained from the Kerala State Pollution Control Board for the enhanced LNG capacity at the terminal, before initiating the project.
 - **We have obtained Consent to Establish with No. PCB/NOC/EK/117/98 dated 17th September-1999 before initiating the project and the CTE was subsequent renewed.**
 - **We have obtained Consent to Operate with no. PCB/HO/EKM/ICO-R/12/ 2016 dated 28th February 2016, and is valid up to on 31th March 2018 and a copy of the same is given as Annexure-2.**
- iii. The project proponent should ensure that all necessary precautions including installation of Full-containment - Type LNG tank with concrete roof as indicated in the risk analysis report should be implemented.
 - **PLL has built two LNG storage tanks, both the tanks are of Full-containment with concrete roofing.**
- iv. The project proponent should ensure that no additional dredging/expansion or regasification plant will be undertaken for the above project.
 - **PLL will not undertake additional dredging / expansion of regasification plant without approval of MOEF. Only maintenance dredging is being carried out by Cochin port Trust.**
- v. The budget allocated for environment safeguard measures should not be diverted for any other purpose.
 - **Budget allocated for environment safeguard will not be diverted for other purposes.**



- vi. The comprehensive Environmental Impact Assessment report which is under preparation should be completed early and the final report submitted to this Ministry within one year,
 - **Comprehensive EIA of 2.5 MMTPA Terminal and EIA with QRA and Site emergency response plan of 5 MMTPA terminal has already been submitted with vide letter ND/LNG/K22/2K1 dated 16th February-2001 and letter dated 22nd September-2011 respectively.**
- vii. Based on the risk analysis, Disaster Management Plan should be prepared and submitted to this Ministry within 6 months.
 - **EIA with QRA and site emergency response plan (for 5 MMTPA terminal) submitted to MoEF vide letter dated 22nd September-2011 for EAC recommendations.**

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.	<ul style="list-style-type: none"> ▪ The construction drawings have been approved by the concerned State Government Department/Agencies like Department of Factories and Boilers, Fire and rescue Services etc. Copy of the approvals of Factories and Boiler, Fire rescue services has already been submitted with six monthly compliance report dated 05th April-2013.
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.	<ul style="list-style-type: none"> ▪ PLL is continuously ensuring that there is no ingress of saline water into the ground water by periodic analysis of ground water, and for the same we have installed two Piezometers at appropriate locations. ▪ Sampling of the water drawn from Piezometers is being carried out by approved third party. The latest Ground water analysis report is of the month of December-16 and is enclosed as Annexure-3.
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	<ul style="list-style-type: none"> ▪ We have applied for NOTIFICATION OF SITES to Factories & Boilers department vide letter no. PLL/KOCHI/F&B/2012-13/C-04 dated 28th November 2012 as per requirement of MSIHC rules



	<p>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</p>	<p>1989. The same has already been submitted with six monthly compliance report dated 05th April-2013.</p> <ul style="list-style-type: none"> ▪ We have received final clearance from Chief Controller of Explosive for commissioning of Jetty, LNG unloading line, LNG tanks, and Regasification facilities with letters dated 04th February-2013. We have already submitted the same with six monthly compliance reports, dated 05th April-2013. ▪ Permit to construct and plan approvals were obtained from Director of Factories and Boilers. We have already submitted the details regarding the same with six monthly compliance report, dated 05th April-2013. ▪ We have received the renewed factory license dated 06th January 2017, valid till 31st December-2017; a copy of the same is enclosed as Annexure#4. ▪ We have prepared Emergency response and Disaster Management Plan and it was submitted to District collector office vide letter no. PLL/KOCHI/ERDMP/DC/2014-15/C-01 dated 5th April-2014. ▪ A comprehensive contingency plan was prepared in collaboration with the concerned authorities before commissioning of the project to meet any eventuality in case of an accident ▪ All approvals as necessary were obtained before the commissioning of the project. Terminal was commissioned on 20th August-2013 and all activities related to commissioning were completed by 10th September 2013.
<p>iv.</p>	<p>A well-equipped laboratory with suitable instruments to monitor the quality of air and water shall be set up as to ensure</p>	<ul style="list-style-type: none"> ▪ A well-equipped laboratory with suitable Equipments for monitoring the quality of air and



	<p>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.</p>	<p>water is in place, with Qualified and competent personals. However, PLL is carrying out periodic monitoring of environmental parameters by KSPCB approved agency.</p> <ul style="list-style-type: none"> ▪ Ambient air monitoring is carried out once in a month at four different locations and analysis report for the month of October-16 to March-17 is enclosed as Annexure # 5. ▪ PLL is conducting marine water quality analysis, once in six month. The latest test report, dated February-17 is enclosed as Annexure # 6.
v.	<p>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 Coastal Regulation Zone area. It should also be fuel wood purpose</p>	<ul style="list-style-type: none"> ▪ During the construction phase, PLL has provided adequate infrastructure facilities such as water supply, fuel for cooking, sanitation, etc to the labourers. ▪ Labour colonies were not located in Costal Regulation Zone area.
vi.	<p>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.</p>	<p>Individual Septic tanks with soak pits have being provided for collection of sewage. The collected sewages are regular disposal through authorized agency of Cochin corporation. No sewage or waste from PLL will be allowed to enter water bodies</p>
vii.	<p>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</p>	<p>Vessels and tugs will dispose their garbage as per the guidelines of Annex V of Marpol (IMO). We have already submitted the related details with six monthly compliance report dated 05th April-2013.</p>
viii.	<p>Necessary navigational aids such as channel markers should be provided to prevent accidents. internationally recognized safety standards shall be applied in case of barge/vessel movements</p>	<p>PLL has provided 4 Nos. of Buoys as instructed by cochin post trust. In future, if required, more navigation aids will be provided as per instruction/guidance of Cochin Port Trust. All required safety standards will be applied to vessel movements as per</p>



		directions of Cochin Port Trust.
ix.	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.	A separate fund for CSR is kept aside by PLL and we have carried out various activities for the community development and welfare of villagers. PLL is carrying out community development and welfare measures for villagers of nearby village; Rs 2.23 Crore was spent on CSR activity for the year 2015-2016.
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.	PLL sourcing of quarrying material is only from Government approved quarries. We have already submitted the details regarding the same with six monthly compliance report on dated 05 th April-2013.
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 CWPRS/NIO.	PLL has obtained Environmental clearance from the MOEF vide their order No. J-16011/26/2001-IA-III dated 16 th November-2010 for undertaking dredging operations of the basin. Dredging operations is completed and PLL has handed over the basin to M/s Cochin Port Trust for maintenance.
xii.	For employing unskilled, semi-skilled and skilled workers for the project, preference shall be given to local people..	During the project, PLL had given preference to locals while employing unskilled, semi-skilled and skilled worker wherever possible based on their qualification and merits.
xiii.	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.	All recommendations made in Environment Management Plan and Disaster Management Plan, as contained in Environment Impact Assessment and Risk Analysis Report of the project are effectively implemented.
xiv.	A separate Environment Management Cell with suitably qualified staff to carry out various environment issues should be set up under the charge of a Senior Executive who will report directly to the Chief Executive of the Company.	An Environment Management Cell has been set up under Vice-president –Operation & Maintenance, and Its members are qualified personals from HSE, Civil & Laboratory Operation Department and they are capable to address any environment issues.
xv.	The project affected people, if any should be properly compensated and	No people affected directly as the project was on uninhabited land.



	rehabilitated.	Some Land was acquired by Cochin Port Trust for constructing new access road for the project and those affected were provided with infrastructure like road, drain, electricity and water as per guideline by authorities.
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.	Budget allocated for environment safeguard will not be diverted for other purposes.
Xvii.	Full support should be extended to the officers of this Ministry's Regional Office at Bangalore 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.	PLL will extend full support to the officers of this ministry's Regional Office, Bangalore and the officers of the Central and State Pollution Control Board during the inspection for monitoring purpose by furnishing full details of analysis reports and action plans for environmental protection
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 protection. The project proponents should be responsible for implementing the suggested safeguard measures.	PLL has not carried out any deviation or alteration in the project. PLL will comply with this requirement and will take permit from the Ministry prior to any deviation, alteration and modification in the project.
xix.	This Ministry reserves the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	PLL is aware of the Ministry's right to revoke clearance for not complying with the conditions stipulated in the clearance.
xx.	This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary for environmental protection, which shall be complied with.	PLL will comply with additional conditions, if any suggested by the ministry or any other competent authority in writing.



<p>xxi.</p>	<p>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 Committee and may also be seen at Website of the Ministry of Environment & Forests at http://www.envfornic.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 Bangalore.</p>	<p>PLL had advertised regarding environmental clearance accorded by the Ministry of Environment & Forest in two local newspapers widely circulated in the region around the project. Copy of the advertisement given in the two local newspapers has already been along with the six monthly compliance report dated 30th September-2013.</p>
<p>xxii.</p>	<p>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.</p>	<p>Site appraisal clearance obtained on 28th Feb 2011. No separate land developmental work was required, as this involved only augmentation of equipment in the same land.</p>



Conditions mentioned in the Letter No. 4215/B1/2000/STED, dated 9th February-2001 does not specifies and conditions for compliance.

Conditions mentioned in the Letter No. 1143/A2/2005/STED dated 14th October-2005 from Kerala coastal Zone Management Authority are and PLL compliance remarks are as under:

Sr. No.	Conditions mentioned	PLL Compliance remarks
1.	No activities will be undertaken in the Mangrove area or in the buffer zone of the mangrove. The route of the pipeline and other activities shall have minimum of 50m from the nearby mangroves and forest land if any in the CRZ area.	PLL's plot is not in the mangrove area, it is about 100 m away from the buffer zone. All activities including the laying of pipelines are confined within the PLL's plot.
2.	Expansion of existing service road in the Costal Regulation Zone-I shall not be carried out.	Expansion of the existing service road in the Costal Regulation Zone-I belongs to Panchayat and PLL will not do any expansion of the service road.
3.	No groundwater shall be tapped for the project	PLL will not tap any ground water during operation of the terminal as water requirement will be met from the condensed water from air. During construction stage, requirement of water was met by outsourcing. At present the water requirement is met by procuring the water from vendors.
4.	The proponent shall obtain necessary No Objection Certificate (NOC) from Kerala State Pollution Control Board.	PLL has obtained required NOC from Kerala State Pollution Control Board in 1999 vide NOC No. PCB/NOC/EK/117/98 dated 17th September-1999 which was renewed every time (mostly 2 years) before expiry of its validity period. Consent to Operate with no. PCB/HO/EKM/ICO-R/12/ 2016 dated 28 th February 2016, and is valid up to 31 th March 2018.
5.	EIA document including risk analysis and disaster management plan should be submitted directly to MoEF for environment clearance, under intimation to this office.	Comprehensive EIA of 2.5 MMTPA Terminal and EIA with QRA and Site emergency response plan of 5 MMTPA terminal has already been submitted with vide letter ND/LNG/K22/2K1 dated 16 th Feb-2001 and letter dated 22 nd Sept-2011 respectively.





KERALA STATE POLLUTION CONTROL BOARD

FILE NO. :PCB/HO/EKM/CIE/74/05

Date of issue :28/02/2016

INTEGRATED CONSENT TO OPERATE - RENEWAL

Consent No : PCB/HO/EKM/ICO-R/12/2016

Ref : Consent no PCB/HO/EKM/ICO/40/2013 dated 05.08.13

The 'Integrated Consent to Operate' issued as per reference above to M/s Petronet LNG Ltd, Puthuvypu P.O., Ernakulam- 682 508 is hereby renewed up to 31/03/2018 and issued to M/s Petronet LNG Ltd, Puthuvypu P.O., Ernakulam- 682 508 The consent(s)/ variation order(s) cited under reference are integral part of this renewal order and this order is subject to the conditions stipulated therein and the following modifications/ additions.

I. GENERAL

S.No.	Items	Description
1	Capital Investment	Rs 4502.75 crores
2	Annual fee	Rs 3602200
3	Date of application	29.12.2014
4	Date of enquiry	09.02.15
5	Fee remitted	Rs 11,056,600
6	Validity	31.03.2018

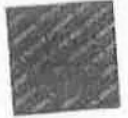
II. Stack Details

Stack No.	Source of Emission	Emission Rate(Nm3/Hr)	Stack Height above		Control Equipment
			Ground Level	Roof Level	
As per previous consent					

III. CONDITIONS

- Additional 2 nos of MSO compressors with the specified control measures are incorporated in condition 4.1
- Condition no 5.2 (iii) is added as: The hazardous waste shall be stored for 1 year subject to the minimum quantity of generation of 10 tpa.





3. Condition 7.3 is modified as: Adequate fire safety measures shall be provided in accordance with fire safety regulations.
4. Energy and water conservation measures shall be adopted.
5. Renewable energy sources such as solar energy shall be utilized.

All other conditions of the Integrated Consent to Operate issued as per reference above remain unchanged.

DATE :28/02/2016



SIGNATURE & SEAL OF ISSUING AUTHORITY
MEMBER SECRETARY

To

1. Environmental Engineer, District Office-1, Ernakulam
2. Stock file



COCHIN TEST HOUSE

Annexure-03

ANALYTICAL SERVICES & TESTING LABORATORY

V / 78, Kollanpady, Murungaliparambu Road, Irumpanam P.O., Kochi - 682 309

Mob.: 9446332556, 9387381780, Tel. : 0484 - 2782672

E-mail: cochintesthouse1@gmail.com, Web : ww.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board ('A' Grade)

TEST REPORT

Report No : CTH/LR/16/12/1345

Issue Date : 16.12.2016

Name and Address of customer : M/s. Petronet LNG Limited, Survey No. 347,
Puthuvypu, Kochi-682 508
Sample Drawn By : Cochin Test House
Particulars of the sample : Water Sample
Sample code : 16/NN/1345
Date of receipt of sample : 08.12.2016
Dates of Analysis : 08.12.2016-16.12.2016
Description of the sample by the customer : Bore Well (West Side)

Sl.No.	Parameters	Unit	Method	Result
1	pH	-	IS : 3025 (Pt.11)	7.55
2	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	356
3	Turbidity	mg/l	IS :3025 (Pt.10)	14.8
4	Chloride	mg/l	IS : 3025 (Pt. 32)	33.5
5	Iron (as Fe).	mg/l	IS :3025 (Pt.53)	2.19
6	Fluoride	mg/l	APHA 22 nd Ed 4500F D	0.17
7	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	34.12
8	Conductivity	µs/cm	IS : 3025 (Pt .14)	658
9	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10	Lead	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
11	Copper	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.1)
12	Chromium	mg/l	APHA 22 nd Ed 3500 Cr. B	BDL(MDL-0.05)
13	Zinc	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
14	Temperature	°C	IS : 3025 (Pt.9)	27.8
15	Salinity	ppm	CTH/SOP/55	55.22
16	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL- 4.0)
17	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	7.31
18	BOD at 27°C 3 days	mg/l	IS : 3025 (Pt. 44)	BDL(MDL- 2.0)
19	COD	mg/l	IS : 3025 (Pt. 58)	37
20	Cyanide as CN	mg/l	IS : 3025 (Pt. 27)	BDL(MDL-0.02)
21	Cadmium as Cd	mg/l	APHA 22 nd Ed , 3111 B	BDL(MDL-0.1)
22	Insecticide	µg/l	APHA 22 nd Ed , 6630 c	ND
23	Pesticide	µg/l	CTH/SOP/56	ND

ND: Not Detected, BDL- Below Detection Limit; MDL-Minimum Detection Limit.

End of report

Verified By

K.P. Jacob
Authorised Signatory
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

The test report shall not be reproduced except in full without the written approval of the laboratory.



GOVERNMENT OF KERALA
DEPARTMENT OF FACTORIES AND BOILERS

Form-4

(Prescribed under Rule 5)

License is hereby granted to Shri/Smt. RAJENDER SINGH, DIRECTOR (TECHNICAL)() for the premises detailed hereunder for the use as a factory within the limits specified in the Permit (s) and for the manufacturing process stated herein after subject to the provision of the Factories Act 1948 and the Kerala Factories Rules 1957.

The license shall remain in force till the 31st day of December 2017.

1.	Registration No	D09/CHN/03/286/2013	5.	Permit No & Date	175/2012 (17-07-2012)
2.	Name & Address of the Factory	PETRONET LNG LTD PUTHUVYPU P.O,ERNAKULAM, KOCHI, KERALA - 682 508.	6.	Name of the Region	Ernakulam
3.	Registration Date	09-05-2013	7.	Name of the Division	Kochi
4.	Details of the premises		8.	Manufacturing Process & NIC Code	
	Panchayat	Elamkunnappuzha		1. STORING PUMMPING AND RE- GASIFICATIO OF LIQUIFIED NATURAL GAS AND DISTRIBUTION OF COMPRESSED NATURAL GAS (52109)	
	Village	Puthuvaippu			
	Survey No	347			
	Taluk	Kochi			
	District	Ernakulam			

Place : Ernakulam

Date : 06-01-2017

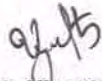
(Issued under Rule 5, renewed under Rule 7)

License Details									
Calendar Year	No. of Workers	Power	Fees	Additional Fee	Excess Fee	Remittance Date	Renewed Date	Sign of Official	
2017	290	67834.97 KW +18249.99 KVA	194350.00			20-10-2016	06-01-2017		
Amendment Details									
Factory Name		No. of Workers	Power(KW)	Fees	Additional Fee	Remittance Date	Amendment Year	Amendment Date	Sign of Official
PETRONET LNG LTD		195	66804.19 (18249.99 KVA)	750	0.0	10-10-2014	2014	10-12-2014	
PETRONET LNG LTD		195	66832.58 (18249.99 KVA)	750	0.0	14-10-2015	2015	02-02-2016	
PETRONET LNG LTD		290	67834.97 (18249.99 KVA)	1500	11500.0	18-07-2016	2016	06-09-2016	
Transfer Details									
Transferred From	Transferred To		Transfer Fee	Remittance Date	Year of Transfer	Transfer Date		Sign of Official	

Annexure-05

Ambient Air Monitoring Report, (October 2016 to March 2017)									
LOCATION NO.	Location of Ambient Air Sampling	Month & Date of Sampling	PM (<10 microns) in Micrograms/m ³ ; Limit 100 Micrograms/m ³	PM (<2.5 microns) in Micrograms/m ³ ; Limit 60 Micrograms/m ³	SOx as SO ₂ in Micrograms/m ³ ; Limit 80 Micrograms/m ³	NOx, Oxides of Nitrogen in Micrograms/m ³ ; Limit 80 Micrograms/m ³	Carbon Monoxide (CO); mg/m ³ 4.0 mg/m ³	OZONE Micrograms/m ³ ; Limit 180 Micrograms/m ³	Hydrocarbons (HC); Micrograms/m ³
1	(Watch tower-2) near MGH building	Oct-16	31.06	15.04	16.93	19.19	0	8.32	0
		Nov-16	33.2	13.63	12.15	14.3	0	5.54	0
		Dec-16	35.29	15.28	11.28	17.48	0	8.31	0
		Jan-17	34.69	15.61	15.25	19.62	0	10.39	0
		Feb-17	35.69	16.23	8.89	13.08	0	7.62	0
		Mar-17	35.13	12.89	10.17	14.53	0	11.78	0
		Average	34.18	14.78	12.45	16.37	0.00	8.66	0.00
2	Near Fire Station Building	Oct-16	34.11	11.96	10.42	13.94	0	5.54	0
		Nov-16	35.46	15.94	14.25	16.28	0	8.32	0
		Dec-16	30.86	11.99	15.14	13.17	0	6.24	0
		Jan-17	29.55	9.87	10.43	18.36	0	6.93	0
		Feb-17	31.68	14.25	12.04	20.27	0	11.78	0
		Mar-17	38.12	15.21	15.25	18.89	0	8.32	0
Average	33.30	13.20	12.92	16.82	0.00	7.86	0.00		
3	Fire water Reservoir+ Watch Tower-5	Oct-16	36.29	12.44	14.39	15.81	0	9.01	0
		Nov-16	34.19	16.41	17.82	13.55	0	9.7	0
		Dec-16	38.28	16.89	16.08	19.47	0	6.93	0
		Jan-17	31.09	12.59	9.37	13	0	7.62	0
		Feb-17	39.11	14.27	10.43	15.34	0	9.7	0
		Mar-17	33.43	15.06	8.89	13	0	9.01	0
Average	35.40	14.61	12.83	15.03	0.00	8.66	0.00		
4	Watch tower-3 near Tank T-101	Oct-16	30.37	13.42	11.58	16.29	0	6.24	0
		Nov-16	31.81	11.21	15.23	17.08	0	7.62	0
		Dec-16	32.68	14.57	13.36	15.02	0	9.01	0
		Jan-17	37.11	11.7	12.04	15.26	0	8.32	0
		Feb-17	37.16	13.28	16.52	17.81	0	6.24	0
		Mar-17	31.84	11.41	13.38	17.08	0	6.24	0
		Average	33.50	12.60	13.69	16.42	0.00	7.28	0.00


 Officer HSE


 Sr. Officer HSE



COCHIN TEST HOUSE

Annexure-06

ANALYTICAL SERVICES & TESTING LABORATORY

V / 78, Kollanpady, Murungaliparambu Road, Irumpanam P.O., Kochi - 682 309
Mob.: 9446332556, 9387381780, 9846551014, Tel. : 0484 - 2782672
E-mail: cochintesthouse1@gmail.com, Web : ww.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board

TEST REPORT

Report No : CTH/LR/17/NN/152

Issue Date : 02.03.2017

Name and Address of customer :

M/s. Petronet LNG Limited,
Survey No. 347,
Puthuvypu, Kochi-682 508

Sample Drawn By :

Cochin Test House

Particulars of the sample :

Water Sample

Sample code :

17/NN/152

Date of receipt of sample :

15.02.2017

Dates of Analysis :

15.02.2017-01.03.2017

Description of the sample by the customer :


Marine Water

Sl.No.	Parameters	Unit	Method	Result
1.	pH	-	IS : 3025 (Pt.11)	8.09
2.	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	25300
3.	Turbidity	mg/l	IS :3025 (Pt.10)	7.7
4.	Chloride	mg/l	IS : 3025 (Pt. 32)	17985
5.	Iron (as Fe)	mg/l	IS :3025 (Pt.53)	0.59
6.	Fluoride	mg/l	APHA 22 nd Ed 4500F D	1.53
7.	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	2365
8.	Conductivity	µs/cm	IS : 3025 (Pt .14)	51200
9.	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10.	Lead	mg/l	APHA 22 nd Ed 3111 B	0.79
11.	Copper	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.1)
12.	Hexavalent Chromium	mg/l	APHA 22 nd Ed 3500 Cr. B	BDL(MDL-0.1)
13.	Zinc	mg/l	APHA 22 nd Ed 3111 B	0.12
14.	Temperature	°C	IS : 3025 (Pt.9)	26.1
15.	Salinity	ppt	CTH/SOP/55	29.649
16.	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL - 4.0)
17.	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	6.42
18.	BOD at 27°C, 3 days	mg/l	IS : 3025 (Pt. 44)	5.5
19.	COD	mg/l	IS : 3025 (Pt. 58)	81
20.	Cyanide as CN	mg/l	IS : 3025 (Pt. 27)	BDL(MDL-0.02)
21.	Cadmium as Cd	mg/l	APHA 22 nd Ed , 3111 B	0.1
22.	Insecticide	µg/l	APHA 22 nd Ed , 6630 c	ND
23.	Pesticide	µg/l	CTH/SOP/56	ND
24.	Color	Colour units	IS :3025 (Pt.4)	2.0
25.	TSS	mg/l	IS :3025 (Pt.17)	21.5
26.	Arsenic	mg/l	APHA 22 nd Ed , 3114 C	BDL(MDL-0.01)
27.	Nickel	mg/l	APHA 22 nd Ed , 3111 C	0.78
28.	Total Hardness (asCaCO ₃)	mg/l	IS:3025(Pt. 21)	5917

Page 1 of 2

Verified By 




K.P. Yacob
Authorised Signatory
Chemical
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

The test report shall not be reproduced except in full without the written approval of the laboratory.



COCHIN TEST HOUSE

ANALYTICAL SERVICES & TESTING LABORATORY

V / 78, Kollanpady, Murungallparambu Road, Irumpanam P.O., Kochi - 682 309

Mob.: 9446332556, 9387381780, 9846551014, Tel. : 0484 - 2782672


E-mail: cochintesthouse1@gmail.com, Web : ww.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board

29.	Nitrate as NO ₃	mg/l	IS:3025 (Pt. 34)	BDL(MDL - 0.1)
30.	Calcium as Ca	mg/l	IS:3025 (Pt. 40)	389.2
31.	Magnesium as Mg	mg/l	IS:3025 (Pt. 46)	1204.6
32.	Sodium	mg/l	IS:3025 (Pt. 45)	9775
33.	Borate as Boron	mg/l	IS:3025 (Pt. 57)	BDL(MDL - 0.05)
34.	Potassium	mg/l	IS:3025 (Pt. 45)	369
35.	Aluminum as Al	mg/l	IS:3025 (Pt. 55)	BDL(MDL - 0.02)
36.	Silica	mg/l	IS:3025 (Pt. 35)	0.92
37.	Total Bacterial Count	cfu/ml	IS:1622:1981	126
38.	Faecal Coliform	MPN/100ml	IS:1622:1981	7
39.	E Coll	MPN/100ml	IS:1622:1981	80


ND: Not Detected, BDL- Below Detection Limit; MDL-Minimum Detection Limit End of report.




Rajitha K B
Authorised Signatory
Microbiology
COCHIN TEST HOUSE

Page 2 of 2

Verified By 


K.P. Yacob
Authorised Signatory
Chemical
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

The test report shall not be reproduced except in full without the written approval of the laboratory.

COMPLIANCE REPORT of CRZ Clearance no. J-16011/26/2001-IA-III vide your letters dated 31st JANUARY 2013 for enhancing the re-gasification capacity from 2.5 to 5 MMTPA at Puthuvypeen Island, Kochi, Kerala by M/s Petronet LNG Ltd.

Point-wise compliance to stipulated terms and conditions of the above CRZ Clearance is as follows:

	SPECIFIC CONDITIONS	PLL Remark
I	"Consent for Establishment" shall be obtained from State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	"Consent to Establish" Consent No. PCB/HO/EKM/ICE-R/03/2013 obtained from KSPCB and a copy of the same has already been submitted to the Ministry along with the six monthly compliance report dated 30 th September-2013.
II	NOC/Clearance shall be obtained confirming that all the firefighting provisions are as per standards specified by the Chief Controller of Explosives/Petroleum & Explosives Safety Organization (PESO) for the additional storage tanks.	No additional LNG storage tank is envisaged for this enhancement. We have got Approval of PESO for the existing LNG Storage Tanks and a copy of the same has already been submitted to the Ministry along with the six monthly compliance reports dated 05 th April-2013.
III	Leak detection/warning system shall be provided at strategic locations. Necessary control measures capable of remote operation to shut down the leakage, if any, should be provided.	Complied. State of the art automated FGS & shutdown system is installed to mitigate any such incidents.
IV	Appropriate safety devices such as masks should be provided for use by the workers handling the products at the site and their usage by them should be ensured.	Complied. Safety Helmets, Safety Shoes, Safety Goggles, SCBAs, Cryogenic suits are provided to all relevant workers and Dust mask are provided to the workers involved in activities which has potential to generate dust.
V	Project proponent should implement all the recommendations stipulated in the EIA, EMP and Risk Assessment reports pertaining to the project.	PLL is complying with all the recommendation stipulated in the EIA, EMP and Risk Assessment reports pertaining to our project.
VI	The commitments made during the Public Hearing and as recorded in the Minutes shall be complied with letter and spirit.	Noted. Public Hearing commitments are incorporated in Final EIA Report for further necessary implementation. Public hearing commitments are fulfilled details has already been submitted along with the six monthly compliance report dated 02 nd June-2016.
VII	All the conditions stipulated in the earlier Clearance including the recommendations of Environment Management Plan, Disaster Management Plan shall be strictly complied with.	Complied. All the conditions stipulated in the earlier clearance including the recommendations of EMP and DMP are strictly complied with.



VIII	<p>The Committee noted the proponent's statement that augmentation of the capacity from 2.5 MMTPA to 5.0 MMTPA will not induct additional environmental issues and that the planned system will take care of the overall requirements of the facility. However, impacts if any arising out of increased activities to meet the additional capacity shall be brought to the notice of the Ministry with appropriate mitigation measures that will be put in place, to ensure that the given commitment of 'no additional impact' is maintained in letter and spirit.</p>	<p>Noted. However, Augmentation of the capacity from 2.5 MMPTA to 5.0 MMTPA will not induct additional environmental issues.</p>
IX	<p>At least 5% of the total cost of the project shall be earmarked towards the Corporate Social Responsibility (CSR) and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry prior to the commencement of the project. Implementation of such program shall be ensured accordingly in a time bound manner.</p>	<p>5% of the total cost of augmentation of the capacity from 2.5 MMTPA to 5.0 MMTPA project is earmarked towards community development and other infrastructure related as well as CSR projects. PLL is carrying out community development and welfare measures for villagers of nearby village; Rs 67.51 Lakhs was spent on CSR activity for the period of October-16 to March-17. Details regarding the CSR activity is enclosed as Annexure-1.</p>
X	<p>It shall be ensure that the proposed activity shall not cause any disturbance to the Fishing activity.</p>	<p>The proposed augmentation/enhancement of plan capacity do not involve any modification in current marine facilities. Hence will not cause disturbance to fishing activity.</p>
Xi	<p>The smooth and safe operation of the system will be ensured by incorporating a computerized SCADA (Supervisor Control And Data Acquisition) system. Any leakage in the pipeline shall be immediately detected by the Computer system and product pumping shall be immediately cut off.</p>	<p>Complied. Computerized SCADA (Supervisor Control And Data Acquisition) system, FGS (Flame, Gas and Spill) detection system and ESD (Emergency Shutdown system) system has already been installed to ensure smooth and safe operation, for early detection of any leak and for safe shutdown in case of any emergency respectively. Regasified NG pipeline belong to GAIL and cut off of the gas supply is ensured by them and on intimation to PLL, we may stop the supply.</p>



Xii	Regular patrolling of the pipelines needs to be done. This will help in identifying any activity that have the potential to cause pipeline damage or to identify small leaks whose effects are too small to be detected by instrument.	Complied. Regasified NG pipeline belong to GAIL and PLL has no any role related to these pipelines. However, the pipelines within the terminals are equipped with temperature and pressure sensors designed to raise alarm in case of abnormalities, in additions to this all pipelines are continuously guarded with relevant detectors capable of activating ESD if situation demands.
Xiii	The project shall be carried out as per international standards in vogue and duly certified by competent authorities before commissioning.	Complied. The project was carried out in accordance with relevant international and national standards. All equipments have been inspected and certified by competent third party or by competent authorities as per requirements.
Xiv	Oil Spill Contingency Management Plan shall be put in place along with the dedicated staff to deal with Oil spill in and around the port area shall be provided in the port. No oily wastes shall be discharged into the water bodies/mangrove areas.	<p>Contingency plan is formulated to take care of the eventualities; a copy of the same has already been submitted with six monthly compliance reports dated 05th April-2013.</p> <p>PLL is having one FIFI 1 tug with required boom barrier and other oil spill control related equipments. PLL jetty falls under the Cochin Port Trust (CPT), and the Oil Spill Contingency Management Plan is prepared by CPT. PLL has provided the information required from the terminal to be incorporated in the Oil Spill Contingency Management Plan. Coast guard is also part of the Oil spill contingency plan.</p> <p>No oily waste will be discharged in to water bodies/mangrove areas. Oily waste will be collected and send to Hazardous waste handling agency.</p> <p>We have entered in to agreement with KEIL (Kerala Enviro Infrastructure Ltd) for handling and treatment of our Hazardous waste and M/s CEE JEE Lubricants for disposal of waste oil, details regarding the agreement has already been submitted with Six monthly compliance report dated 30th September-2013.</p>



Xv	Regular mock drills shall be conducted to check the effectiveness of the on-site Disaster Management Plan. The recommendations made in the Environmental Management Plan and Disaster Management Plan, as contained in the Environment Impact Assessment and Risk Analysis reports of the project, should be effectively implemented.	Regular mock drills are conducted for both On-site as well as Off-site emergency scenarios. All mock drills are conducted as per ERDMP plan. For Off-site emergencies, an effective Mutual aid arrangement is in place; all parties in the Mutual aid actively participate in Off-site Mock drills. PLL has a Mutual Aid agreement with FACT-UD and BPCL-STF to provide resources during emergency. All recommendations made in the Environmental Management Plan and Disaster Management Plan, as contained in the Environment Impact Assessment and Risk Analysis reports of the project are covered while preparation of ERDMP (Emergency Response and Disaster Management Plan) which is effectively implemented.
xvi	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Noted. No any other construction work will be done in CRZ area.
Xvii	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	PLL has set up Environment Management Cell under Vice-president – (Operation & Maintenance) for effective implementation of the stipulated environmental safeguards. Other members of the cell are department heads of HSE, Civil and LAB.
xviii	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	The funds earmarked for environment management plan is included in the budget and will not be diverted for other purposes. The details of the last financial year budgeted fund for environment management plan is enclosed as Annexure-2 .

6.	GENERAL CONDITIONS	PLL Remark
I	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Noted. PLL have taken appropriate measure while undertaking digging activities. We conduct ground water analysis periodically and latest report is enclosed as Annexure-3 .



ii	Full support shall be extended to the officers of this Ministry/Regional Office at Bengaluru by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	PLL will extend full support to the officers of this ministry's Regional Office, Bangalore and the officers of the Central and State Pollution Control Board during the inspection for monitoring purpose by furnishing full details of analysis reports and action plans for environmental protection
iii	A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bengaluru regarding the implementation of the stipulated conditions.	Noted. Six monthly reports regarding the implementation of the stipulated conditions are regularly been submitted to regional MoEF office for all CRZ Clearance obtained for Kochi LNG Terminal project.
iv	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	PLL will comply with additional conditions, if any suggested by the ministry or any other competent authority in writing.
v	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	PLL is aware of the Ministry's right to revoke clearance for not complying with the conditions stipulated in the clearance.
vi	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted.
vii	The project proponents 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 land development work.	Site appraisal clearance obtained on 28 th Feb 2011. No separate land developmental work was required, as this involved only augmentation of equipment in the same land.
viii	A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.	PLL has written letter to concerned Gram Panchayat vide letter no. PLL/Kochi/MoEF/GP/2013/001 dated 07 th March-2013; A copy of the letter has already been submitted with six monthly compliance reports dated 05 th April-2013.
ix	State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/Tehsildar's office for 30 days.	Action need to be taken by State Pollution control board.



Other Conditions mentioned in the Environment Clearance dated 31st January 2013.

7.	These stipulation's would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Noted.
8	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Noted. Copies of all relevant approvals/NOCs have already been submitted along with the six monthly compliance reports dated 05 th April-2013.
9	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the Kerala Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at http://www.envfor.nic.in . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bengaluru.	PLL had advertised regarding environmental clearance accorded by the Ministry of Environment & Forest in two local newspapers widely circulated in the region around the project. Copy of the advertisement given in the two local newspapers has already been submitted along with the six monthly compliance report dated 30 th September-2013.
10	This clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted.
11	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Status of the compliance, of various stipulated environmental conditions and environmental safeguards are uploaded in PLL's website.



12	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
13	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZillaParisad/ Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	PLL has written letter to concerned Gram Panchayat vide letter no. PLL/Kochi/MoEF/GP/2013/001 dated 7 th March-2013, we have already submitted a copy of the letter with six monthly compliance report dated 5 th April 2013.
14	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	This is uploaded in the website. www.petronetlng.com .
15	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated 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 the SPCB.	Noted.
16	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent 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 Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	We have uploaded Form-V (Environment Statement) along with the status of compliance of clearance conditions in our company's website. Compliance of the clearance conditions is regularly sent to MoEF's regional office by e-mail. Kindly find the latest Form-V (Environment Statement) enclosed as Annexure-4 .





Annexure-1

CORPORATE SOCIAL RESPONSIBILITY

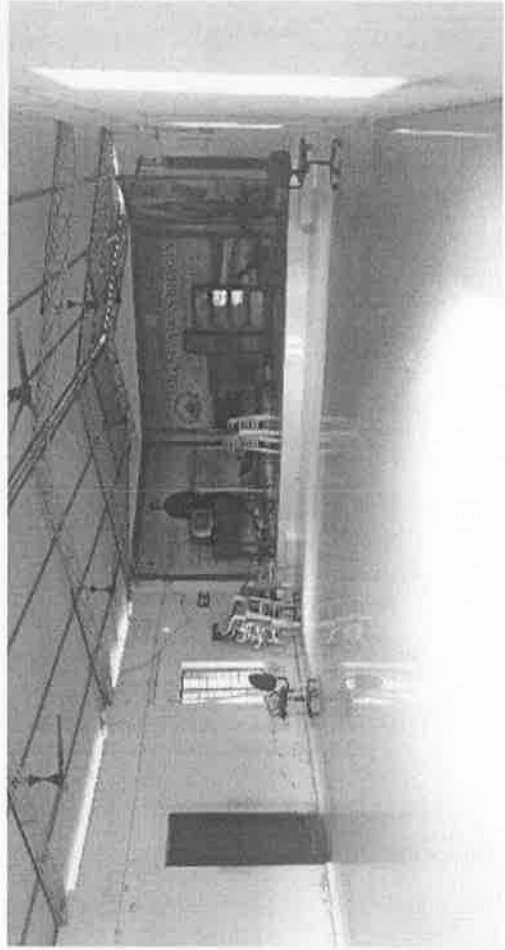
MOEF Six Monthly Compliance
Oct'16 to Mar'17



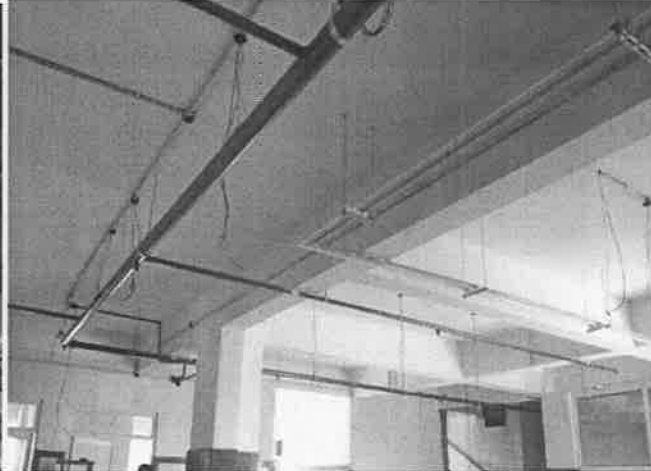
PETRONET LNG LIMITED
KOCHI



Cleanliness Drive



Renovation of Community Hall at Puthuvype for Community Dispensary at Puthuvype Village



Construction of Causality Complex at Thrikakara Municipal Cooperative Hospital



Providing Infrastructure Support (Desks and Benches) at the Elamkunnappuzha New LP School



Construction of Ayurveda Hospital at Edavanakkad

CSR Expenditure (October 2016 to March 2016)				
S N	Approval Ref. No	Vertical	Name of the Project & Location	Amount (In INR)
1	PLL/KOCHI/2016-17/CSR/010	Healthcare	Cleanliness Drive - Materials and Financial Support to Dheevara Yuvajana Sabha for Cleaning the beaches	25,000.00
2	PLL/KOCHI/2016-17/CSR/011	Healthcare	Renovation of Community Hall at Puthuvype for Community Dispensary at Puthuvype Village	3,78,000.00
3	PLL/KOCHI/2016-17/CSR/012 & 013	Rural Development Projects	Construction of Road, Drain, Pathways at the Elamkunnappuzha Grama Panchayath across Several Wards	40,74,582.00
4	PLL/KOCHI/2016-17/CSR/014 & 021	Healthcare	Construction of Casualty Complex at Thrikakara Municipal Cooperative Hospital (Ongoing project)	12,86,100.00
6	PLL/KOCHI/2016-17/CSR- 023	Education	Providing Infrastructure Support (Desks and Benches) at the Elamkunnappuzha New LP School	28,800.00
7	PLL/KOCHI/2017-18/CSR- 026	Healthcare	Construction of Ayurveda Dispensary at the Edvanakad Grama Panchayath with Vypin Block Panchayath	9,58,975.00
Total Spent				67,51,457.00

Summary	
Vertical	Amount (INR)
Healthcare	26,48,075.00
Rural Development Projects	40,74,582.00
Education	28,800.00
Total	67,51,457.00

Annexure-02

Environment Expenditure For FY 2016-2017 in Rupees		
Particulars	Budget	Consumed
Environment Monitoring	595980	565356
Training & Awareness	348284.99	292050
Hazardous Waste Handling & Disposal	59606.22	59606.22
Licence Fees	0	0
Audits	2112000	586400
Afforestation	1500000	1500000
Other	109000	109000
Total	4724871.21	3112412.22



COCHIN TEST HOUSE

ANALYTICAL SERVICES & TESTING LABORATORY

V / 78, Kollanpady, Murungaliparambu Road, Irumpanam P.O., Kochi - 682 309

Mob.: 9446332556, 9387381780, Tel. : 0484 - 2782672

E-mail: cochintesthouse1@gmail.com, Web : www.cochintesthouse.com

Laboratory Approved by Kerala State Pollution Control Board ('A' Grade)

TEST REPORT

Report No : CTH/LR/16/12/1345

Issue Date : 16.12.2016

Name and Address of customer : M/s. Petronet LNG Limited, Survey No. 347,
Puthuvypu, Kochi-682 508

Sample Drawn By : Cochin Test House

Particulars of the sample : Water Sample

Sample code : 16/NN/1345

Date of receipt of sample : 08.12.2016

Dates of Analysis : 08.12.2016-16.12.2016


Description of the sample by the customer : Bore Well (West Side)

Sl.No.	Parameters	Unit	Method	Result
1	pH	-	IS : 3025 (Pt.11)	7.55
2	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	356
3	Turbidity	mg/l	IS :3025 (Pt.10)	14.8
4	Chloride	mg/l	IS : 3025 (Pt. 32)	33.5
5	Iron (as Fe).	mg/l	IS :3025 (Pt.53)	2.19
6	Fluoride	mg/l	APHA 22 nd Ed 4500F D	0.17
7	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	34.12
8	Conductivity	µs/cm	IS : 3025 (Pt .14)	658
9	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10	Lead	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
11	Copper	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.1)
12	Chromium	mg/l	APHA 22 nd Ed 3500 Cr. B	BDL(MDL-0.05)
13	Zinc	mg/l	APHA 22 nd Ed 3111 B	BDL(MDL-0.05)
14	Temperature	°C	IS : 3025 (Pt.9)	27.8
15	Salinity	ppm	CTH/SOP/55	55.22
16	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL- 4.0)
17	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	7.31
18	BOD at 27°C 3 days	mg/l	IS : 3025 (Pt. 44)	BDL(MDL- 2.0)
19	COD	mg/l	IS : 3025 (Pt. 58)	37
20	Cyanide as CN	mg/l	IS : 3025 (Pt. 27)	BDL(MDL-0.02)
21	Cadmium as Cd	mg/l	APHA 22 nd Ed , 3111 B	BDL(MDL-0.1)
22	Insecticide	µg/l	APHA 22 nd Ed , 6630 c	ND
23	Pesticide	µg/l	CTH/SOP/56	ND

ND: Not Detected, BDL- Below Detection Limit; MDL-Minimum Detection Limit.

End of report

Verified By 


K.P. YACOB
Authorised Signatory
COCHIN TEST HOUSE

NOTE : This test results relate only to the sample submitted for analysis.

The test report shall not be reproduced except in full without the written approval of the laboratory.



**PETRONET
LIMITED**

Petronet LNG Limited

Survey No. 347, Puthuvypu P.O.
Kochi - 682508, India.

Tel: 0484 - 2502259 Fax: 0484 - 2502264

www.petronetlng.com

CIN L74899DL1998PLC093073

PLL/KOCHI/KSPCB/Form-V/2016-17

29.08.2016

KSPCB Consent No: PCB/HO/EKM/ICO-R/12/2016.

To,

**The Chief Environmental Engineer,
Kerala State Pollution Control Board,
Gandhinagar, Kochi - 682020.**

Sub: Submission of Environment Statement (Form-V).

Dear Sir/Madam,

Petronet LNG, Kochi terminal was commissioned on 20th August 2013 and KSPCB Consent number is PCB/HO/EKM/ICO-R/12/2016.

Kindly find Form-V (Environment Statement) of Petronet LNG Ltd, Kochi Terminal for the financial year 2015-2016, as per Environment (Protection) Rules, 1986.

Thanking you,

For, Petronet LNG Ltd.

**T.N. Neelakantan,
Vice President (Plant Head).**



**T. N. NEELAKANTAN
Vice President (Plant Head)**

Petronet Limited

Survey No. 347, Puthuvypu PO
Kochi-682 508, Dist. Ernakulam
Kerala (India)

Enclose: Environment Statement (Form-V).

Cc:

The MEMBER SECRETARY,
Kerala State Pollution Control Board,
Pattom P. O.,
Thiruvananthapuram - 695004,
Kerala.

Regd. Office:

World Trade Centre, First Floor, Babar Road,
Barakhamba Lane, New Delhi- 110 001 (INDIA)
Tel: 011-23472525/23411411 Fax: 011-23472550

Dahej LNG Terminal:

GIDC Industrial Estate, Plot No.: 7/A, Dahej
Taluka: Vagra, Dist. Bharuch - 392130 (Gujarat)
Tel.: 02641-257004/05/07, 253182, Fax: 02641-253180

ENVIRONMENTAL STATEMENT FORM-V
(See rule 14)

Environmental Statement for the financial year ending with 31st March 2016

PART-A

1	Name and address of the owner/ Occupier of the industry, operation or process.	:	Mr. Rajender Singh; Director (Technical) Kochi Address: Petronet LNG Limited, Puthuvypu P.O., Ernakulam-382508 Corporate Office: Petronet LNG Limited, World Trade Center, First Floor, Babar Road, Barakamba Lane, New Delhi-110001
2	Industry category	:	Orange
3	Production category. Units.	:	5 Million TPA
4	Year of establishment	:	20 th August 2013
5	Date of the last environmental statement submitted.	:	21-07-2015

PART -B

Water and Raw Material Consumption:

I. Water Consumption (M³/Day)

Process : Nil
Cooling : Nil
Domestic : 19.4 M³/d

Name of Products	Process water consumption per unit of products	
	During the previous financial year	During the current financial year
1. RLNG	NIL	0.025 M ³ /MT

II. Raw material consumption

Name of raw materials	Name of Products	Consumption of raw material per unit of output	
		During the previous financial year	During the current financial year
LNG	RLNG	0.029*	0.024*

*Converted LNG consumed in energy units/ RLNG produced in energy units.

PART-C

Pollution discharged to environment/unit of output
(Parameter as specified in the consent issued)

Pollutants		Quantity of Pollutants discharged (mass/day)		Concentration of Pollutants discharged (mass/volume)		Percentage of variation from prescribed standards with reasons.
(a) Water		NIL		NIL		NIL
(b) Air	Equipment	Parameters	Quantity of Pollutants discharged (mass/day)	Concentration of Pollutants discharged (mass/volume)		Percentage of variation from prescribed standards with reasons.
	GTG-A	PM	8.02 Kg/d	78.6 mg/Nm ³		No variation from prescribed standard
		CO ₂	5.49 T/d	2.7 %		
		CO	38.94 Kg/d	305.6 ppm		
		SO ₂	0.0 Kg/d	0.0		
		NO _x	24.95 Kg/d	244.6 mg/Nm ³		
	GTG-B	PM	8.41 Kg/d	84.7 mg/Nm ³		No variation from prescribed standard
		CO ₂	4.92 T/d	2.5 %		
		CO	30.61 Kg/d	246.6 ppm		
		SO ₂	0.0 Kg/d	0.0 mg/Nm ³		
		NO _x	31.14 Kg/d	313.5 mg/Nm ³		
	GTG-C	PM	0.15 Kg/d	88.9 mg/Nm ³		No variation from prescribed standard
		CO ₂	0.08 T/d	2.3 %		
		CO	0.55 Kg/d	269.2 ppm		
		SO ₂	0.0 Kg/d	0.0 mg/Nm ³		
		NO _x	0.51 Kg/d	310.6 mg/Nm ³		
	Emergency DG set	PM	0.54 Kg/d	77.6 mg/Nm ³		No variation from prescribed standard
		CO ₂	0.27 T/d	2.0 %		
		CO	4.57 Kg/d	526.7 ppm		
		SO ₂	0.14 Kg/d	19.8 mg/Nm ³		
	NO _x	0.55 Kg/d	79.2 mg/Nm ³			

b) Air	Fire Pumps-C (Diesel Operated)	PM	0.02 Kg/d	65.3 mg/Nm ³	No variation from prescribed standard
		CO ₂	0.01 T/d	2.5 %	
		CO	0.20 Kg/d	583.5 ppm	
		SO ₂	0.01 Kg/d	20.9 mg/Nm ³	
		NO _x	0.02 Kg/d	57.4 mg/Nm ³	
	Fire Pumps-D (Diesel Operated)	PM	0.02 Kg/d	79.0 mg/Nm ³	No variation from prescribed standard
		CO ₂	0.01 T/d	2.3 %	
		CO	0.21 Kg/d	592.9 ppm	
		SO ₂	0.01 Kg/d	22.4 mg/Nm ³	
		NO _x	0.02 Kg/d	65.7 mg/Nm ³	
	Fire Pumps-E (Diesel Operated)	PM	0.02 Kg/d	80.1 mg/Nm ³	No variation from prescribed standard
		CO ₂	0.01 T/d	2.5 %	
		CO	0.20 Kg/d	608.5 ppm	
		SO ₂	0.01 Kg/d	21.4 mg/Nm ³	
		NO _x	0.02 Kg/d	63.2 mg/Nm ³	
	Fire Pumps-F (Diesel Operated)	PM	0.02 Kg/d	86.8 mg/Nm ³	No variation from prescribed standard
		CO ₂	0.01 T/d	2.3 %	
		CO	0.22 Kg/d	619.5 ppm	
		SO ₂	0.01 Kg/d	22.9 mg/Nm ³	
		NO _x	0.02 Kg/d	71.5 mg/Nm ³	
MSO A	PM	5.09 Kg/d	75.2 mg/Nm ³	No variation from prescribed standard	
	CO ₂	3.22 T/d	2.4 %		
	CO	19.66 Kg/d	232.5 ppm		
	SO ₂	0.00 Kg/d	0.00 mg/Nm ³		
	NO _x	22.84 Kg/d	337.5 mg/Nm ³		

b) Air	MSO B	PM	4.48 Kg/d	65.7 mg/Nm ³	No variation from prescribed standard
		CO ₂	3.22 T/d	2.4 %	
		CO	19.57 Kg/d	229.5 ppm	
		SO ₂	0.00 Kg/d	0.0 mg/Nm ³	
		NO _x	23.03 Kg/d	337.5 mg/Nm ³	
	MSO C	PM	5.01 Kg/d	69.7 mg/Nm ³	No variation from prescribed standard
		CO ₂	3.21 T/d	2.3 %	
		CO	21.07 Kg/d	234.7 ppm	
		SO ₂	0.00 Kg/d	0.00 mg/Nm ³	
		NO _x	24.44 Kg/d	340.2 mg/Nm ³	

Note: All environmental monitoring activities are carried out by M/s. Cochin Test House, a KSPCB approved agency.

PART-D
HAZARDOUS WASTES
(As specified under Hazardous Wastes (Management & Handling Rules, 1989))

Hazardous Wastes	Total Quantity (Kg)	
	During the previous financial year	During the current financial year
1. Used Oil (Schedule 1, Category: 5.1)	NIL	8220 Kg
2. Waste residue containing oil (Schedule 1, Category: 5.2)	500 kg	NIL
3. Discarded containers or barrels used for handling of hazardous wastes or chemicals (Schedule 1, Category 33.3). (used for storing dosing chemicals and used oil)	NIL	NIL
4. Industrial use of paint, plastic and Ink wastes (Schedule 1, Category 21.1)	NIL	10130 Kg
(b) From pollution control facilities	None	None

Note:

(1) In addition to the above mentioned hazardous waste 1500 Kg of insulation waste was disposed through KSPCB authorised agency, M/s. Kerala Enviro Infrastructure Limited) in the financial year 2015-16.

(2) We have received approval from KSPCB for storage of Hazardous waste upto 1 year, vied consent No. PCB/HO/EKM/ICO-R/12/2016 dated 28.02.16

PART -E
SOLID WASTES:

Solid Wastes	Total Quantity (Kg)	
	During the previous financial year	During the current financial year
a. From process	NIL	NIL
b. From Pollution Control Facility	NIL	NIL
c. Quantity recycled or re-Utilised within the unit.	NIL	NIL

PART -F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

SL: No	Hazardous wastes	:	Composition
1	Used oil (Cat 5.1)	:	Organic Matter – 98 – 99 %, Inorganic Matter – 1 – 2 %.
2	Waste residue containing oil (Schedule 1, Category: 5.2)	:	Hydrocarbon
3	Discarded containers / barrels and Plastic/Ink/paint wastes (Cat 33.3)	:	Plastic or metallic barrels containing chemical / oil residue.
4	Industrial use of paint, plastic and Ink wastes (Schedule 1, Category 21.1)	:	Paint pigment, solvents etc.

Storage and disposal practice:

Hazardous wastes generated inside the terminal is being disposed through an agency, authorized by Kerala state pollution control board (KSPCB). Petronet LNG Limited has made agreement with M/s. Cee Jee lubricants for disposing used oil generated in the terminal. Used oil generated is been collected in MS barrels or other suitable containers at the generation point. Collected waste is stored in hazardous waste storage area designated for the purpose with impervious flooring and proper roofing and handed over to authorized vendor for disposal.

Waste residues containing oil such as oil soaked cotton wastes generated at various locations are collected and kept in designated storage bin located inside hazardous waste storage shed. It is be disposed through an authorized agency.

Discarded containers / barrels and Plastic/Ink/paint wastes are collected & stored in hazardous waste storage area of proper roofing and concrete flooring inside the terminal and is disposed through authorised agency (M/s. KEIL (Kerala Enviro Infrastructure Limited).

Hazardous waste storage area is kept clean and display boards are provided at the site for storing hazardous waste as per the category. Records of hazardous wastes generated in the terminal are maintained in Form 3.

PART-G

Impact of the pollution control measures taken on conservation of natural Resources and consequently on the cost of production.

We have developed and implemented Environment Management Cell (EMC), the cell is headed by VP (Operations & Maintenance), and other members are the managers of LAB, Civil, and HSE. Sufficient man-hours are allocated for functioning of EMC. Environment management cell meets once in a month and take review of the situation.

We have adopted Dry low emission burner (DLEB) in our GTG, this system ensures that the stringent emission standards are met.

PART -H

Additional measures/investment proposal for environmental protection including abatement of pollution.

Hazardous Waste storage facility is developed with separate compartment and big storage bins for different categories of waste including e-waste, used battery, plastic waste etc. Photo of the storage facility is given below.

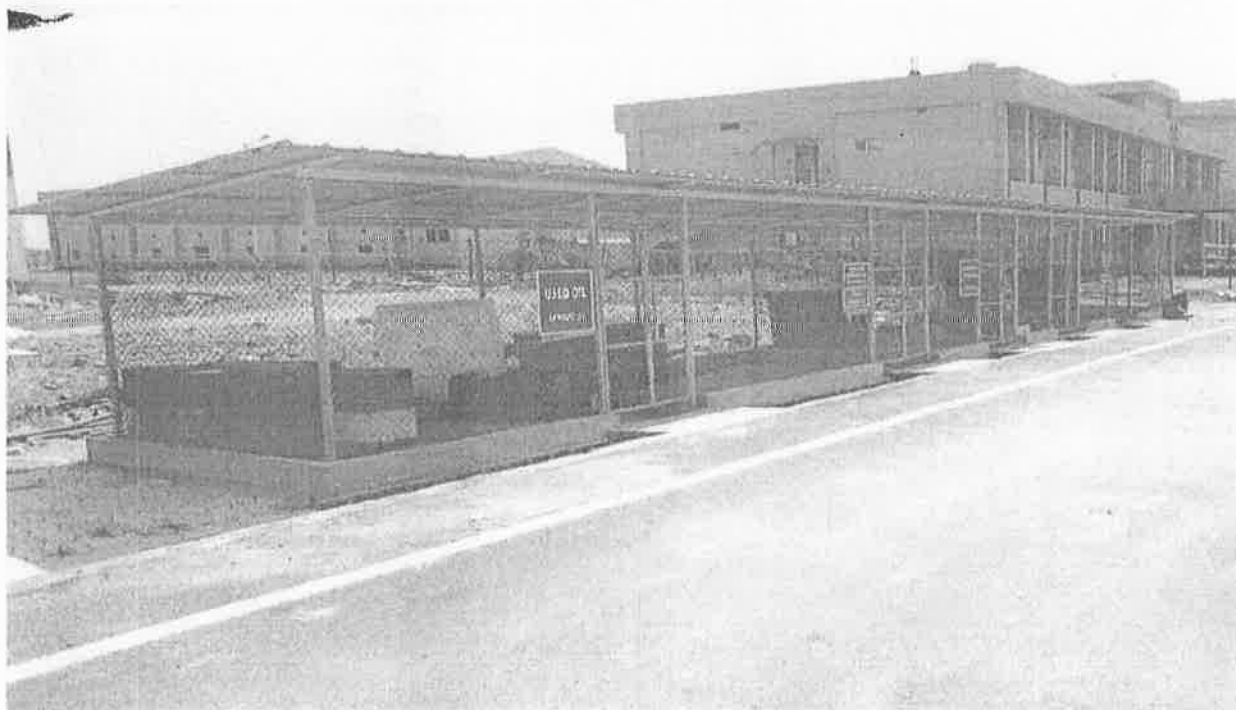


Fig-1: Hazardous waste storage facility.

Petronet LNG Limited, Kochi terminal has entered into an agreement with M/s Kerala Enviro Infrastructure Limited (KEIL) for E-waste disposal on 18th August, 2014 and this agreement will be in force for a period of 5 years.

Petronet LNG Limited, Kochi terminal has implemented Environment Management System (ISO: 9001:2008, ISO 14001:2004 & OHSAS 18001:2007) and got certified in DEC-2015.

Petronet LNG Ltd, Kochi terminal has arrived at an agreement with Kerala State Social Forestry for a mangrove afforestation project in Ernakulam district, and the total cost of the project is 71.05 lakhs. Petronet LNG Limited have already transferred fund of Rs.30.00 lakh for the Mangrove Afforestation Project which is entitled "Project for Mangrove afforestation in Ernakulam district".

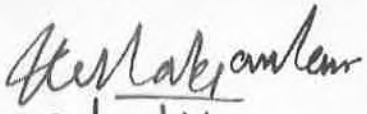
Petronet LNG Limited, Kochi has installed and commissioned one Continues environment monitoring station with LED display; synchronising with CPCB server need to be done.

PART-I

MISCELLANEOUS:

Any other particulars in respect of environmental protection and abatement of pollution.

Nil

For and on behalf of Petronet LNG Limited	
Sign	: 
Date	: 29/8/16
Approved By : T. N. Neelakantan	
Designation : VP (Plant Head)	



T. N. NEELAKANTAN
Vice President (Plant Head)
Petronet LNG Limited
Survey No. 52, Puzhappu PO
Kochi-682 508, Dist. Ernakulam
Kerala (India)