



Petronet LNG Limited

Survey No. 347, Puthuvypu P.O.
Kochi - 682 508, India.
Tel: 0484 - 2502259 Fax: 0484 2502264
www.petronetlng.com
CIN L74899DL1998PLC093073

PLL/KOCHI/MOEF/2018-19/02

28th May, 2018

Additional Principal Chief Conservator of Forests (C)

Ministry of Environment, Forest and Climate Change,
Regional Office (SZ),
Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road,
Koramangala II Block,
Bangalore – 560034.

Sub: Compliance report to Environment Clearance accorded to the LNG Terminal at Puthuvypu, Kochi.

Ref: Environment Clearance No. J-16011/26/2001-IA-III vide your letters dated 13th March 2006.

Sir,

The Six monthly compliance report for the above clearances are attached for the period ending 31st March 2018.

Thanking You,

With Regards

(T. N. Neelakantan)
Sr. Vice President (Plant Head)



CC:

- 1) The Chief Environmental Engineer,
Kerala State Pollution Control Board,
Gandhinagar, Kochi – 682 020.

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 compiled 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 28thFebruary 2016, and was valid up to on 31st March 2018, a copy of the same was submitted along with the six monthly compliance report for the period of October-2016 to March-2017. We have applied for the renewal of our Consent to Operate and we expect to receive the same very soon.**
- 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 February-18 and is enclosed as Annexure#2.
iii.	Handling, manufacturing, storage and transportation of all hazardous chemicals should be carried out in	<ul style="list-style-type: none"> ▪ We have applied for NOTIFICATION OF SITES to Factories & Boilers department

	<p>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</p>	<p>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.</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 30th January 2018, valid till 31st December-2018; a copy of the same is enclosed as Annexure#3. ▪ 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
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		2013.
iv.	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-17 to March-18 is enclosed as Annexure #4 ▪ PLL is conducting marine water quality analysis, once in six month. The latest test report, dated February-18 is enclosed as Annexure #5
v.	Adequate provisions for infrastructure facilities such as water supply, fuel for cooking, sanitation, etc must be provided for the laborers during the construction period in order to avoid damage to the environment, Colonies for the laborers should not be located in the 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.
vi.	To prevent discharge of sewage and other liquid wastes into the water bodies, adequate system for collection and treatment of the wastes must be provided. No sewage and other liquid wastes without treatment should be allowed to enter into the water bodies.	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
vii.	Appropriate facility should be created for the collection of solid and liquid wastes generated by the barges/vessels and their safe treatment and disposal should be ensured to avoid possible contamination of the water bodies	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.
viii.	Necessary navigational aids such as channel markers should be provided to prevent accidents. internationally recognized safety standards shall be	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

	applied in case of barge/vessel movements	instruction/guidance of Cochin Port Trust. All required safety standards will be applied to vessel movements as per 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 78.24 Lakhs was spent on CSR activity for the year 2017-2018.
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.	PLL has set up Environment Management Cell under Sr. Vice President – (Plant Head), other members of the team includes GM (Operations & Maintenance), Head of Operation department, C&P

		(Contracts & Procurement) department, Technical department, HSE department, Civil Department, Lab operation & a representative from HR department for effective implementing the stipulated environment safeguards. The SOP of the Environment Management Cell was revised on 23/04/2018 and the copy of the same is attached as Annexure#6.
xv.	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.
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, Bengaluru 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.
xxi.	The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control 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.	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.
xxii.	The Project proponents should inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of Land Development Work.	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.

Thanking You,

With Regards



(T. N. Neelakantan)

Sr. Vice President (Plant Head)

Annexure-1

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. We have obtained Consent to Operate with no. PCB/HO/EKM/ICO-R/12/ 2016 dated 28thFebruary 2016, and was valid up to on 31st March 2018 , a copy of the same was submitted along with the six monthly compliance report for the period of October-2016 to March-2017. We have applied for the renewal of our Consent to Operate and we expect to receive the same very soon.
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.



COCHIN TEST HOUSE

Annexure-02

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.in

Laboratory Approved by Kerala State Pollution Control Board

TEST REPORT

Report No : CTH/LR/18/NN/395

Issue Date : February 27, 2018

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

: 18/NN/395

Date of receipt of sample

: 22.02.2018

Dates of Analysis

: 22.02.2018 - 27.02.2018

Description of the sample by the customer

: Bore Well Water

Sl.No.	Parameters	Unit	Method	Result
1	pH	----	IS : 3025 (Pt.11)	7.04
2	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	75
3	Turbidity	mg/l	IS :3025 (Pt.10)	2.3
4	Chloride	mg/l	IS : 3025 (Pt. 32)	23.42
5	Iron (as Fe).	mg/l	IS :3025 (Pt.53)	0.08
6	Fluoride	mg/l	APHA 22 nd Ed 4500F D	0.12
7	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	21.4
8	Conductivity	µs/cm	IS : 3025 (Pt .14)	154
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
15	Salinity	ppm	CTH/SOP/55	38.85
16	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL- 4.0)
17	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	6.1
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)	12
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
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.



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 2018.

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 : 30-01-2018

(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	
2018	290	67834.97 KW +18249.99 KVA	194350.00			16-10-2017	30-01-2018		
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	

(License Renewal application for 2019 should be submitted on or before 31-10-2018)

** This is a computer generated certificate.Hence there is no need for a Physical Signature*

** Third Party Verification is enabled for Digitally Signed License.Please visit <https://idms.fabkerala.gov.in/fabnet/verifyLicense.do>*

Annexure-04

Ambient Air Monitoring Report, (October 2017 to March 2018)

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-17	35.18	14.16	9.37	17.08	0	6.76	0		
		Nov-17	31.82	10.65	11.72	14.54	0	9.76	0		
		Dec-17	35.16	16.43	14.8	12.92	0	10.52	0		
		Jan-18	51.32	21.32	13.41	13.81	0	7.47	0		
		Feb-18	48.32	20.32	10.21	12.15	0	6.23	0		
		Mar-18	47.34	19.35	9.15	13.25	0	4.34	0		
		Average	41.52	17.04	11.44	13.96	0.00	7.51	0.00		
		Oct-17	39.15	11.67	16.41	14.18	0	10.52	0		
		Nov-17	34.16	12.72	13.57	15.27	0	9.01	0		
		Dec-17	31.08	10.55	12.02	17.22	0	6.76	0		
2	Near Fire Station Building	Jan-18	48.52	18.53	11.01	16.07	0	5.98	0		
		Feb-18	45.72	16.71	9.28	14.27	0	4.27	0		
		Mar-18	46.79	18.71	8.18	14.78	0	3.32	0		
		Average	40.90	14.82	11.75	15.30	0.00	6.64	0.00		
		Oct-17	36.14	16.22	12.89	16.07	0	8.26	0		
		Nov-17	38.16	15.52	15.23	18.37	0	7.51	0		
		Dec-17	33.11	13.79	10.55	14.17	0	8.26	0		
		Jan-18	49.58	20.68	9.17	16.16	0	8.22	0		
		Feb-18	47.16	18.45	9.58	15.12	0	7.49	0		
		Mar-18	47.85	19.36	7.35	14.35	0	4.35	0		
Average	42.00	17.34	10.80	15.71	0.00	7.35	0.00				
3	Fire water Reservoir+	Oct-17	31.82	12.73	14.06	11.86	0	9.01	0		
		Nov-17	35.11	17.15	9.87	16.15	0	11.27	0		
		Dec-17	37.08	18.11	16.41	13.77	0	11.27	0		
		Jan-18	50.35	20.18	9.06	12.36	0	6.72	0		
		Feb-18	48.35	18.15	8.75	12.58	0	6.15	0		
		Mar-18	48.95	19.25	6.13	13.75	0	5.15	0		
		Average	41.94	17.60	10.71	13.41	0.00	8.26	0.00		
		4	Watch tower-3 near Tank T-101	Oct-17	35.18	14.16	9.37	17.08	0	6.76	0
				Nov-17	31.82	10.65	11.72	14.54	0	9.76	0
				Dec-17	35.16	16.43	14.8	12.92	0	10.52	0
Jan-18	51.32			21.32	13.41	13.81	0	7.47	0		
Feb-18	48.32			20.32	10.21	12.15	0	6.23	0		
Mar-18	47.34			19.35	9.15	13.25	0	4.34	0		
Average	41.52			17.04	11.44	13.96	0.00	7.51	0.00		
Oct-17	39.15			11.67	16.41	14.18	0	10.52	0		
Nov-17	34.16			12.72	13.57	15.27	0	9.01	0		
Dec-17	31.08			10.55	12.02	17.22	0	6.76	0		



Sr. Officer HSE



Officer HSE



COCHIN TEST HOUSE

Annexure-05

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.in

Laboratory Approved by Kerala State Pollution Control Board

TEST REPORT

Report No : CTH/LR/17/NN/1809

Issue Date: 23.12.2017

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/1809

Date of receipt of sample

: 15.12.2017

Dates of Analysis

: 15.12.2017 - 23.12.2017

Description of the sample by the customer

: **Marine Water**

Sl.No.	Parameters	Unit	Method	Result
1	pH	-	IS : 3025 (Pt.11)	7.66
2	Total Dissolved Solids	mg/l	IS :3025 (Pt.16)	23600
3	Turbidity	mg/	IS :3025 (Pt.10)	5.1
4	Chloride	mg/l	IS : 3025 (Pt. 32)	17246
5	Iron (as Fe)	mg/l	IS :3025 (Pt.53)	BDL(MDL-0.08)
6	Fluoride	mg/l	APHA 22 nd Ed 4500F D	3.17
7	Sulphate as SO ₄	mg/l	APHA 22 nd Ed 4500 SO ₄ ²⁻ E	1894
8	Conductivity	µs/cm	IS : 3025 (Pt .14)	52300
9	Mercury	mg/l	APHA 22 nd Ed 3112 B	BDL(MDL-0.01)
10	Lead	mg/l	APHA 22 nd Ed 3111 B	0.96
11	Copper	mg/l	APHA 22 nd Ed 3111 B	0.06
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	0.09
14	Temperature	°C	IS : 3025 (Pt.9)	27.1
15	Salinity	ppt	CTH/SOP/55	28.43
16	Oil and Grease	mg/l	IS : 3025 (Pt. 39)	BDL(MDL - 4.0)
17	Dissolved Oxygen	mg/l	IS : 3025 (Pt.38)	5.98
18	BOD at 27°C, 3 days	mg/l	IS : 3025 (Pt. 44)	5.9
19	COD	mg/l	IS : 3025 (Pt. 58)	32
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
24	Color	Colour units	IS :3025 (Pt.4)	2
25	TSS	mg/l	IS :3025 (Pt.17)	7.2
26	Arsenic	mg/l	APHA 22 nd Ed , 3114 C	BDL(MDL-0.01)
27	Nickel	mg/l	APHA 22 nd Ed , 3111 C	0.42
28	Total Bacterial Count	cfu/ml	IS:1622:1981	5100
29	Faecal Coliform	MPN/100ml	IS:1622:1981	22
30	E.coli	MPN/100ml	IS:1622:1981	14

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

End of report.

Verified By

Rajitha K B
Authorised Signatory
Microbiology
COCHIN TEST HOUSE



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.



**PETRONET
LNG
LIMITED**

ENVIRONMENT MANAGEMENT CELL

	Prepared By	Approved By	Issued By
 PETRONET LNG LIMITED	Sign- <i>ajayk</i> VIJITH.T.V. Date - 20.04.2018	Sign- <i>Shel</i> Date - 23/4/18	Sign- <i>Shady</i> Date - 23.4.18

REVISION HISTORY

Date of Issue	Revision / Amendment	Details	Page No
10-02-2014	Rev-00		
26-08-2016	Rev-01	Inclusion of Sr.Mgr(Operations) and Change of Head (HSE) and Head (Projects)	02
20-03-2017	Rev-02	Inclusion of Mgr.(Materials) & Mgr.(Technical)	04
03.06.2017	Rev-03	Inclusion of GM (O&M) and Ms. Selsa Rajesh name is replaced with Mr.Biju from Lab	04
01.05.2018	Rev-04	1. VP (O & M) is replaced with Sr VP (plant head) and Inclusion of Sr Officer (HR) 2. Environment management cell structure also reorganised.	04

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1. PURPOSE:

Purpose of this document is to establish an Environment Management to monitor all plant activities, in order to ensure that they are carried out in an environmentally friendly manner.

2. SCOPE:

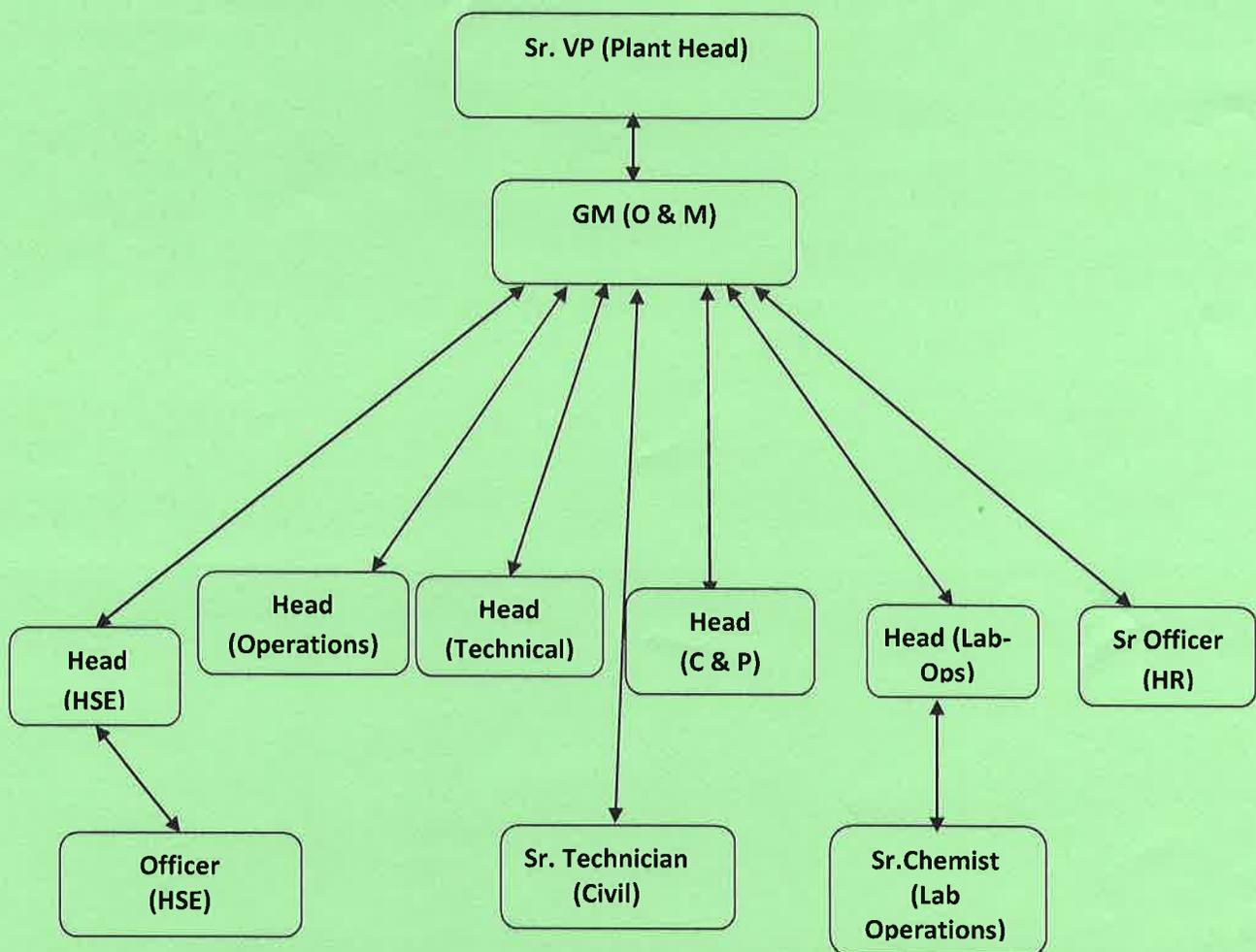
This document outlines the different aspect of the Environment management like its members, structure, roles and responsibility and mode of functioning.

3. ENVIRONMENT MANAGEMENT CELL:

A) Members of Environment Management Cell:

Environment management will be headed by Sr. VP (Plant Head) and other members are Head (Operations), Head (HSE), Head (Technical), Head (C & P), Head of Lab Operations, Sr Officer (HR), Officer (HSE), Chemist (Lab Operations) and Sr. Technician (Civil); the cell will be reporting to Sr.Vice President (Plant Head).

B) Structure of Environment Management Cell:



Environment Management Cell

C) Roles and Responsibility of Environment Management Cell:

Roles and responsibility of Environment management cell are listed below, but not limited to:

- Advice management on issues related to environment.
- Identify activities which have potential to harm environment and to suggest measures to mitigate them.
- Create awareness among employees, contractors, visitors and public regarding the importance of environment protection and means to protect it by conducting tree plantations, campaigns, training programs, posters etc.
- Develop and implement the plans in order to reduce, reuse and recycle wastes.
- Plan, develop and implement environment management projects by coordinating with different departments, government agencies, NGO etc.
- Monitor and review different environment monitoring reports of ambient air, noise, vibration, stack emission, liquid effluents, and will take measures to ensure it is well below the permissible limit prescribed by central/ Kerala state pollution control board.
- Take review of the status of solid waste, hazardous wastes, biological waste, food waste, etc. that are generated either by operation or domestic activities of our plant.
- Ensure all activities of the plant are carried out in an environmentally safe manner and as mentioned in consent to establish and operate.
- Ensure Environment related statutory compliance, i.e. MoEF, CRZ clearance, KSPCB etc.
- Ensure adequate vegetation cover in the premise by develop and maintain green belt.
- Ensure plant and its premises are kept clean from waste.
- Ensure that all liquid effluent generated as a result of operation or domestic activities of our plant should be treated well to the standard as prescribed by central/ Kerala state pollution control board before discharging.
- Take measure to prevent/minimize/control plant fugitive emission, if any.
- Ensures proper handling (collecting and segregating), storage and disposal of hazardous wastes i.e. used oil, solid and biological waste.
- Identifying contactors qualified by central/ Kerala state pollution control board for disposing different categories of waste.
- Carry our work environment/industrial hygiene survey internally or externally for health hazards for employees.
- Arranging World Environment Day (WED) celebrations every year.

D) Functioning of Environment Management Cell:

- Environment management cell shall meet once in a month.
- Date, time, venue and the agenda of the meeting will be identified by Head Operations and the same will be informed to its members, at least one day in advance.
- The meeting shall be convened by the GM (O &M), initial discussion will be on the agenda, then on the progress of the decision taken on the previous meeting.
- Members can share any other information or raise any concern pertaining to the environment and the same will be discussed in detail.
- Minutes of the meeting points shall be recorded and a report for the same will be prepared and documented.
- Meeting minutes shall be reviewed and concluded by the Head of the Environment Management Cell after listing out the outcome of the meeting and setting of goals.
- Members shall be responsible to execute the decision taken in the meeting, by coordinating with different departments, and the progress has to be reported in the next meeting.

E) List of team members & designation:

1. Shri. Yogananda Reddy GM (O&M)
2. Mr.Veerasley Manimaran – Sr.Manager (Operations)
3. Mr. Suresh P – Manager (C & P)
4. Mr.Jaiganesh Dakshinamurthy – Manager (Technical)
5. Mr. L.S.Raja – Dy. Manager (Lab Operations)
6. Mr. Vijith T V – Dy. Manager (HSE)
7. Mr. Hevin Verghese – Sr Officer (HR)
8. Mr. Nishant A – Officer (HSE)
9. Mr. Anish Kumar – Sr.Technician (Civil)
10. Mr. Biju K J– Sr. Chemist (Lab Operations)

Note: EMC group common e mail id emc_kochi@petronetlng.com is created for internal communication.