



IndianOil

विपणन विभाग
Marketing Division

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

Indian Oil Corporation Limited

कोच्चिन एल पी जी आयात टर्मिनल

Cochin LPG Import Terminal

इंडेन मौन्ड, निकट वडिपिन प्रकाशस्तंभ

Indane Mound, Near Vypin Light House

पुतुवडु पी ओ/Puthuvypu P.O., 682 508, कोच्चि/Kochi

Phone: 0484-2496001

LITE/ MoEF

22nd May 2020

The Director,
Ministry of Environment, Forest and Climate Change,
Regional Office (Southern Zone)
Kendriya Sadan, 4th Floor, E&F Wings,
17th Main Road, 2nd Block,
Koramanagala, Bangalore – 560034

Sir,

Sub: Submission of Half Yearly Environmental Clearance Compliance Reports (Oct'19 to March'20)

Ref: Environmental Clearance: F. No. 11-21/2010-IA.III dated 05.07.2010 and 06.01.2017

We are enclosing herewith the Half Yearly Environmental Clearance Compliance Report for the period Oct'19 to March'20 as per the Environmental Clearance granted to our Cochin LPG Import Terminal Project, Puthuvypeen, Kerala.

We request you to kindly note that all the project activities were stalled from 16th February 2017 to 15th December 2019 as per the directions of Hon'ble Chief Minister of Kerala due to agitation by the local people.

Thanking You,

Yours Sincerely,
For Indian Oil Corporation Ltd

Manager (LPG-Engg)

Encl: Part I & II (Half Yearly Compliance Status reports)

CC: The Member Secretary, Kerala State Pollution Control Board, Pattom P.O., Thiruvananthapuram-695004.

Page 1 of 1

PART I

Compliance Status of Conditions of Environmental Clearance

F.No. 11-21/2010-IA.III dated 05.07.2010 and 06.01.2017

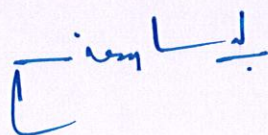
Monitoring Period (Oct'19 – Mar'20)

1	Name of the Project	Cochin LPG Import Terminal
2	Clearance No. & date	F.No. 11-21/2010-IA.III dated 05.07.2010 and 06.01.2017
3	Address of the Contact Person	Manager (LPG-E) Cochin LPG Import Terminal Indian Oil Corporation Limited Indane Mound Road, Near Vypin Light House, Puthuvypu P.O, Kochi-682508, Kerala E-mail: gkchand@indianoil.in


KIRAN CHAND G
Manager (LPG-Engg.)
Cochin LPG Import Terminal Project
Indian Oil Corporation Limited
Indane Mound, Near Vypin Light House
Puthuvypeen SEZ-682 508

PART II

Sr. No.	Part A: Specific Conditions	Status of Compliance
I	Clearance/NOC shall be obtained from Petroleum & Explosives Safety Organization (PESO).	Complied
ii	Necessary Safety measures shall be incorporated conforming to the standards	Complied.
iii	All the issues raised in the public hearing shall be incorporated and complied with strictly	20/23 issued have been complied. The following 3 issues can be complied with only after commission of the project. 1) Chances of air pollution and sound pollution by way of leakage of LPG and truck movement 2) Extent of green belt not specified in the EIA 3) No contingency plan for Oil spill and explosion hazards.
iv	No construction works other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Complied.
V	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.	Environment Management Cell is setup and it is headed by Manager (LPG-Engg.) & the Cell is monitoring the implementations of environmental safe guards.
Vi	The project proponent shall take up mangrove plantation/ green belt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management Plan for such mangrove development.	As per safety & security norms, Mangrove Plantation cannot be done inside the plant as it would affect the visibility. Therefore, on safety & security point of view it is not feasible to plant mangroves inside the plant premises. However, efforts are made to earmark area for mangrove plantation outside project premises in consultation with Cochin Port Trust.
Vii	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	Rs.25 lakhs per annum has been provided for implementing the conditions stipulated by the MoEF and the State Government and shall not be diverted for any other purpose.
Sr. No.	Part B General Conditions	Status of Compliance
I	Adequate provision for infrastructure facilities including water supply fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment	Being complied.
ii	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Being complied.



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PART II

iii	Full support shall be extended to the officers of this Ministry /Regional Office at Bangalore 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.	Being complied.
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.	Noted. Additional conditions if any will be complied.
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	Noted.
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.	The date of financial closure and final approval of the project is 01.07.2015. Land development commenced on 12 th October 2010 as informed vide letter CLIT/ADMN/ST/01 dated 22.11.2010 (copy already sent)
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. The clearance letter shall also be put on the website of the company by the proponent.	Complied.
ix	Kerala Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/Tahsildar's office for 30 days.	Not applicable.
X	These stipulations 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
xi	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,	The following approvals have already been obtained (copy already sent) i) Approval from Petroleum and Explosives Safety Organization (PESO) ii) Approval from Cochin port trust


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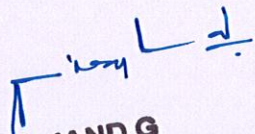
PART II

	1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities:	(CoPT), Local administrative authority iii) Renewal of Building plan approval from Factories & Boilers Department iv) Renewal of Integrated Consent to Establish from Kerala State Pollution Control board (KSPCB).
Xii	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 Clearance and copies of clearance letters are available with the Kerala State 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 Bangalore.	Complied
Xiii	Environmental 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
Xiv	Any appeal against this Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.	Noted
Xv	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/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	Complied.
Xvi	The proponent shall upload the status of compliance of the stipulated EC 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	Being complied.
xvii	The environmental statement for each financial year ending 31 st 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)	Environmental statement for the financial year 2019-20 in form-V along with the status of compliance of EC conditions sent to KSPCB vide letter ref LITE/MoEF dated 22.05.2020


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PART II

<p>Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.</p>	<p>(copy enclosed).</p>
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ANNEXURE

ENVIRONMENTAL STATEMENT FORM-V (See rule 14)

Environmental Statement for the financial year ending with 31st March 2020

PART-A

- i. Name and address of the owner/ occupier of the industry or process. Indian Oil Corporation Limited, Cochin LPG Import Terminal, operation Indane Mound, Near Vypeen Light House, Puthuvypeen, Cochin - 682508
- ii. Industry category- Production of Liquefied and Gaseous Fuels (19201)
- iii. Production capacity – 0.6 Million Metric Ton per Annum
- iv. Year of establishment - Under Construction
- v. Date of the last environmental statement submitted.

PART -B

W

Water and Raw Material Consumption:

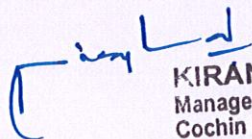
- i. Water consumption in m³/d

Process: Nil

Cooling: Nil

Domestic: 0.6

Name of Products	Process water consumption per unit of products	
	During the previous financial year	During the current financial year
I. Not Applicable (Construction Phase)	Not Applicable (Construction Phase)	Not Applicable (Construction Phase)



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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
(Construction Phase)	Nil (Construction phase)	Nil (Construction phase)	Nil (Construction phase)

*Industry may use codes if disclosing details of raw material would violate contractual obligations, otherwise all industries have to name the raw materials used.

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 (Construction Phase)	Nil (Construction Phase)	Nil
(b) Air	Nil (Construction Phase)	Nil (Construction Phase)	Nil

PART-D

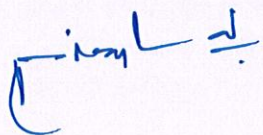
HAZARDOUS WASTES (as specified under Hazardous Wastes (Management & Handling Rules, 1989).

Hazardous Wastes	Total Quantity (Kg)	
	During the previous financial year	During the current financial year
1. From Process	Nil	Nil
2. From Pollution Control Facilities	Nil (Construction Phase)	Nil (Construction Phase)

SOLID WASTES:

PART - E

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 Puthuvypeen SEZ-682 508



SolidWastes	TotalQuantity(Kg)	
	During the previous financial year	During the current financial year
a.Fromprocess	Nil (Construction Phase)	Nil (Construction Phase)
b. From Pollution Control Facility	Nil (Construction Phase)	Nil (Construction Phase)
Quantity recycled or-reutilizedwithintheunit.	Nil (Construction Phase)	Nil (Construction Phase)

PART - F

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

- Not Applicable (Construction Phase)

PART-G

Impact of the pollution control measure taken on conservation of natural resources and consequently on the cost of production.

PART-H

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

- Implementation of Rain Water Harvesting for conservation & improvement of ground water potentiality.

PART- I MISCELLANEOUS

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

- Nil


PRASHANTH CHAND G
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 Kochin LPG Import Terminal Project
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CHEMICAL, ENVIRONMENTAL AND MICROBIOLOGY LABORATORY

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Phone : 0484-2544030, 8281982322, 9747400085, 9747400089, www.poluchem.com, poluchem@gmail.com

ACCREDITED BY KSPCB AS "A" GRADE LABORATORY

CERTIFICATE OF AMBIENT AIR MONITORING

Page 01 of 01

Client Name & Address	Certificate No:	PL/RT/AMB/2852/20
M/s .IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	11/03/2020-12/03/2020
	Date of sample received:	12/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2852/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Near Parking Area	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	48.9 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	20.6 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	5.5 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	6.3 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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For and on behalf of
POLUCHEM LABORATORIES (P) LTD.

AUTHORIZED SIGNATORY

SREEJA RAMESH
Quality Manager
PoluChem Laboratories (P) Ltd.



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Client Name & Address	Certificate No:	PL/RT/AMB/2853/20
M/s IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	11/03/2020-12/03/2020
	Date of sample received:	12/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2853/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Near TLF Shed	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	52.3 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	30.8 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	7.8 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	5.3 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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Page 01 of 01

Client Name & Address	Certificate No:	PL/RT/AMB/2854/20
M/s .IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	11/03/2020-12/03/2020
	Date of sample received:	12/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2852/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Near Mound	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	59.8 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	32.4 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	7.1 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	9.2 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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Page 01 of 01

Client Name & Address	Certificate No:	PL/RT/AMB/2855/20
M/s .IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	12/03/2020-13/03/2020
	Date of sample received:	13/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2855/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Parking area- Outside	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	46.3 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	20.7 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	4.7 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	6.3 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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Page 01 of 01

Client Name & Address	Certificate No:	PL/RT/AMB/2856/20
M/s .IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	12/03/2020-13/03/2020
	Date of sample received:	13/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2856/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Near Emergency Gate	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	42.3 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	19.8 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	4.7 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	3.8 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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Page 01 of 01

Client Name & Address	Certificate No:	PL/RT/AMB/2857/20
M/s .IOCL, Terminal Puthuvypin	Date of issue:	15/03/2020
	Date of monitoring	12/03/2020-13/03/2020
	Date of sample received:	13/03/2020
	Date of analysis Started	13/03/2020
	Sample description	Ambient air
	Sample identification No:	G/C/2857/2020

Sampling Stations	Parameters	Test method	Results	NAAQ Standard
Near Light House	Particulate Matter (PM ₁₀)	IS 5182 Part 23-2006RA 2012	39.6 µg/m ³	100 µg/m ³
	Particulate Matter (PM _{2.5})	CPCB	15.8 µg/m ³	60 µg/m ³
	Sulphur Dioxide as SO ₂	IS 5182 Part 2-2001RA 2017	3.1 µg/m ³	80 µg/m ³
	Nitrogen Dioxide as NO ₂	IS 5182 Part 6-1975RA 2017	5.3 µg/m ³	80 µg/m ³
	Volatile Organic Compounds	IS 5182 Part 11 2006RA 2017	<1 ppm	---

Note: NAAQ – National Ambient Air Quality

----End Of Report----

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CERTIFICATE OF SOUND LEVEL MONITORING

Ref No: PL/SL/RT/2851/2020 Date of Issue: 15/03/2020

Client: M/s .IOCL Terminal,Puthuvypin

Test Certificate No. : 2851/2020 Date of Monitoring : 12/03/2020

Sl. No.	Monitoring Location	Result
01	Near Parking Area	54.5 dB(A)
02	Near TLF shed	54.8 dB(A)
03	Near Mound	53.5 dB(A)
04	Near Parking Area -outside	48.5 dB(A)
05	Near Emergency Gate	49.8 dB(A)
06	Near Light House Corner	46.0 dB(A)
07	In between Parking area &TLF Shed	50.1 dB(A)
08	In Between TLF shed & Mound	52.4 dB(A)
09	In Between outside Parking Area & Emergency gate	47.1 dB(A)
10	In between Emergency gate & near light house corner	46.0 dB(A)
Limits		75 dB(A)

Note: Ambient sound level measured at a distance of 1 M distance away from the locations.

For PoluChem Laboratories (P) Ltd.

Authorized Signatory.



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TEST REPORT

Ref.No. PL/RT/DW/2993/2020

Date of Issue: 21/03/2020

Page 01 of 02

Name & address of customer : M/s. IOCL Terminal
Project Site : Puthuvypin
Sample description : Water Sample
Location of sampling : Pond Water
Date of sample collected : 16/03/2020
Date of analysis started : 16/03/2020
Date of completion of analysis : 20/03/2020

Parameters tested	Test method	Result
True Color	IS 3025 (P) 04 – 1983 RA2017	13 Hazen Unit
Turbidity	IS 3025 (P) 10 – 1984 RA2017	11 NTU
pH	IS 3025 (P) 11 – 1983 RA2017	7.96
Total Dissolved Solids	IS 3025 (P) 15 – 1984 RA2017	1620 mg/l
Total Hardness as CaCO ₃	IS 3025 (P) 21 – 1983 RA2014	500 mg/l
Total Alkalinity as CaCO ₃	IS 3025 (P) 23 – 1986 RA2014	96.2 mg/l
Chloride as Cl	IS 3025 (P) 32 – 1988 RA2014	385 mg/l
Calcium as Ca	IS 3025 (P) 40 – 1991 RA2014	80.16 mg/l
Magnesium as Mg	IS 3025 (P) 46 – 1994 RA2014	72.9 mg/l
Iron as Fe	IS 3025 (P) 53 – 2003 RA2014	0.42 mg/l
Sulphate as SO ₄	IS 3025 (P) 31 – 1988 RA2014	537 mg/l
Fluoride as F	IS 3025 (P) 60 – 2008 RA2017	1.0 mg/l
Nitrate as NO ₃	IS 3025 (P) 34 – 1988 RA2014	<1 mg/l

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SREEJA RAMESH
Quality Manager
PoluChem Laboratories (P) Ltd.



POLUCHEM LABORATORIES (P) LTD.

CHEMICAL, ENVIRONMENTAL AND MICROBIOLOGY LABORATORY
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Continuation of Test Certificate No: 2993/2020

Parameters tested	Test method	Result
Lead as Pb	IS 3025 (P) 47 – 1994RA2014	<0.01 mg/l
Arsenic as As	IS 3025 (P) 37 – 1988RA2014	<0.01 mg/l
Total Kjeldahl Nitrogen	IS 3025 (P) 34 – 1988RA 2014	2.6 mg/l
Ammoniacal Nitrogen	IS 3025 (P) 34 – 1988RA2014	1.12 mg/l
Chromium as Cr	IS 3025 (P) 53 – 2003RA2014	<0.01 mg/l
Cyanide as CN	IS 3025 (P) 27 – 1986RA2014	<0.02 mg/l
Hexavalent Chromium Cr ⁶⁺	IS 3025 (P) 53 – 2003RA 2014	<0.01 mg/l
Cadmium as Cd	IS 3025(P) 41– 1992RA2014	<0.001 mg/l
Manganese as Mn	IS 3025(P) 59– 2006RA2017	<0.05 mg/l
Copper as Cu	IS 3025(P) 42– 1992RA2014	<0.01 mg/l
Mercury as Hg	IS 3025(P) 48 – 1994RA 2014	<0.001 mg/l
Salinity	APHA 25250	0.6 ppt
Conductivity	IS 3025 (P) 14 – 1984RA 2013	2483 µS/cm
Dissolved Oxygen	IS 3025 (P) 44 – 1989RA2014	5.0 mg/l
B O D (3 days at 27 ⁰ C)	IS 3025 (P) 44 – 1993RA 2014	32 mg/l
Phosphate	IS 3025 (P) 31 – 1988RA 2014	0.34 mg/l

Note : BDL – Below Detection Level ,ppt- Parts per thousand

MICROBIOLOGICAL TESTS:

Parameters tested	Unit	Test method	Results
Coliforms	MPN/100ml	IS 1622: 1981 RA2009	300
E coli	Present or Absent/100ml	IS 1622: 1981 RA2009	Present

For PoluChem Laboratories (P) Ltd.

Authorized Signatory



TEST REPORT

Page 01 of 02

Ref.No. PL/RT/DW/2992/2020

Date of Issue: 21/03/2020

Name & address of customer : M/s. IOCL, Terminal
Project Site : Puthuvypin
Sample description : Sea water Sample
Location of sampling : Beach water-Near Parking
Date of sample collected : 16/03/2020
Date of analysis started : 16/03/2020
Date of completion of analysis : 20/03/2020

Parameters tested	Test method	Result
True Color	IS 3025 (P) 04 – 1983RA2017	10 Hazen Unit
Turbidity	IS 3025 (P) 10 – 1984 RA2017	8 NTU
pH	IS 3025 (P) 11 – 1983 RA2017	7.88
Total Dissolved Solids	IS 3025 (P) 15 – 1984 RA2017	55200 mg/l
Total Hardness as CaCO ₃	IS 3025 (P) 21 – 1983 RA2014	7000 mg/l
Total Alkalinity as CaCO ₃	IS 3025 (P) 23 – 1986 RA2014	132.6 mg/l
Chloride as Cl	IS 3025 (P) 32 – 1988 RA2014	31741 mg/l
Calcium as Ca	IS 3025 (P) 40 – 1991 RA2014	480.9 mg/l
Magnesium as Mg	IS 3025 (P) 46 – 1994 RA2014	1409.4 mg/l
Iron as Fe	IS 3025 (P) 53 – 2003 RA2014	0.62 mg/l
Sulphate as SO ₄	IS 3025 (P) 31 – 1988 RA2014	2036 mg/l
Fluoride as F	IS 3025 (P) 60 – 2008 RA2017	1.2 mg/l
Nitrate as NO ₃	IS 3025 (P) 34 – 1988 RA2014	3.7mg/l

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Continuation of Test Certificate No: 2992/2020

Parameters tested	Test method	Result
Lead as Pb	IS 3025 (P) 47 – 1994RA2014	<0.01 mg/l
Arsenic as As	IS 3025 (P) 37 – 1988RA2014	<0.01 mg/l
Total Kjeldahl Nitrogen	IS 3025 (P) 34 – 1988RA 2014	7.8 mg/l
Ammoniacal Nitrogen	IS 3025 (P) 34 – 1988RA2014	7.2 mg/l
Chromium as Cr	IS 3025 (P) 53 – 2003RA2014	<0.01 mg/l
Cyanide as CN	IS 3025 (P) 27 – 1986RA2014	<0.02 mg/l
Hexavalent Chromium Cr ⁶⁺	IS 3025 (P) 53 – 2003RA 2014	<0.01 mg/l
Cadmium as Cd	IS 3025(P) 41– 1992RA2014	<0.001 mg/l
Manganese as Mn	IS 3025(P) 59– 2006RA2017	<0.05 mg/l
Copper as Cu	IS 3025(P) 42– 1992RA2014	<0.01 mg/l
Mercury as Hg	IS 3025(P) 48 – 1994RA 2014	<0.001 mg/l
Salinity	APHA 25250	34.4 ppt
Conductivity	IS 3025 (P) 14 – 1984RA 2013	85710 µS/cm
Dissolved Oxygen	IS 3025 (P) 44 – 1989RA2014	7.0 mg/l
B O D (3 days at 27 ^o C)	IS 3025 (P) 44 – 1993RA 2014	16.5 mg/l
Phosphate	IS 3025 (P) 31 – 1988RA 2014	0.15 mg/l

Note : BDL – Below Detection Level , ppt- Parts per thousand

MICROBIOLOGICAL TESTS:

Parameters tested	Unit	Test method	Results
Coliforms	MPN/100ml	IS 1622: 1981 RA2009	300
E coli	Present or Absent/100ml	IS 1622: 1981 RA2009	Present

For PoluChem Laboratories (P) Ltd.

SREEJA RAMESH

Authorized Signatory.