Sathish Kumar R

From: Sathish Kumar R
Sent: Tuesday, May 17, 2022 6:44 PM
To: eccompliance-tn@gov.in
Cc: monitoring-ec@nic.in; ssuresh.cpcb@nic.in; Member Secretary, TNPCB; DEE Gummidipoondi; tndoe@nic.in; Jai Khurana; Milind Sangtiani; Vijayasankar K; Subramanian A
Subject: MIDPL - Kattupalli Port, Chennai - Bifurcation of EC&CRZ Clearance vide F. No 10-130/2007 – IA.III - Half Yearly Compliance Report for the period of October 2021 to March 2022 – Reg.
Attachments: MIDPL Kattuapalli Port -HYCR- Oct'21 to Mar'22.pdf

Importance: High

MIDPL/EC-HYC/2021/149 Date: 17.05.2022

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office,
Ist and IInd Floor, Handloom Export Promotion Council,
34, Cathedral Garden Road, Nungambakkam,
Chennai – 600 034. Email : eccompliance-tn@gov.in

Dear Sir,

Sub: CRZ and Environmental Clearance for the development of proposed Shipyard-cum- Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District. Tamil Nadu by M/s Marine Infrastructure Developer Private Limited (MIDPL) - bifurcation of Environmental and CRZ Clearance - Half yearly Compliance report for the period of October 2021 to March 2022 – Reg.

Ref: CRZ & Environmental Clearance for the development of proposed Port at Kattupalli, Tiruvallur District of Tamil Nadu by M/s Marine Infrastructure Developer Pvt. Limited – bifurcation of EC&CRZ Clearance vide F. No 10-130/2007 – IA.III dtd. 9th February 2018

With reference to the captioned subject and cited reference above; we herewith submitting the Half yearly compliance report for the compliance period **October 2021 to March 2022** to the conditions stipulated in the cited reference for your kind information and records.

Thanking you,

For, **M/s. Marine Infrastructure Developer Private Ltd**

R. Sathish Kumar
Head - Environment (Southern Ports) | Adani Ports and Special Economic Zone Limited |
Mob +91 91760 00959 | Direct: +91 44 2796 8177 | Extn. 69177 |
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adani
Ports and Logistics

KATTUPALLI PORT
CHENNAI's NEW GATEWAY

MIDPL/EC-HYC/2021/149

Date: 17.05.2022

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
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Thanking you,

For, **M/s. Marine Infrastructure Developer Private Ltd**

Jai Singh Khurana
Managing Director

Encl: As above

Copy to:

1. The Director (Monitoring –IA-III Division), Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi – 110003 (Email : monitoring-ec@nic.in **)**
2. Zonal Office, Central Pollution Control Board, A-Block, Nisarga Bhavan, 1st and 2nd Floors, 7th D Cross, Thimmaiah Road, Shivanagar, Bengaluru, Karnataka 5600879 (Email : ssuresh.cpcb@nic.in)
3. The Member Secretary, Tamil Nadu Pollution Control Board, 76, Mount Salai, Guindy, Chennai - 600 032 (Email : tnpcbmembersecretary@gmail.com)
4. The District Environmental Engineer, Tamil Nadu Pollution Control Board, No.88 A, SIPCOT Industrial Complex, Gummidipoondi, Tiruvallur District -601 201. (Email : deegummidipoondi@gmail.com)
5. Member Secretary TNCZMA & Director – Dept of Environment, No.1, Jeenis Road, Panagal Building, Ground Floor, Saidapet, Chennai -600 015. (Email : tndoe@nic.in)

Marine Infrastructure Developer Pvt Ltd
(Kattupalli Port)
Kattupalli Village, Ponneri Taluk,
Tirivalluvar District 600 120,
Tamil Nadu, India

Tel +91 44 2824 3062

CIN: U74999TN2016PTC103769

adani

Ports and Logistics

MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED (MIDPL)

ADANI PORTS AND SPECIAL ECONOMIC ZONE

TIRUVALLUR DISTRICT, CHENNAI- 600 120

TAMIL NADU

CRZ & Environmental Clearance

[File no: 10-130/2007- IA.III dated: 09/02/2018]

Compliance Report

for the Period

OCTOBER 2021 TO MARCH 2022

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Index

CRZ & ENVIRONMENTAL CLEARANCE COMPLIANCE REPORT

adani Ports and Logistics	**Marine Infrastructure Developer Pvt Ltd**	**From: October 2021 To : March 2022**

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
Specific Conditions		
(i)	The proponent shall comply all the conditions stipulated in the letter R.C.No. P1/2004/2008, dated 21.10.2008 of the Department of Environment, Chennai.	**Complied.** Compliance to letter R.C.No. P1/2004/2008, dated 21.10.2008, is enclosed as **Annexure -I.**
(ii)	The proponent shall comply all the commitment made vide his letter No. D/Shipyard/00/07 dated 20.03.2009.	**Complied** This EC is just a bifurcation of original EC of LTSB in name of MIDPL & LTSB. All applicable commitments, w.r.t letter No. D/Shipyard/00/07 dated 20.03.2009 like provision of fire station, independent port connectivity, and no reclamation on areas outside port, non-usage of Tri Butyl Tin [TBT] and treatment of wastewater in STP and recycling, disposal of hazardous waste to authorised recyclers are being complied.
(iii)	Provision shall be made for the housing of Construction labour within the site with all necessary infrastructure and facilities such as fuel or cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	**Complied.** All the construction works are completed, and the port is in operation phase.
(iv)	There shall be no withdrawal of groundwater in Coastal Regulation Zone area, for this project. In any case any ground water is proposed to be withdrawn from outside the CRZ area,	**Complied.** No withdrawal of groundwater from CRZ Area. Presently unit is procuring Desalinated water from M/s. Chennai Metropolitan Water Supply and

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	specific prior permission from the concerned State /Central Groundwater board shall be obtained in this regard.	Sewerage Board (CMWSSB), Chennai. In case of any requirement of Groundwater withdrawal outside the CRZ Area, prior permission will be obtained from State/Central Groundwater Board.
(v)	No dumping of dredging materials in the sea shall be undertaken. In case of sea dumping required, an integrated Modelling study to be carried out to locate the dump site so that it does not cause any problem to Ennore port.	**Complied.** Annual maintenance dredging of around 0.18 Mcum was carried out during the compliance period October 2021 to March 2022. Dredge material were dumped in the spoil ground which has already been identified by LTSB through modelling studies.
(vi)	Shoreline changes due the project shall be monitored continuously nourishment of northern shoreline shall be carried out using the sediments from beach acceleration on the southern shoreline.	**Complied.** MIDPL has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study. Report of the same is submitted along with Half Yearly Compliance Report for the period Oct'19-Mar'20 vide our Letter No. MIDPL / EC – HYC / 2020 / 11 dated 31.05.2020.
(vii)	Suitable Screens shall be installed between the construction area and the intakes so that operations of the intakes are not affected by the construction activity.	**Complied.** Works are completed, and the port is in operation phase. No impact envisaged.
(viii)	At least a distance of 100 meters shall be provided between intake of Chennai Water Desalination Ltd. (CWDL) and north edge of the northern breakwater as agreed in the	**Complied.** Distance maintained as agreed.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	meeting between the proponent and CWDL	
(ix)	Independent port connectivity shall be developed.	**Complied.** An independent port connectivity has been developed. Kattupalli Port is having a dedicated road connectivity connecting State Highways and National Highways. NH-5 (Chennai – Kolkata) is about 30 km from Port. The cargo handled are directly goes to the roads mentioned above which are outside the City Limits of Chennai. Handling of cargo in Kattupalli Port does not affect the regular traffic. The Outer Ring Road from NH-45 connecting NH 4 – NH 205 – NH 5 is getting take-off from Minjur. Further, the Outer ring road is proposed to be connected to Section I (NPAR Project) of Chennai Peripheral Ring Road on an extent of 134 km starting from Kattupalli to Mahabalipuram. The project is getting commenced shortly, which will further enhance the cargo carrying capacity of Kattupalli Port. Kattupalli Port is located Close proximity to majority of CFSs serving immediate hinterland and enabling faster evacuation of cargo.

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(x)	Rehabilitation if any shall be carried out as per law / State Government.	**Complied.** Rehabilitation was carried out completely as per law / State Government at the time of project implementation by M/s. LTSB.
(xi)	Fire station shall be located within the project area	**Complied.** MIDPL is having dedicated fire station inside the port premises with fire tender (1 No) and 15-member fire crew (DCPO – 3 Nos, Firemen – 11 Nos. and Supervisor – 1 No). Further, the following infrastructures are well established to strengthen the firefighting system • 309 Nos of Fire Extinguishers (ABC, Foam, CO2) fixed in various locations in the port (with 10% additional stock) and 33 Sand Buckets. • Fire water pumphouse with an underground storage tank of 12 lakhs Liters capacity with 5 pumps (2 Electrical, 2 Diesel and 1 Jockey Pump). • fire hydrant points (51 Single Hydrant Points and 12 Double Hydrant Points) and 12 water monitors are placed at various strategic locations. MIDPL is facilitated with a Fire Tender with the following features: • Water Tank Capacity - 5500lts • Foam Tank Capacity - 500lts • DCP Extinguishers - 75 kg – 2nos

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		• CO_2 Extinguishers - 22.5 kg – 4nos • BA Set - 1no (Oxygen cylinder 2nos) 
(xii)	The Hazardous waste generated shall be properly collected and handled as per the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	**Complied.** Hazardous wastes generated are properly collected and handled inline to Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended. Details of the same are submitted to TNPCB as a part of Hazardous waste annual return (Form 4) on regular basis. Annual Hazardous Waste Return for FY 2020-21 is attached as **Annexure – II.**
(xiii)	The wastewater generated from the activity shall be collected, treated and reused properly.	**Complied.** MIDPL is having 3 STPs of capacity 30KLD, 10KLD & 5KLD at various locations inside the port premises to treat the maximum wastewater flow of 45KLD. Domestic wastewater generated from various sources such as washing water from canteen and toilet flushing water from office buildings are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance within the port premises after confirming permissible limit. Inlet & outlet characteristic of Sewage water is regularly monitored and analysed by NABL accredited laboratory.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

<table>
<tr><th>S. No.</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td></td><td></td><td>Average quantity of Sewage water treated in STPs during the compliance period is as furnished below.

<table>
<tr><th>Location</th><th>STP Capacity</th><th>Avg. Quantity of Sewage Water Treated (Oct'21 to Mar'22)</th></tr>
<tr><td>Near IWMS</td><td>30 KLD</td><td>13.1 KLD</td></tr>
<tr><td>Near CFS</td><td>5 KLD</td><td>3.9 KLD</td></tr>
<tr><td>Near Liquid Terminal</td><td>10 KLD</td><td>2.8 KLD</td></tr>
</table>

The monitoring results for the period October'21 to March'22 is enclosed as Annexure - III.

Summary of STP treated water analysis results during compliance period as mentioned below.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Min</th><th>Max</th><th>TNPCB Limit</th></tr>
<tr><td>pH</td><td>-</td><td>7.03</td><td>7.71</td><td>6.5 to 9</td></tr>
<tr><td>TSS</td><td>mg/l</td><td>12</td><td>22</td><td>30</td></tr>
<tr><td>BOD</td><td>mg/l</td><td>5</td><td>12</td><td>20</td></tr>
<tr><td>COD</td><td>mg/l</td><td>36</td><td>72</td><td>100</td></tr>
<tr><td>Faecal Coliform</td><td>MPN/100ml</td><td>80</td><td>240</td><td><1000</td></tr>
</table>

All the parameters are well within the prescribed norms.</td></tr>
<tr><td>(xiv)</td><td>Sewage Treatment Facility should be provided in accordance with the CRZ Notification.</td><td>Complied.

Sewage Treatment Plants (3 Nos) with total capacity of 45 KLD are provided in accordance with the CRZ notification.

Domestic wastewater generated from various sources such as washing water from canteen and toilet</td></tr>
</table>

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

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</table>
The monitoring results for the period October'21 to March'22 is enclosed as Annexure - III.

All the parameters are well within the prescribed norms.</td></tr>
<tr><td>(xv)</td><td>No Solid Waste will be disposed of in the Coastal Regulatory Zone area. The Solid Waste shall be properly collected segregated and disposed as per the provision of Solid Waste Management Rules, 2016.</td><td>Complied.

No solid waste is being disposed of in the CRZ area. All the solid waste generated is properly collected, source segregation of all types of Solid Waste is practised and are disposed as per the provision of Solid Waste Management Rules 2016, as amended.

Solid Waste Management:

MIDPL Kattupalli Port certified as "Zero Waste to Landfill" Port from CII. To achieve this milestone,</td></tr>
</table>

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		various sources of waste and their sustainable waste management techniques were identified. Having understood the entire concept of "Zero Waste to Landfill", a firm commitment was given by the top management to implement the sustainable waste management techniques. A well-established Integrated waste Management system is in place and all wastes are being handled inline to 5R principle (Reduce, Reuse, Reprocess, Recycle & Recover).   All the wastes (non-hazardous and hazardous) generated from the port activities are collected, segregated and stored in the designated compartments in Integrated Waste Management Shed (IWMS). **Non-Hazardous Waste Management:** All types of non-hazardous wastes like paper, wood, metal scraps, etc., generated from port area are being handled, stored, and disposed thorough vendors in line with 5R principle. The method of non-hazardous waste disposal is presented below.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status

S.No.	Type of waste	Storage Location within port	Method of disposal
1.	Dry Waste (Paper, Plastic, Metal waste, etc.)	IWMS	Material recovery Sent for Recycling
2.	Wet Waste (Food Waste)	Biogas Unit	Reprocess
3.	Solid waste Dry and Wet port	Daily Disposal	Dry and Wet Waste separately for material recovery and composting respectively.
4.	Sludges	STPs	Reprocessed for gardening manure

Hazardous & Other Waste Management:

Hazardous wastes that include used oil and filters contaminated with oil. Used oil and the filters contaminated with oil generated during various maintenance activities are collected in barrels and kept in Integrated Waste Management Shed and are disposed through TNPCB authorized recyclers in line to Hazardous Waste Management Rules 2016, (as amended).

Used oil is mainly generated from Rubber tyred gantry cranes and diesel generators. Used oils are collected and stored in barrels and are being mechanically processed to recover oil at TNPCB authorized recyclers facility.

Other hazardous wastes such as used batteries and E–waste are also stored in Integrated Waste Management Shed and disposed through approved vendor in line to 5 R principle.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		Bio medical waste generated from OHC is being disposed at Common Bio Medical Waste Treatment Facility namely M/s. Tamilnadu Waste Management Limited, Maduranthagam Taluk and Kancheepuram District, in line to the Bio Medical Waste Management Rules 2016. All types of hazardous wastes generated from port operation and maintenance activity are being handled, stored and disposed as follows:

S. No	Type of waste	Storage Location within port	Method of disposal
1.	Oil Contaminated Cotton Waste	IWMS	Disposed to authorized recycler
2.	Used Oil	IWMS	Disposed to authorized Recycler
3.	E-Waste	IWMS	Sold to Registered recycler / reprocessor
4.	Battery Waste	IWMS	Sold to Registered recycler / reprocessor
5.	Bio Medical Waste	Occupational Health Centre (OHC)	Sent to CBWTF for scientific Disposal.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(xvi)	Installation and operation of DG set if any shall comply with the guidelines of CPCB.	**Complied**. Tamil Nadu Electricity Board (TNEB) Power supply is available for Port Operations. However, DG set of capacities 2000 kVA (2 Nos), 500 KVA (2 Nos) and 125 KVA (1 NO) are installed inline to CPCB guidelines as backup Power. Flue gas analysis report of the DG Set stack for the period October'21 to March'22 is attached as Annexure III. In addition, retrofitting equipment in all the DG Sets has been installed and commissioned to reduce the Particulate Matter emission level. Efficiency of the retrofitting equipment is observed above 90% against the TNPCB requirement of >70%. 
(xvii)	Air quality including the VOC shall be monitored regularly as per the guidelines of CPCB and reported.	**Complied.**

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		Ambient Air Quality (twice in a week) and **Noise** (once in a month) Monitoring are being carried out through NABL accredited laboratory. Quality of Ambient Air and Noise level confirm to the standard laid down by TNPCB / CPCB. Summary of the same for duration from Oct'21 to Mar'22 is as summarised below. **Total Ambient Air & Noise Sampling Locations: 4 Nos.**

Parameter	Unit	Min	Max	NAAQM Norms
AAQM				
PM_{10}	µg/m³	49	67	100
$PM_{2.5}$	µg/m³	12	33	60
SO_2	µg/m³	3.9	8.9	80
NO_2	µg/m³	10.6	19.1	80
CO	mg/m³	<1.0	<1.0	2.0
Noise	**Unit**	**Min**	**Max**	**NAAQM Norms**
Day Time	dB(A)	46.4	69.7	75
Night Time	dB(A)	37.0	67.5	70

Detailed Air Quality Monitoring Reports for the period October'21 to March'22 is enclosed as **Annexure-III.**

We have also installed Continuous Ambient Air Quality Monitoring Station (Including BTX analyser to monitor VOC). CAAQMS has been connected to TNPCB server and data is transferred on real-time basis. All the parameters are well with the prescribed standards.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		 
(xviii)	The project proponent shall undertake green belt development all along the periphery of the project area and also alongside the road.	**Complied.** MIDPL is having an adequate Greenbelt covering 25.06Ha (which includes 9.81Ha inside the Port premises and 15.25Ha Outside the Port premises). Greenbelt has been developed along the periphery of the port area and alongside of the road and are being well maintained. Total number of trees (as on 31.03.02022) is 27,407 Nos., and 5,475 Nos of trees planted during the compliance period.
(xix)	All necessary clearances from the concerned agencies shall be obtained before initiating the project.	**Complied.** The project is in operation after obtaining all the necessary clearances (as applicable) from the concerned agencies as described below.

Permission	Ref.No.	Date
Tamil Nadu Maritime Board (TNMB) clearance	575/S1/2008	24.05.2012
Fire and Rescue License (Renewal)	159/2015	10.06.2015
PESO Licenses - 15KL	P/SC/TN/15/2514 (P266086)	25.05.2012

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<table>
<tr><th>S. No.</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>- 50KL</td><td>P/SC/TN/14/6260 (P266084)</td><td>16.08.2012</td></tr>
</table>
</td></tr>
<tr><td>(xx)</td><td>Project proponent shall install necessary oil spill mitigation measures in the shipyard. The details of the facilities provided shall be informed to this Ministry within 3 months from the date of receipt of this letter.</td><td>
Complied.

All necessary precaution has been taken to avoid any kind of spillages. Oil Spill Contingency Plan has been prepared and is being followed.

Oil spill contingency plan along with list of available oil spill equipment submitted vide our Letter No. MIDPL/TNPCB/GMP/EC-HYC dated 14.05.2018.
<table>
<tr><th>Activity/ Drill</th><th>Number of Persons trained</th><th>Total Manhours Trained</th></tr>
<tr><td>OSPR Equipment Commissioning - Training / Drill - 12.10.2020</td><td>25</td><td>75</td></tr>
<tr><td>OSPR Equipment Commissioning - Training / Drill - 13.10.2020</td><td>30</td><td>120</td></tr>
<tr><td>OSPR Equipment Quarterly Drill / Inspection- 19.01.2021</td><td>8</td><td>48</td></tr>
<tr><td>Total</td><td>63</td><td>243</td></tr>
</table>
</td></tr>
</table>

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		  

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(xxi)	No hazardous chemicals shall be stored in the Coastal Regulation Zone area.	**Noted for Compliance**. No hazardous chemical is stored in CRZ Area.
(xxii)	The project shall not be commissioned till the requisite water supply and electricity to the project are provided by the PWD/ Electricity Department.	**Complied.** Requisite permission for Water Supply and Electricity has been obtained from Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) and Tamil Nadu Electricity Board respectively before commissioning.
(xxiii)	Specific arrangements for rainwater harvesting shall be made in the project design and the rain water so harvested shall be optimally utilized.	**Being Complied.** MIDPL is having Rainwater Collection facilities including Storm Water drains and Rainwater Harvesting Pond. Existing Rainwater Harvesting Pond is being used for Greenbelt maintenance. Water table is observed to be high in and around the Port area. Feasibility of rainwater harvesting will be explored. 

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		   
(xxiv)	The facilities to be constructed in the CRZ area as part of this project shall be strictly in conformity with the provisions of the CRZ Notification, 2011 and its amendment. The facilities such as office building and residential buildings which do not require waterfront and foreshore facilities shall not be constructed within the Coastal Regulation Zone area.	**Complied.** All construction has been done in line to CRZ Notification, 2011 and CRZ & Environmental clearance obtained.
General Conditions:		
(i)	Construction of the proposed structures shall be undertaken meticulously conforming to the existing Central/local rules and regulations including Coastal	**Complied.** Project is in operation phase. All construction activity has been done in line to the existing Central/local

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	Regulation Zone Notification 1991 & its amendments. All the construction designs /drawings relating to the proposed construction activities must have approvals of the concerned State Government Departments /Agencies.	rules including CRZ Notification, 2011 and CRZ & Environmental Clearance obtained
(ii)	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. shall be ensured for construction workers during the construction phase of the project so as to avoid felling of trees/mangroves and pollution of water and the surroundings.	**Complied.** Project is in Operation Phase.
(iii)	The project authorities shall make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc. must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests under the Environment (Protection) Act, 1986, whichever are more stringent.	**Complied.** No solid waste is being disposed of in the CRZ area. Integrated waste Management system is in place. All the solid waste generated is properly collected, source segregation of all types of Solid Waste is practised and are disposed as per the provision of Solid Waste Management Rules 2016, as amended. **Solid Waste Management:** MIDPL Kattupalli Port certified as "Zero Waste to Landfill" Port from CII. To achieve this milestone, various sources of waste and their sustainable waste management techniques were identified. Having understood the entire concept of "Zero Waste to

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		Landfill", a firm commitment was given by the top management to implement the sustainable waste management techniques. A well-established Integrated waste Management system is in place and all wastes are being handled inline to 5R principle (Reduce, Reuse, Reprocess, Recycle & Recover).   All the wastes (non-hazardous and hazardous) generated from the port activities are collected, segregated and stored in the designated compartments in Integrated Waste Management Shed (IWMS). **Non-Hazardous Waste Management:** All types of non-hazardous wastes like paper, wood, metal scraps, etc., generated from port area are being handled, stored, and disposed thorough vendors in line with 5R principle. The method of non-hazardous waste disposal is presented below.

S.No.	Type of waste	Storage Location within port	Method of disposal
1.	Dry Waste (Paper, Plastic, Metal waste, etc.)	IWMS	Material recovery Sent for Recycling
2.	Wet Waste	Biogas Unit	Reprocess

S. No.	Conditions	Compliance Status

	(Food Waste)		
3.	Solid waste Dry and Wet port	Daily Disposal	Dry and Wet Waste separately for material recovery and composting respectively.
4.	Sludges	STPs	Reprocessed for gardening manure

Sewage Treatment Facility:

Sewage Treatment Plants (3 STPs) of total capacity of 45 KLD are provided for treatment of wastewater in line to CRZ Notification 2011.

Domestic wastewater generated from various sources such as washing water from canteen and toilet flushing water from office buildings are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance inside the port premises after confirming permissible limit. Inlet & outlet characteristic of Sewage water is regularly monitored and analysed by NABL accredited laboratory.

Regular Environment Monitoring is being carried out through NABL accredited agency. Summary of STP treated water analysis results during compliance period as mentioned below.

Parameter	Unit	Min	Max	TNPCB Limit
pH	-	7.03	7.71	6.5 to 9
TSS	mg/l	12	22	30
BOD	mg/l	5	12	20
COD	mg/l	36	72	100
Faecal Coliform	MPN/100ml	80	240	<1000

All the monitoring results are well within the prescribed standard.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		Ambient Air Quality: Ambient Air Quality (twice in a week) and Noise (once in a month) Monitoring are being carried out through NABL accredited laboratory. Quality of Ambient Air and Noise level confirm to the standard laid down by TNPCB / CPCB. Summary of the same for duration from Oct'21 to Mar'22 is as summarised below. **Total Ambient Air & Noise Sampling Locations: 4 Nos.**

Parameter	Unit	Min	Max	NAAQM Norms
AAQM				
PM_{10}	µg/m³	49	67	100
$PM_{2.5}$	µg/m³	12	33	60
SO_2	µg/m³	3.9	8.9	80
NO_2	µg/m³	10.6	19.1	80
CO	mg/m³	<1.0	<1.0	2.0
Noise	**Unit**	**Min**	**Max**	**NAAQM Norms**
Day Time	dB(A)	46.4	69.7	75
Night Time	dB(A)	37.0	67.5	70

All the monitoring results are well within the prescribed standard.

We have also installed Continuous Ambient Air Quality Monitoring Station (Including BTX analyser to monitor VOC). CAAQMS has been connected to TNPCB server and data is transferred on real-time basis. All the parameters are well with the prescribed standards.

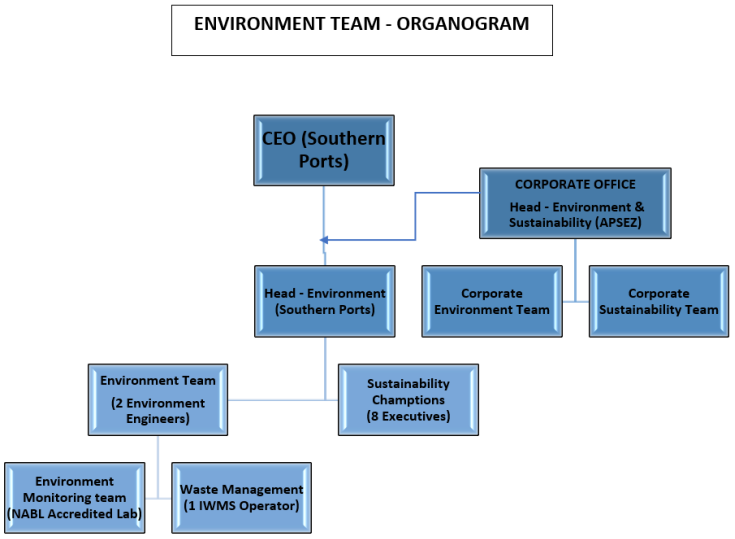
Detailed Air and Water Quality Monitoring Reports for the period October'21 to March'22 is enclosed as **Annexure –III.**

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		All the monitoring parameters are well within the prescribed standard.
(iv)	The proponent shall obtain the requisite consents for discharge of effluents and emissions under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (prevention and Control of Pollution) Act, 1981 from the Tamil Nadu State Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.	**Complied.** Requisite Consents for discharge of effluents and emissions under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (prevention and Control of Pollution) Act, 1981 were obtained before commissioning of the project and submitted to Ministry. Project is in operation phase and Consent to Operate has been obtained from the Tamil Nadu State Pollution Control Board vide **Consent Order No. 2105136876761 (water Act) & 2105236876761 (Air Act) dated 13/09/2021 valid till 31.03.2026.**
(v)	In order to carry out the environmental monitoring during the operational phase of the project, the project authorities shall establish an environmental laboratory well equipped with standard equipment and facilities and qualified manpower to carry out the testing of various environmental parameters.	**Complied.** MIDPL is having Environmental Management Cell, staffed with qualified personnel at site supported by team at Head Office in Ahmedabad. Environment monitoring is being carried out through NABL accredited Laboratory.

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
		
(vi)	The proponents shall provide for a regular monitoring mechanism so as to ensure that the treated effluents conform to the prescribed standards. The records of analysis reports must be properly maintained and made available for inspection to the concerned State/Central officials during their visits.	**Complied.** Domestic Wastewater is being treated in STP's and inlet & outlet characteristic of water is regularly analysed by NABL accredited laboratory. The monitoring results for the period October'21 to March'22 is enclosed as **Annexure - III**. All the results are found well within the prescribed standard. Records are made available at site for inspection of State / Central officials during their visit.
(vii)	The sand dunes and mangroves, if any, on the site shall not be disturbed in any way.	**Complied.** No Sand dune and mangroves are present on the site.
(viii)	A copy of the clearance letter will be marked to the concerned Panchayat / local NGO, if any, from whom any	**Complied.** This EC is just a bifurcation of original EC of LTSB.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	suggestion / representation has been received while processing the proposal.	
(ix)	The Tamil Nadu Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/Tehsildars Office for 30 days.	**Complied.** The condition does not pertain to project proponent
(x)	The funds earmarked for environment protection measures shall be maintained, in a separate account and there shall be no diversion of these funds for any other purpose. A year-wise expenditure on Environmental safeguards shall be reported to this ministry	**Complied.** Separate budget for the Environment Protection is earmarked every year. All the expenses are recorded in advanced accounting system of the organization. Expenditure for Environment Management measures during October'21 to March'22 is Rs. **231.3** Lakhs. The breakup details are as follows;

S. No.	Description of Work	Cost (Rs.) in Lakhs
1	Comprehensive Environmental Monitoring	37.89
2	Retrofitting of DG Sets	56.57
3	Integrated Waste Management & Pollution Under Check Facility	1.44
3	O&M of STP's & ETP	9.57
4	Housekeeping	46.67
5	Greenbelt Maintenance	47.20

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(xi)	Full support shall be extended to the officers (this Ministry's Regional Office at Chennai 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.	**Noted for Compliance.** Full support is being extended to the officers of RO-MoEF & CC Chennai, CPCB & TNPCB during their inspection and site visit. During the compliance period monthly visits were made by TNPCB Officials to monitor the compliance and all the necessary supports were extended and the same shall be continued in future also.
(xii)	In case of deviation or alteration in the project including the implementing agency, a fresh reference shall be made to this ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection.	**Noted for Compliance.** There is no deviation or alteration in the project including implementing agency.
(xiii)	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.	**Noted for Compliance.**
(xiv)	This Ministry or any other competent authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	**Noted for Compliance.**

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(xv)	The Project proponents shall inform the Regional Office at Chennai 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.	**Complied.** The same has been Complied by LTSB before bifurcation itself.
CRZ & EC Amendment letter No. 10-130/2007- A.III dated 12.05.2010:		
(i)	The details of combined effect on both the Ports (i.e. Ennore Port and Kattupalli Port) shall be carried out to monitor the impact of the post-dumping. This model study shall be carried out for a period of one year.	**Complied.** M/s LTSB has already carried out detailed modelling study to understand impact of post dumping and report was submitted to Ministry. Annual maintenance dredging of around 0.18 Mcum was carried out during the compliance period October 2021 to March 2022. Dredge materials were dumped in the spoil ground which has already been identified by LTSB through modelling studies. MIDPL engaged Institute of Ocean Management, Anna University to carry out shoreline studies of the concerned area. Reports of the same was submitted along with Half Yearly Compliance Report for the period Oct'19-Mar'20 vide our Letter No. MIDPL/EC-HYC/2020/11 dated 31.05.2020.
(ii)	A comparison between model study and actual dumping shall be carried out to examine the impacts both on North-East and South-West of the	**Complied.**

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	Ports and shall be submitted to the Ministry,	Comparison between model study and actual dumping was made to examine the impacts and report was submitted to Ministry by LTSB. No dumping was being carried by MIDPL during the period October'21 to March'22. MIDPL engaged Institute of Ocean Management, Anna University for studies. Reports of the same is submitted along with Half Yearly Compliance Report for the period Oct'19-Mar'20 vide our Letter No. MIDPL/EC-HYC/2020/11 dated 31.05.2020.
(iii)	No reclamation of the areas outside the Port limit and Buckingham Canal shall be carried out.	**Being Complied.** No reclamation of the areas outside Port Limit and Buckingham Canal is being carried out.
EC & CRZ Extension of validity letter No. 10-130/2007- XIII dated 17.12.2014:		
(i)	The cargo should only include (i) Container 21.60 MTPA, (ii) Ro-Ro – 0.22 MTPA, (iii) Project cargo – 0.44 MTPA, (iv) Break bulk/General cargo (Barytes/Gypsum/Limestone/Granite/Steel cargo) – 1.82 MTPA and (v) Edible oil, CBFS, Base oil and Lube oil and non-hazardous liquid cargo - 0.57 MTPA	**Being Complied**.

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
(ii)	All the conditions stipulated by the Tamil Nadu Coastal Zone Management Authority (TNCZMA) vide letter no. 6064/EC.3/2014-1 dated 26.06.2014, shall be strictly complied with.	**Complied.** All the conditions stipulated by the Tamil Nadu Coastal Zone Management Authority (TNCZMA) vide letter no. 6064/EC.3/2014-1 dated 26.06.2014 are being complied. Compliance status of the same is enclosed as **Annexure – IV.**
(iii)	No additional land should be utilized for the proposed development.	**Complied**
(iv)	As committed, the local traffic should not be disturbed.	**Complied.** Separate road is available for the local Traffic. Kattupalli Port is having a dedicated road connectivity connecting State Highways and National Highways. NH-5 (Chennai – Kolkata) is about 30 km from Port. The cargo handled are directly goes to the roads mentioned above which are outside the City Limits of Chennai. Handling of cargo in Kattupalli Port does not affect the regular traffic.
5	These stipulations would be enforced among other 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, 991, the Hazardous Chemical (Manufacture, storage and Import) Rules, 1989, Solid Waste Management Rules, 2016 and the	**Noted for Compliance.**

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

<table>
<tr><th>S. No.</th><th>Conditions</th><th>Compliance Status</th></tr>
<tr><td></td><td>Coastal Regulation Zone Notification, 2011 and its subsequent amendments made there under from time to time.</td><td></td></tr>
<tr><td>6</td><td>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.</td><td>Complied.

The project is in operation after obtaining all the necessary clearances (as applicable) from the concerned agencies as described below.

<table>
<tr><th>Permission</th><th>Ref.No.</th><th>Date</th></tr>
<tr><td>Tamil Nadu Maritime Board (TNMB) clearance</td><td>575/S1/2008</td><td>24.05.2012</td></tr>
<tr><td>Fire and Rescue License (Renewal)</td><td>159/2015</td><td>10.06.2015</td></tr>
<tr><td>PESO Licenses
- 15KL

- 50KL</td><td>P/SC/TN/15/2514 (P266086)

P/SC/TN/14/6260 (P266084)</td><td>25.05.2012

16.08.2012</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>The project proponent should 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 Tamil Nadu Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests</td><td>Complied.

Copy of the same is already submitted along with the Compliance report for the period Oct-2018 to Mar-2019 vide our Letter No. MIDPL/TNPCB/GMP/EC-HYC dated 24.05.2019.</td></tr>
</table>

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
	at http://envfonnic.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 Chennai.	
8	Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 **day** as prescribed under section 11 of the National Environment Appellate Act, 1997.	**Noted.**

Name of the Project: CRZ and Environmental Clearance for the development of proposed Shipyard-cum-Minor Port Complex at Kattupalli, Ponneri Taluka, Tiruvallur District, Tamil Nadu by M/s. Marine Infrastructure Developer Private Limited (MIDPL) – bifurcation of Environmental and CRZ Clearance.

Half yearly Compliance report on conditions stipulated in CRZ & Environmental Clearance [File no: 10-130/2007- IA.III dated: 09/02/2018]

S. No.	Conditions	Compliance Status
9	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	**Complied**. • Six monthly Compliance Report of CRZ & Environmental Clearance is uploaded on company website regularly (https://www.adaniports.com/ports-downloads) • Environment Statement (Form-V) for the year 2020-2021 was submitted to TNPCB vide letter No. MIDPL/TNPCB/2021-22/119 dated 23.09.2021. Copy of the same is uploaded on Company website and sent to Regional Office of MoEF&CC by e-mail on 23.09.21. Copy of the same is attached as **Annexure VII.** • The details of the past six Half yearly compliance reports are as tabulated below for reference.
10	This CRZ and Environmental Clearance is valid till 2" July, 2019.	**Noted.**
11	This issue with the approval of the Competent Authority.	**Noted.**

S.No.	Compliance period	Date of submission
1.	Oct'18 to Mar'19	24.05.2019
2.	Apr'19 to Sep'19	25.11.2019
3.	Oct'19 to Mar'20	31.05.2020
4.	Apr'20 to Sep'20	27.11.2020
5.	Oct'20 to Mar'21	20.05.2021
6.	Apr'21 to Sep'21	24.11.2021

ANNEXURE – 1

(DoE COMPLIANCE STATUS)

adani Ports and Logistics	Marine Infrastructure Developer Pvt Ltd	From : October 2021 To : March 2022

Status of Compliance to RC No. P1/2004/2008, dated 21.10.2008 of Department of Environment, Chennai

Annexure -1

Sl. No	Conditions	Compliance
i	The unit shall carry out dumping/ land filling at dredged material only on land which is not covered under CRZ	**Noted for Compliance**
ii	The unit shall not carry out any ship breaking activity	**Not applicable**
iii	The unit should design that the wastewater should be recycled 100% and to be used for developing greenery etc., and there should not be any wastewater let out.	Complied Domestic wastewater generated are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance. Inlet & outlet characteristic of Sewage water is regularly analysed by NABL accredited laboratory. The monitoring results for the period October 2021 to March 2022 is enclosed as Annexure - III. The treated water quality parameters are well within the prescribed norms.
iv	The unit should tie - up with institutions like Centre for Environmental Studies or IIT for the periodical monitoring during construction phase so as to ensure the adoption of Safety measures as per the Environmental Management Plan [EMP].	**Complied.** LTSB carried out the studies during Construction Phase.
v	Before commencing construction activities, Proper resettlement for the local the unit should ensure the proper resettlement of local inhabitants residing at the project area to the satisfaction of District Collector and submit a report to the Department of Environment.	**Not applicable.** Complied by M/s. LTSB. Rehabilitation & resettlement was carried out completely as per law / State Government at the time of project implementation. Bifurcation of original CRZ & EC of LTSB obtained vide File no: 10-130/2007- A.III dated 09/02/2018
General Conditions		

adani Ports and Logistics	Marine Infrastructure Developer Pvt Ltd	From : October 2021 To : March 2022
Status of Compliance to RC No. P1/2004/2008, dated 21.10.2008 of Department of Environment, Chennai		

a	There should not be any extraction of Ground Water in CRZ.	**Noted for compliance.** No withdrawal of groundwater from CRZ Area. Presently unit is procuring desalinated water from M/s. Chennai Metropolitan Water Supply and Sewerage Board, Chennai.
b	The unit should obtain planning permission for their constructions from the CMDA/Department of Environment before commencing the constructions	**Not applicable.** Project is in operation phase. Bifurcation of original CRZ & EC of LTSB obtained vide File no: 10-130/2007- A.III dated 09/02/2018. Required permission from concerned authorities was taken by M/s. LTSB before commencing the constructions.
c	The proposed activities should not cause coastal erosion and alter the beach configuration	**Complied.** MIDPL has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study. Report of the same is submitted along with Half Yearly Compliance Report for the period Oct'19-Mar'20 vide our Letter No. MIDPL / EC – HYC / 2020 / 11 dated 31.05.2020
d	No fencing or barricading along the pipeline alignment and parallel to the coast is permissible in CRZ.	**Agreed for compliance.** All activities permissible as per CRZ notification 2011 & EC&CRZ clearance will only be carried out.
e	No blasting or drilling activities in CRZ is permissible.	**Agreed for compliance.** No blasting or drilling activity is carried in CRZ area. All activities permissible as per CRZ notification 2011 & EC&CRZ clearance will only be carried out.
f	The proponent should not prevent public from easy access to the beach.	**Being complied.**

		MIDPL will not block the access point to beach for the public.
g	Chemical waste generated and the sewage generated, if any should not be discharged into the sea.	**Complied**. No chemical waste is generated. Domestic wastewater generated are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance. Inlet & outlet characteristic of Sewage water is regularly analysed by NABL accredited laboratory. The monitoring results for the period October'21 to Mar'22 is enclosed as **Annexure - III.**
h	The proponent should implement the EMP including the Green Belt as envisaged in the EIA report.	**Complied.** The EMP is being implemented in letter & spirit. MIDPL is having an adequate Greenbelt covering 25.06Ha (which includes 9.81Ha inside the Port premises and 15.25Ha Outside the Port premises). Greenbelt has been developed along the periphery of the port area and alongside of the road and are being well maintained. Total number of trees (as on 31.03.02022) is 27,407 Nos., and 5,475 Nos of trees planted during the compliance period. Operational Phase EMP compliance status is enclosed as **Annexure – VI.**
i	The project activity should not affect the coastal ecosystem including marine flora and fauna.	**Complied.** Marine water & Sediment quality are being monitored through NABL accredited laboratory on monthly basis. There is no impact on water quality in the vicinity. The details of Marine Water quality monitoring report for the period October'21 to Mar'22 is enclosed as **Annexure-III**.

j	The proponent should not undertake any activity, which is violate of provisions of CRZ Notification 1991 and the subsequent amendments.	**Being complied.** All activities permissible as per CRZ notification 2011 & EC&CRZ clearance will only be carried out.
k	The CRZ Clearance will be revoked if any of the conditions stipulated in not complied with.	**Noted for compliance**

ANNEXURE – 2

(HW ANNUAL RETURNS IN FORM-4)

adani
Ports and Logistics

KATTUPALLI PORT
CHENNAI's NEW GATEWAY

MIDPL/TNPCB/GMP/HWR-2021/90

Date: 24/06/2021

To,

The District Environmental Engineer,
Tamil Nadu Pollution Control Board,
88A, First Cross Road,
SIPCOT Industrial Complex,
Gummidipoondi - 601201.

Dear Sir,

Sub: Submission of Annual Hazardous Waste Returns (FORM 4) for the period April 2020 to March 2021- Reg.

With reference to captioned subject, **M/s. Marine Infrastructure Developer Private Limited** is submitting the Annual Hazardous Waste Returns in Form 4 for the period April 2020 to March 2021.

Submitted for your kind records.

Kindly acknowledge us the receipt of the same.

for, **M/s. Marine Infrastructure Developer Pvt Ltd**

Marine Infrastructure Developer Pvt Ltd Chennai 600 120

R. Sathish Kumar
Head - Environment

Encl: As above

Marine Infrastructure Developer Pvt Ltd
(Kattupalli Port)
Kattupalli Village, Ponneri Taluk,
Tiruvalluvar District 600 120,
Tamil Nadu, India

Tel +91 44 2824 3062

CIN: U74999TN2016PTC103769

Registered Office: Ramcon Fortuna Towers, 4th floor No 1/2, Kodambakkam High Road, Nungambakkam, Chennai 600034

25 JUN 2021

FORM 4

[See rules 6(5), 13(8), 16(6) and 20 (2)]

FORM FOR FILING ANNUAL RETURNS

[To be submitted to State Pollution Control Board by 30th day of June of every year for the proceeding period April 2020 to March 2021]

1	Name and address of facility:	M/s. Marine Infrastructure Developer Pvt Ltd (MIDPL) Kattupalli Village, Ponneri Taluk, Tiruvallur District - 600120
2	Authorisation No. and Date of issue:	Authorization No. 19HFC20312718 & dated 30.04.2019
3	Name of the authorised person and full address with telephone, fax number and e-mail:	Mr. Jai Khurana Managing Director Marine Infrastructure Developer Pvt Ltd. Kattupalli Village, Ponneri Taluk, Tiruvallur District – 600120. Tel: +91 44 2824 3062. Mail: Jai.Khurana@adani.com
4	Production during the year (product wise), wherever applicable	Not Applicable

Part A. To be filled by hazardous waste generators

1	Total quantity of waste generated category wise	**Cargo residue, washing water and sludge containing Oil**	**Discarded Containers / Barrels**	**Used / Waste / Spent Oil**
	Category	3.1	33.1	5.1
	Quantity	44.42 MT	3.57 MT	5.4 MT
2	Quantity dispatched	-	-	-
	(i) to disposal facility	NIL	NIL	NIL
	(ii) to recycler or co-processors or pre-processor	44.42 MT	3.57 MT	5.4 MT
	(iii) others	NIL	NIL	NIL
3	Quantity utilised in-house, if any -	Cargo residue, washing water and sludge containing Oil: **NIL** Waste containing oil: **NIL** Oil contaminated filter element: **NIL**		
4	Quantity in storage at the end of the year –	Oil Sludge: **NIL** Waste containing oil: **NIL** Oil contaminated filter element: **NIL**		

Part B. To be filled by Treatment, Storage and Disposal Facility operators

1	Total quantity received -	Not Applicable
2	Quantity in stock at the beginning of the year -	
3	Quantity treated –	
4	Quantity disposed in landfills as such and after treatment –	
5	Quantity incinerated (if applicable) -	
6	Quantity processed other than specified above -	
7	Quantity in storage at the end of the year -	

Part C. To be filled by recyclers or co-processors or other users

1	Quantity of waste received during the year – (i) domestic sources (ii) imported (if applicable)	Not Applicable
2	Quantity in stock at the beginning of the year -	
3	Quantity recycled or co-processed or used –	
4	Quantity of products dispatched (wherever applicable) –	
5	Quantity of waste generated -	
6	Quantity of waste disposed -	
7	Quantity re-exported (wherever applicable)-	
8	Quantity in storage at the end of the year -	

Date: 24.06.2021
Place: Chennai

Signature of the Occupier

Mantri Infrastructure Developer Pvt. Ltd. Chennai 600 120

ANNEXURE – 3

(MIDPL MONITORING REPORT OCT'21 - MAR'22)

REPORT ON

COMPREHENSIVE ENVIRONMENTAL MONITORING

FOR

MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED (MIDPL)
KATTUPALLI VILLAGE, PONNERI TALUK,
THIRUVALLUR DISTRICT, TAMILNADU – 600 120

OCTOBER 2021 - MARCH 2022

PREPARED BY:

Green Chem Solutions Pvt. Ltd.
No.883, 11th Street,
Syndicate Bank Colony,
Anna Nagar West Extension,
Chennai - 600 101.

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Index for Table

I. INTRODUCTION

Marine Infrastructure Developer Private Limited **(MIDPL)**, subsidiary of Adani Ports and Special Economic Zone Limited (APSEZ) is operating Kattupalli Port, having the latest technology of Terminal Operating System which is the first of its kind in India, which can support the entire supply chain in doing business smoothly.

MIDPL have engaged M/s. Green Chem Solutions (P) Ltd, an Accredited Consultant by NABL to carry out the Comprehensive Environmental monitoring studies in the Port site continuously as per the norms. This report covers the monitored environmental data for the Period Oct 2021 to Mar 2022.

II. LOCATION OF THE PROJECT

The Project site is located at Port area, Kattupalli Port Area.

The location map is shown in Fig - 1

Fig – 1 – Location Map

III. SCOPE OF WORK

The scope of Comprehensive Environmental monitoring includes the following environmental components;

1. Meteorological data
2. Ambient Air Quality
3. Ambient Noise Level
4. Marine Sampling
5. Treated STP / ETP Water.
6. Potable water
7. DG Set emission

The parameters covered under the scope for each of the above attributes are given below:

SCOPE OF WORK

S.No	Attribute	Scope	Frequency
1.	Meteorological Data	Collection of micrometeorological data on hourly basis by installing an auto weather monitoring station at plant site covering the following parameters : • Wind speed • Wind direction • Rainfall • Relative Humidity • Temperature • Barometric pressure • Solar Radiation	Daily
2.	Ambient Air Quality	Sampling of ambient air at 04 stations for analyzing the following parameters: • PM10 • PM2.5 • SO_2 • NO_2 • CO • Lead • Ozone • Ammonia • Benzene • BenzoPyrene • Arsenic • Nickel	Weekly Twice
3.	Ambient Noise	Collection of Noise levels on hourly basis at 4 locations • L_{eq} – Day (Max and Min) • L_{eq} – Night (Max and Min)	Monthly Once
4.	Marine Sampling		

4a.	Surface and Bottom Water	Collection of Surface and Bottom Water analyzed for - 2 location • Temperature • pH @ 25°C • Total Suspended Solids • BOD at 27 °C for 3 days • Dissolved oxygen • Salinity at 25 °C • Oil & Grease • Nitrate as No_3 • Nitrite as No_2 • Ammonical Nitrogen as N • Ammonia as NH_3 • Kjeldahl Nitrogen as Nl • Total phosphates as PO_4 • Total Nitrogen, • Total Dissolved Solids • COD • Total bacterial count, • Coliforms • Escherichia coli • Salmonella • Shigella • Vibrio cholera • Vibrio parahaemolyticus • Enterococci • Colour • Odour • Taste • Turbidity • Calcium as Ca • Chloride as Cl • Cyanide as CN • Fluoride as F • Magnesium as Mg • Total Iron as Fe • Residual Free Chlorine • Phenolic Compounds as $C_6 H_5 OH$ • Total Hardness as $CaCO_3$ • Total Alkalinity as $CaCO_3$ • Sulphide as H_2S • Sulphate as SO_4 • Anionic surfactants as MBAS • Monocrotophos • Atrazine • Ethion • Chiorpyrifos • Phorate • Mehyle parathion • Malathion • DDT (o,p and p,p-Isomers of • DDT,DDE and DDD • Gamma HCH (Lindane) • Alppha HCH • Beta HCH • Delta HCH	Monthly Once

		• Endosulfan (Alpha,betaandsulphate) • Butachlor • Alachlor • Aldrin/Dieldrin • Isoproturon • 2,4-D • Polychlorinated Biphenyls(PCB) • Polynuclear aromatic • hydrocarbons (PAH) • Arsenic as As • Mercury as Hg • Cadmium as Cd • Total Chromium as C • Copper as Cu • Lead as Pb • Manganese as Mn • Nickel as Ni • Selenium as Se • Barium as Ba • Silver as Ag • Molybdenum as Mo • Octane • Nonane • Decane • Undecane • Tridecane • Tetradecane • Pentadecane • Hexadecane • Heptadecane • Octadecane • Nonadecane • Elcosan	
4b.	Sea Sediment	Collection of sea sediment analyzed for - 2 location • pH • Organic Matter • Moisture Content • Conductivity • Iron • Sodium • Copper • Nickel • Zinc • Manganese • Lead • Boron • Phosphate • Chloride • Sulphate • Sulphide • Pesticide • Potassium	Monthly Once

		• Total Chromium • Petroleum Hydrocarbon • Aluminium • Total Nitrogen • Organic Nitrogen • Phosphorus • Texture	
4c.	Phytoplankton Monitoring	• Total Count • No. of species • Chlorophyll-a • Major Species	Monthly Once
4d.	Zooplankton Monitoring	• Total Count • No. of species • Major	Monthly Once
4e.	Microbiological Monitoring	• Total Bacteria count • Total Coliform • Faecal Coliform • E.Coli • Enterococcus • Salmonella • Sheigella • Vibrio	Monthly Once
4f.	Primary Productivity Monitoring	• Gross primary productivity • Net Primary productivity	Monthly Once
4g.	Phytobenthos Monitoring data	• Fungus • Total Count • No. of species • Diversity Index • Major species	Monthly Once
4h.	Total Fauna Monitoring	• Name of phylum • Class • Number of Individuals encountered • Total no. of species encountered • Total fauna	Monthly Once
5.	STP Treated Water	Collection of STP Treated water analyzed for – 2 locations • pH • TSS • BOD • Faecal Coliforms	Monthly Once
6.	Potable Water analysis	Collection of Drinking water analyzed for – 1 locations - As per IS 10500 2012 – 36 Parameters	Monthly Once
7	DG Set Emissions – 3Nos & Liquid Terminal oil Generator	Sampling of Emission at 04 stations for analyzing the following parameters: • PM • Carbon Monoxide • NO_x – NO_2 • SO_2	Monthly Once

IV. METHODOLOGY

Methodologies adopted for sampling and analysis for each of the above parameters are detailed below

1	**Meteorological parameters**	
	Auto weather station	
2	**Ambient Air Quality**	
	Parameters	**Method**
	Respirable Suspended Particulate Matter(PM10)	IS5182Part23:2006
	Particulate Matter PM2.5	GCS/Lab/SOP/087, CPCB Guidelines
	Sulphur dioxide as SO_2	IS5182 Part2 :2001(Reaff.2006)
	Oxides of Nitrogen as NO_2	IS5182 Part6 :2006
	Lead as Pb	IS5182 Part22:2004(Reaff.2009)
	Arsenic as As	GCS/Lab/SOP/089, CPCB Guidelines
	Nickel as Ni	GCS/Lab/SOP/090, CPCB Guidelines
	Carbon monoxide as CO	IS5182Part10:1999(Reaff.2009
	Ozone as O_3	IS5182Part9:1974[Reaff.2009]
	Ammonia as NH_3	GCS/Lab/SOP/086, CPCB Guidelines
	Benzene (α) pyrene	IS 5182 – Part 12
	Benzene as C_6H_6	IS5182Part11:2006
3	**Ambient Noise Monitoring**	
	L_{eq} Day & Night	InstrumentManual, GCS/LAB/SOP/Noise/001
4	**Marine Sampling**	
	Surface and Bottom Water	APHA Methods 23rd Edition, 2017 Standard Methods for examination of Water and Waste water and IS 3025 & USEPA Test Methods
	Sea Sediment	
	Phytoplankton Monitoring	
	Zooplankton Monitoring	
	Microbiological Monitoring	
	Primary Productivity Monitoring	
	Phyto benthos Monitoring data	
	Total Fauna Monitoring	
5	**STP Water Analysis**	
	pH , TSS, BOD , Faecal Coliforms	APHA Methods 23rd Edition, 2017 Standard Methods for examination of Water and Waste water and IS 3025
6	**New Water Analysis**	
	As per IS 10500 : 2012–36 Parameters	APHA Methods 23rd Edition, 2017 Standard Methods for examination of Water and Waste water and IS 3025
7	**Emission Monitoring**	
	PM, Carbon Monoxide, NO_x – NO_2, SO_2	IS 11255 Methods of measurement of emissions from Stationary source

V. ENVIRONMENTAL STUDIES – Oct 2021 - Mar2022

S.No	ATTRIBUTE	SCOPE
1.	Meteorological parameters	Collection of micrometeorological data at project site on daily basis with hourly frequency
2.	Ambient Air Quality	Collection of ambient air at 4 locations.
3.	STP water	Collection of STP outlet water at two locations
4.	Ambient Noise	Collection of Ambient noise levels for day and night at 4 locations
5.	Drinking Water	Collection of Drinking water at Canteen Building
6.	Marine Water and Marine Sediments	Collection of Marine water and Marine Sediments at Three locations
7	DG Set Emissions	Collection of DG Set Emissions.

i. METEOROLOGICAL DATA

Meteorological data was collected on hourly basis by installing an auto weather monitoring station at Plant site. The report depicted hereunder represents the data for the period Oct 2021 - Mar2022.

The following parameters were recorded

- Wind speed
- Wind direction
- Ambient Temperature
- Ambient Pressure
- Relative humidity
- Rainfall

ANNEXURE – 1 MICROMETEOROLOGY DATA
Oct - 2021

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-10-2021 00:00:00 To: 31-10-2021 23:59:59							
Created By: ADANI Created At: 01.11.2021 11:05:35							
Date	*AQMS-Wind_Speed (km/h)*	*AQMS-Wind_Direction (Degree)*	*AQMS-RH (%)*	*AQMS Total Rain Fall (mm)*	*AQMS-Atm. Pressure (mBar)*	*AQMS-Atm. Temperature (Degree)*	*AQMS-Solar_Radiation (w/m2)*
Avg	*4.4*	*185.2*	*95.0*	*152.0*	*1004.1*	*31.3*	*205.8*
Min	*2.9*	*81.5*	*89.0*	*-*	*998.4*	*29.5*	*94.3*
Max	*7.2*	*245.5*	*99.6*	*-*	*1008.5*	*33.0*	*269.9*
01-10-2021	*3.6*	*81*	*97.6*	*0.0*	*1004.0*	*32.0*	*247.1*
02-10-2021	*4.5*	*105*	*96.5*	*4.0*	*1003.9*	*31.9*	*255.7*
03-10-2021	*3.6*	*122*	*97.8*	*3.5*	*1003.7*	*31.7*	*262.9*
04-10-2021	*4.1*	*121*	*95.7*	*0.0*	*1002.9*	*32.1*	*269.9*
05-10-2021	*4.9*	*168*	*99.6*	*25.0*	*1002.5*	*30.1*	*151.7*
06-10-2021	*3.0*	*194*	*94.8*	*1.0*	*1001.5*	*31.7*	*253.7*
07-10-2021	*3.9*	*231*	*96.3*	*2.5*	*1002.2*	*31.8*	*231.0*
08-10-2021	*4.4*	*237*	*93.0*	*2.0*	*1002.4*	*31.6*	*195.5*
09-10-2021	*4.7*	*237*	*92.9*	*8.0*	*1003.1*	*31.3*	*211.0*
10-10-2021	*4.2*	*229*	*94.3*	*0.5*	*1003.0*	*31.4*	*181.0*
11-10-2021	*3.6*	*210*	*97.9*	*0.0*	*1001.9*	*31.2*	*110.1*
12-10-2021	*5.0*	*201*	*94.1*	*0.0*	*1001.7*	*31.1*	*218.7*
13-10-2021	*5.8*	*182*	*93.7*	*0.0*	*1001.3*	*30.6*	*244.6*
14-10-2021	*4.8*	*203*	*92.8*	*0.0*	*1000.6*	*31.3*	*235.6*
15-10-2021	*5.2*	*231*	*94.2*	*0.0*	*998.4*	*31.8*	*209.4*
16-10-2021	*4.1*	*234*	*97.1*	*0.0*	*998.6*	*31.5*	*187.7*
17-10-2021	*2.9*	*239*	*94.0*	*6.0*	*999.8*	*31.3*	*212.4*
18-10-2021	*4.1*	*245*	*91.5*	*0.0*	*1002.2*	*32.2*	*167.3*
19-10-2021	*4.6*	*188*	*90.9*	*0.0*	*1004.8*	*33.0*	*239.5*
20-10-2021	*3.5*	*190*	*95.6*	*0.0*	*1006.9*	*32.6*	*186.4*
21-10-2021	*3.7*	*202*	*94.9*	*0.0*	*1007.6*	*31.6*	*194.4*
22-10-2021	*3.6*	*207*	*91.1*	*0.0*	*1007.8*	*32.0*	*201.7*
23-10-2021	*3.2*	*213*	*92.2*	*18.5*	*1008.3*	*32.0*	*232.4*
24-10-2021	*3.1*	*181*	*95.7*	*8.0*	*1008.2*	*30.8*	*237.1*
25-10-2021	*5.3*	*155*	*92.4*	*11.0*	*1007.0*	*30.5*	*209.4*
26-10-2021	*5.0*	*98*	*89.0*	*0.0*	*1005.9*	*31.4*	*211.6*
27-10-2021	*7.2*	*159*	*92.7*	*0.0*	*1006.3*	*31.0*	*214.3*
28-10-2021	*6.1*	*224*	*98.4*	*1.0*	*1006.3*	*29.6*	*94.3*
29-10-2021	*3.5*	*197*	*98.9*	*7.0*	*1007.3*	*29.5*	*168.2*
30-10-2021	*5.2*	*128*	*99.3*	*27.5*	*1008.5*	*29.8*	*153.3*
31-10-2021	*5.1*	*128*	*99.0*	*26.5*	*1007.9*	*30.1*	*192.4*

Nov - 2021

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-11-2021 00:00:00 To: 30-11-2021 23:59:59							
Created By: ADANI Created At: 05.12.2021 10:47:20							
Date	*AQMS-Wind_Speed (km/h)*	*AQMS-Wind_Direction (Degree)*	*AQMS-RH (%)*	*AQMS Total Rain Fall (mm)*	*AQMS-Atm. Pressure (mBar)*	*AQMS-Atm. Temperature (Degree)*	*AQMS-Solar_Radiation (w/m2)*
Avg	*5.5*	*155.1*	*99.3*	*516.0*	*1005.3*	*29.1*	*119.7*
Min	*1.2*	*74.2*	*96.1*	*-*	*998.8*	*24.9*	*32.0*
Max	*13.6*	*281.0*	*99.9*	*-*	*1008.6*	*31.1*	*253.7*
01-11-2021	*4.6*	*155*	*99.9*	*3.0*	*1007.4*	*29.3*	*101.0*
02-11-2021	*2.6*	*156*	*99.9*	*2.0*	*1007.5*	*28.4*	*32.0*
03-11-2021	*3.3*	*165*	*99.8*	*18.0*	*1007.3*	*29.1*	*121.8*
04-11-2021	*1.3*	*251*	*99.9*	*13.0*	*1007.0*	*27.8*	*57.7*
05-11-2021	*4.3*	*196*	*99.7*	*0.0*	*1006.3*	*29.0*	*140.5*
06-11-2021	*3.4*	*224*	*99.9*	*46.0*	*1005.2*	*28.1*	*110.7*
07-11-2021	*7.6*	*102*	*99.6*	*17.0*	*1004.7*	*28.8*	*73.1*
08-11-2021	*7.4*	*159*	*96.9*	*2.0*	*1006.0*	*29.2*	*56.7*
09-11-2021	*12.1*	*88*	*99.7*	*0.5*	*1006.3*	*29.4*	*78.8*
10-11-2021	*9.0*	*281*	*99.9*	*33.0*	*1004.1*	*24.9*	*47.9*
11-11-2021	*13.5*	*184*	*99.9*	*168.5*	*998.8*	*26.5*	*43.9*
12-11-2021	*3.2*	*191*	*99.7*	*6.0*	*1002.5*	*29.1*	*164.8*
13-11-2021	*2.0*	*212*	*97.7*	*0.5*	*1004.2*	*29.9*	*179.8*
14-11-2021	*2.6*	*126*	*99.2*	*0.0*	*1004.5*	*30.5*	*226.2*
15-11-2021	*1.2*	*146*	*99.9*	*8.5*	*1003.4*	*29.5*	*110.9*
16-11-2021	*1.6*	*174*	*98.1*	*2.5*	*1003.8*	*29.9*	*207.5*
17-11-2021	*4.2*	*136*	*99.9*	*12.0*	*1005.3*	*29.7*	*103.3*
18-11-2021	*13.6*	*86*	*99.9*	*30.0*	*1001.5*	*29.6*	*63.4*
19-11-2021	*6.2*	*205*	*99.9*	*2.5*	*1000.0*	*29.5*	*109.8*
20-11-2021	*3.4*	*229*	*99.9*	*5.5*	*1001.5*	*28.5*	*56.7*
21-11-2021	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
22-11-2021	*4.8*	*110*	*99.7*	*10.0*	*1006.9*	*30.2*	*253.7*
23-11-2021	*3.7*	*119*	*98.7*	*0.5*	*1006.7*	*30.5*	*202.3*
24-11-2021	*4.2*	*74*	*96.1*	*0.0*	*1006.5*	*31.1*	*207.2*
25-11-2021	*10.0*	*79*	*98.6*	*6.0*	*1006.5*	*30.9*	*181.5*
26-11-2021	*10.9*	*81*	*99.9*	*22.0*	*1006.8*	*29.5*	*78.5*
27-11-2021	*5.7*	*148*	*99.9*	*31.5*	*1007.2*	*28.3*	*97.3*
28-11-2021	*4.1*	*153*	*99.9*	*64.0*	*1008.0*	*27.8*	*87.0*
29-11-2021	*2.4*	*169*	*99.9*	*11.5*	*1008.6*	*28.9*	*95.3*
30-11-2021	*6.4*	*96*	*98.3*	*0.0*	*1008.5*	*30.5*	*180.8*

Dec - 2021

Marine Infrastructure Developer Private Ltd

Report Type: Average Report

From: 01-12-2021 00:00:00 To: 31-12-2021 23:59:59

Created By: ADANI Created At: 03.01.2022 11:30:35

Date	AQMS-Wind_Speed (km/h)	AQMS-Wind_Direction (Degree)	AQMS-RH (%)	AQMS Total Rain Fall (mm)	AQMS-Atm. Pressure (mBar)	AQMS-Atm. Temperature (Degree)	AQMS-Solar_Radiation (w/m2)
Avg	*5.7*	*116.2*	*89.7*	*30.7*	*1009.7*	*29.0*	*181.1*
Min	*1.4*	*34.0*	*76.2*	*-*	*1007.4*	*26.6*	*21.5*
Max	*11.5*	*206.0*	*99.9*	*-*	*1011.9*	*30.5*	*229.7*
01-12-2021	*6.0*	*86*	*92.7*	*0.0*	*1007.8*	*30.4*	*185.4*
02-12-2021	*7.7*	*82*	*85.9*	*0.0*	*1007.7*	*30.0*	*220.6*
03-12-2021	*6.7*	*153*	*93.4*	*0.5*	*1007.4*	*29.5*	*179.7*
04-12-2021	*3.1*	*180*	*86.3*	*0.0*	*1007.4*	*29.4*	*218.4*
05-12-2021	*1.9*	*206*	*97.1*	*0.0*	*1007.4*	*29.7*	*170.0*
06-12-2021	*2.4*	*152*	*97.2*	*0.0*	*1007.5*	*30.0*	*182.9*
07-12-2021	*4.9*	*110*	*97.6*	*0.0*	*1008.2*	*29.7*	*215.5*
08-12-2021	*5.8*	*34*	*99.9*	*0.0*	*1008.5*	*29.9*	*21.5*
09-12-2021	*NA*	*NA*	*NA*	*0.0*	*NA*	*NA*	*NA*
10-12-2021	*7.1*	*94*	*97.5*	*0.0*	*1010.9*	*29.3*	*28.9*
11-12-2021	*6.7*	*77*	*94.2*	*0.0*	*1010.0*	*30.5*	*222.6*
12-12-2021	*8.3*	*86*	*97.4*	*0.0*	*1010.2*	*30.0*	*188.5*
13-12-2021	*7.6*	*91*	*95.9*	*0.0*	*1009.1*	*30.1*	*175.0*
14-12-2021	*6.5*	*84*	*88.5*	*0.0*	*1008.9*	*30.2*	*145.7*
15-12-2021	*9.1*	*77*	*81.0*	*0.0*	*1009.5*	*29.9*	*194.9*
16-12-2021	*11.5*	*74*	*78.5*	*0.0*	*1010.3*	*29.4*	*194.5*
17-12-2021	*8.4*	*134*	*86.5*	*0.0*	*1010.7*	*28.5*	*166.8*
18-12-2021	*10.5*	*76*	*79.3*	*0.0*	*1010.1*	*28.8*	*200.2*
19-12-2021	*7.8*	*107*	*76.2*	*0.0*	*1011.2*	*28.4*	*212.6*
20-12-2021	*7.7*	*97*	*80.4*	*0.0*	*1011.2*	*28.5*	*160.1*
21-12-2021	*4.1*	*165*	*87.0*	*0.0*	*1011.4*	*27.5*	*208.8*
22-12-2021	*1.8*	*141*	*82.8*	*0.0*	*1010.1*	*27.2*	*210.1*
23-12-2021	*2.0*	*143*	*82.6*	*0.0*	*1009.7*	*26.6*	*229.7*
24-12-2021	*2.6*	*156*	*85.8*	*0.0*	*1009.7*	*27.2*	*218.9*
25-12-2021	*2.5*	*158*	*85.8*	*0.0*	*1010.1*	*27.4*	*224.5*
26-12-2021	*1.4*	*154*	*88.9*	*0.0*	*1011.3*	*27.5*	*208.9*
27-12-2021	*3.0*	*149*	*89.2*	*0.0*	*1011.8*	*28.1*	*221.1*
28-12-2021	*4.7*	*98*	*97.6*	*0.0*	*1010.7*	*28.3*	*121.6*
29-12-2021	*4.0*	*151*	*90.0*	*0.0*	*1010.0*	*28.8*	*215.5*
30-12-2021	*8.4*	*87*	*98.0*	*0.0*	*1011.0*	*29.3*	*132.8*
31-12-2021	*8.6*	*85*	*98.7*	*30.2*	*1011.9*	*29.3*	*156.6*

Jan - 2022

Marine Infrastructure Developer Private Ltd

Report Type: Average Report

From: 01-01-2022 00:00:00 To: 31-01-2022 23:59:59

Created By: ADANI Created At: 01.01.2022 11:10:32

Date	AQMS-Wind_Speed (km/h)	AQMS-Wind_Direction (Degree)	AQMS-RH (%)	AQMS Total Rain Fall (mm)	AQMS-Atm. Pressure (mBar)	AQMS-Atm. Temperature (Degree)	AQMS-Solar_Radiation (w/m2)
Avg	5.1	137	90.7	0.0	1008.9	28.9	199.3
Min	2.1	76	79.4	-	1005.5	26.2	55.0
Max	9.1	247	99.1	-	1012.4	30.4	237.3
01-01-2022	8.5	89	97.1	0.0	1012.4	29.3	140.2
02-01-2022	6.8	83	91.3	0.0	1011.5	29.3	207.2
03-01-2022	5.3	81	84.8	0.0	1010.8	29.1	204.2
04-01-2022	6.6	78	79.4	0.0	1011.2	28.6	215.2
05-01-2022	5.2	133	88.6	0.0	1011.1	27.7	205.9
06-01-2022	4.1	118	92.4	0.0	1010.2	28.2	225.1
07-01-2022	5.2	97	89.7	0.0	1010.3	29.2	179.4
08-01-2022	5.7	85	88.4	0.0	1010.7	29.5	228.1
09-01-2022	4.6	94	88.9	0.0	1009.2	29.1	224.2
10-01-2022	5.0	120	92.9	0.0	1009.2	28.9	237.3
11-01-2022	5.2	87	93.7	0.0	1008.8	29.6	236.3
12-01-2022	6.2	116	91.9	0.0	1008.3	29.8	224.8
13-01-2022	5.1	162	92.8	0.0	1007.6	30.4	221.5
14-01-2022	4.3	156	97.4	0.0	1007.4	29.7	187.0
15-01-2022	4.8	106	96.6	0.0	1008.4	29.8	216.3
16-01-2022	5.9	83	93.1	0.0	1010.1	29.9	234.7
17-01-2022	4.5	212	99.1	0.0	1012.3	26.2	55.0
18-01-2022	3.8	164	90.7	0.0	1011.1	27.8	210.9
19-01-2022	3.4	152	87.5	0.0	1009.5	27.8	232.6
20-01-2022	3.9	164	83.6	0.0	1007.6	27.9	219.2
21-01-2022	3.3	241	89.8	0.0	1007.2	28.1	225.5
22-01-2022	4.3	234	96.6	0.0	1005.6	28.7	213.8
23-01-2022	4.6	236	94.3	0.0	1005.6	29.5	210.7
24-01-2022	2.1	247	94.5	0.0	1005.5	28.8	92.2
25-01-2022	2.3	219	94.1	0.0	1006.0	28.5	174.8
26-01-2022	3.9	179	88.4	0.0	1006.7	29.2	145.2
27-01-2022	5.9	92	86.5	0.0	1007.4	29.5	204.6
28-01-2022	9.1	76	86.1	0.0	1008.9	29.6	236.1
29-01-2022	8.4	93	86.5	0.0	1009.8	29.0	121.6
30-01-2022	4.8	102	86.5	0.0	1008.9	29.0	214.8
31-01-2022	4.1	142	88.1	0.0	1008.1	28.6	235.4

Feb - 2022

Marine Infrastructure Developer Private Ltd

Report Type: Average Report

From: 01-02-2022 00:00:00 To: 28-02-2022 23:59:59

Created By: ADANI Created At: 01.02.2022 10:00:45

Date	AQMS-Wind_Speed (km/h)	AQMS-Wind_Direction (Degree)	AQMS-RH (%)	AQMS Total Rain Fall (mm)	AQMS-Atm. Pressure (mBar)	AQMS-Atm. Temperature (Degree)	AQMS-Solar_Radiation (w/m2)
Avg	*5.0*	*124*	*82.3*	*0.0*	*1008.1*	*29.3*	*245.4*
Min	*2.4*	*78*	*73.9*	*-*	*1004.4*	*27.8*	*217.4*
Max	*7.4*	*236*	*93.5*	*-*	*1011.3*	*30.2*	*276.2*
01-02-2022	*3.2*	*157*	*85.5*	*0.0*	*1007.6*	*28.1*	*244.7*
02-02-2022	*2.4*	*198*	*83.2*	*0.0*	*1008.3*	*27.8*	*253.3*
03-02-2022	*3.1*	*229*	*82.4*	*0.0*	*1007.8*	*28.1*	*228.6*
04-02-2022	*3.6*	*215*	*87.5*	*0.0*	*1006.0*	*28.8*	*217.4*
05-02-2022	*4.7*	*171*	*91.7*	*0.0*	*1007.0*	*29.1*	*225.6*
06-02-2022	*5.9*	*98*	*83.8*	*0.0*	*1009.6*	*29.9*	*230.8*
07-02-2022	*3.9*	*102*	*80.2*	*0.0*	*1010.0*	*29.3*	*239.2*
08-02-2022	*5.2*	*92*	*75.4*	*0.0*	*1008.9*	*29.4*	*256.9*
09-02-2022	*6.5*	*97*	*73.9*	*0.0*	*1009.0*	*29.5*	*237.8*
10-02-2022	*5.9*	*107*	*79.5*	*0.0*	*1008.4*	*29.0*	*254.3*
11-02-2022	*6.1*	*101*	*82.5*	*0.0*	*1008.3*	*29.3*	*245.0*
12-02-2022	*6.3*	*78*	*81.0*	*0.0*	*1007.8*	*29.9*	*232.5*
13-02-2022	*4.1*	*93*	*80.3*	*0.0*	*1007.1*	*29.6*	*248.0*
14-02-2022	*7.4*	*88*	*81.2*	*0.0*	*1007.0*	*29.4*	*224.6*
15-02-2022	*6.3*	*87*	*74.9*	*0.0*	*1007.2*	*29.1*	*240.0*
16-02-2022	*4.9*	*84*	*75.8*	*0.0*	*1005.3*	*29.1*	*237.2*
17-02-2022	*4.6*	*114*	*79.5*	*0.0*	*1004.4*	*28.7*	*273.1*
18-02-2022	*7.4*	*88*	*79.5*	*0.0*	*1006.1*	*29.7*	*237.1*
19-02-2022	*4.9*	*83*	*82.9*	*0.0*	*1008.1*	*29.8*	*236.5*
20-02-2022	*2.9*	*201*	*88.3*	*0.0*	*1007.0*	*29.0*	*251.9*
21-02-2022	*4.6*	*236*	*93.5*	*0.0*	*1005.4*	*29.2*	*231.2*
22-02-2022	*4.1*	*171*	*91.7*	*0.0*	*1007.7*	*29.6*	*239.6*
23-02-2022	*6.2*	*101*	*84.0*	*0.0*	*1010.3*	*30.2*	*276.2*
24-02-2022	*5.4*	*88*	*80.5*	*0.0*	*1011.3*	*29.8*	*262.9*
25-02-2022	*4.7*	*113*	*77.6*	*0.0*	*1010.5*	*29.2*	*266.0*
26-02-2022	*5.8*	*88*	*80.6*	*0.0*	*1010.6*	*29.7*	*248.7*
27-02-2022	*5.7*	*82*	*80.7*	*0.0*	*1010.5*	*29.9*	*269.2*
28-02-2022	*5.5*	*110*	*87.5*	*0.0*	*1009.9*	*29.4*	*263.0*

Mar - 2022

Marine Infrastructure Developer Private Ltd

Report Type: Average Report

From: 01-03-2022 00:00:00 To: 31-03-2022 23:59:59

Created By: ADANI Created At: 01.04.2022 10:30:15

Date	AQMS-Wind_Speed (km/h)	AQMS-Wind_Direction (Degree)	AQMS-RH (%)	AQMS Total Rain Fall (mm)	AQMS-Atm. Pressure (mBar)	AQMS-Atm. Temperature (Degree)	AQMS-Solar_Radiation (w/m2)
Avg	*4.6*	*178*	*89.3*	*0.0*	*1005.6*	*30.8*	*226.2*
Min	*2.6*	*71*	*72.9*	*-*	*1002.3*	*28.4*	*183.8*
Max	*9.5*	*242*	*96.1*	*-*	*1009.8*	*32.7*	*261.4*
01-03-2022	*4.2*	*107*	*86.1*	*0.0*	*1009.8*	*29.4*	*211.3*
02-03-2022	*5.4*	*141*	*91.9*	*0.0*	*1009.3*	*28.4*	*230.6*
03-03-2022	*7.8*	*106*	*92.7*	*0.0*	*1008.7*	*29.4*	*206.0*
04-03-2022	*9.0*	*71*	*82.9*	*0.0*	*1008.1*	*30.3*	*195.5*
05-03-2022	*8.6*	*110*	*81.8*	*0.0*	*1007.4*	*30.3*	*250.9*
06-03-2022	*9.5*	*84*	*72.9*	*0.0*	*1007.4*	*30.2*	*199.7*
07-03-2022	*7.1*	*86*	*82.8*	*0.0*	*1007.7*	*30.8*	*224.3*
08-03-2022	*3.4*	*115*	*90.2*	*0.0*	*1007.6*	*29.8*	*261.4*
09-03-2022	*3.8*	*152*	*87.4*	*0.0*	*1007.1*	*29.5*	*242.6*
10-03-2022	*3.3*	*136*	*91.0*	*0.0*	*1006.9*	*29.2*	*250.2*
11-03-2022	*3.5*	*121*	*90.2*	*0.0*	*1006.5*	*29.4*	*249.9*
12-03-2022	*3.8*	*133*	*90.8*	*0.0*	*1006.1*	*29.1*	*248.4*
13-03-2022	*3.2*	*136*	*87.1*	*0.0*	*1006.4*	*29.8*	*224.6*
14-03-2022	*3.6*	*155*	*88.8*	*0.0*	*1006.5*	*29.9*	*234.5*
15-03-2022	*3.6*	*181*	*84.4*	*0.0*	*1005.0*	*30.0*	*233.9*
16-03-2022	*3.9*	*231*	*83.2*	*0.0*	*1003.5*	*30.3*	*235.7*
17-03-2022	*3.8*	*242*	*80.0*	*0.0*	*1002.8*	*30.8*	*233.2*
18-03-2022	*3.9*	*226*	*90.9*	*0.0*	*1002.9*	*30.4*	*238.6*
19-03-2022	*4.4*	*203*	*94.3*	*0.0*	*1002.8*	*30.9*	*214.5*
20-03-2022	*2.6*	*242*	*95.5*	*0.0*	*1002.4*	*31.7*	*183.8*
21-03-2022	*2.6*	*228*	*96.1*	*0.0*	*1002.3*	*32.2*	*211.0*
22-03-2022	*4.5*	*195*	*88.1*	*0.0*	*1002.7*	*32.7*	*215.4*
23-03-2022	*2.9*	*237*	*96.1*	*0.0*	*1003.2*	*32.3*	*207.7*
24-03-2022	*3.4*	*241*	*94.0*	*0.0*	*1003.8*	*32.1*	*210.1*
25-03-2022	*3.5*	*236*	*92.6*	*0.0*	*1005.0*	*32.2*	*233.2*
26-03-2022	*4.2*	*237*	*92.5*	*0.0*	*1006.6*	*32.1*	*233.6*
27-03-2022	*4.6*	*238*	*93.6*	*0.0*	*1006.8*	*32.0*	*219.3*
28-03-2022	*4.4*	*236*	*93.2*	*0.0*	*1006.0*	*32.1*	*225.0*
29-03-2022	*5.1*	*234*	*93.3*	*0.0*	*1004.6*	*32.1*	*222.0*
30-03-2022	*5.5*	*232*	*92.9*	*0.0*	*1004.0*	*32.4*	*207.8*
31-03-2022	*4.8*	*227*	*92.7*	*0.0*	*1004.6*	*32.3*	*256.2*

ii. AMBIENT AIR QUALITY

Ambient air quality monitoring is required to determine the existing quality of air, evaluation of the effectiveness of control system and to identify areas in need of restoration and their prioritization. In order to generate background data, air quality monitoring is conducted to assess existing level of contamination and to assess possible effects of air contamination occurring in future.

Frequency of Monitoring

The frequency of monitoring that has been followed for sampling of ambient air quality is that one sample per weekly twice at three locations.

DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

Station code	Location	Geographical location	Environmental setting
AAQ1	Near Marine Control Tower	13^0 18'55" N 80^0 20' 45" E	Industrial
AAQ2	Near Port Main Gate	13^0 18'51" N 80^0 19' 28" E	Industrial
AAQ3	Kattupalli village	13^0 18'18" N 80^0 19' 48" E	Village
AAQ4	Kalanji village	13^0 20'8" N 80^0 20' 0" E	Village
CAAQM 1	Port Operating Building	13°18'45.68"N 80°20'25.50"E	Industrial

Fig – 2. AMBIENT AIR SAMPLING STATIONS LOCATION MAP

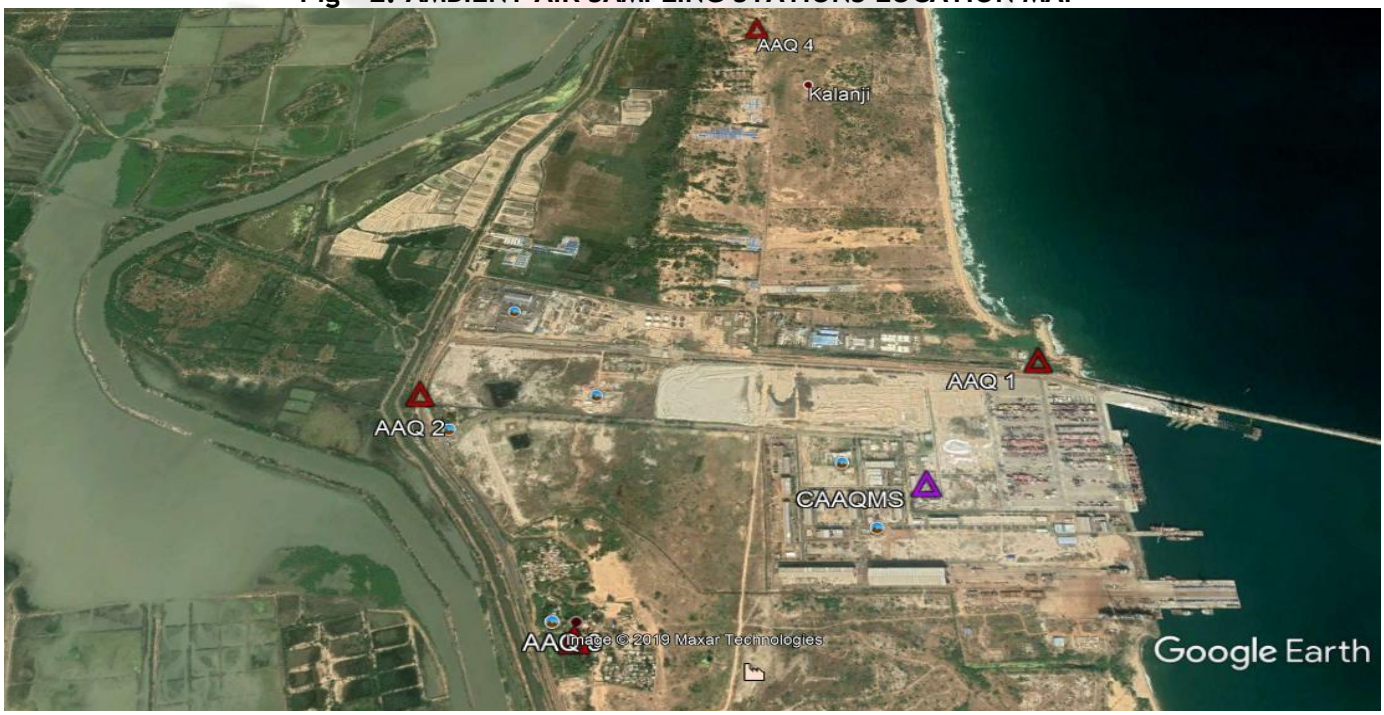
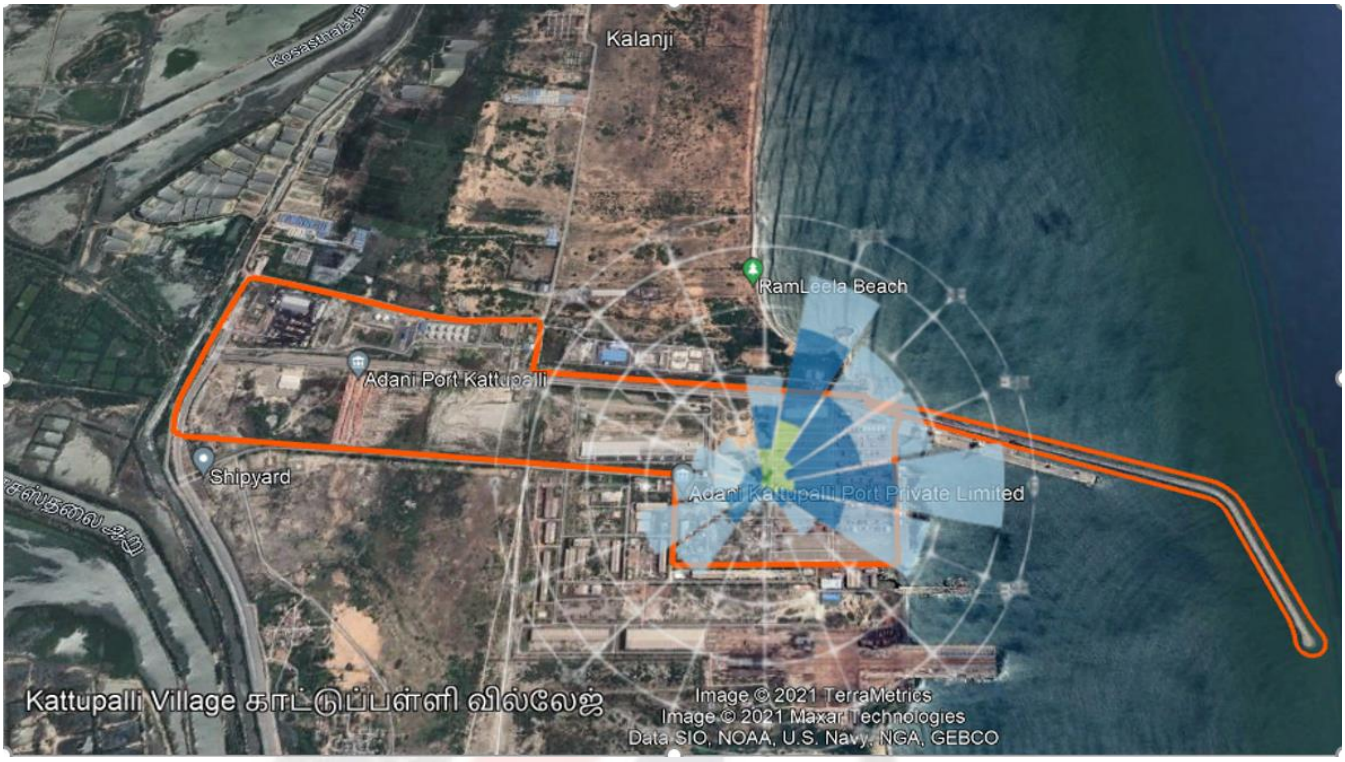


Fig.3.AMBIENT AIR SAMPLINGS STATIONS WITH RESPECT TO WIND



TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

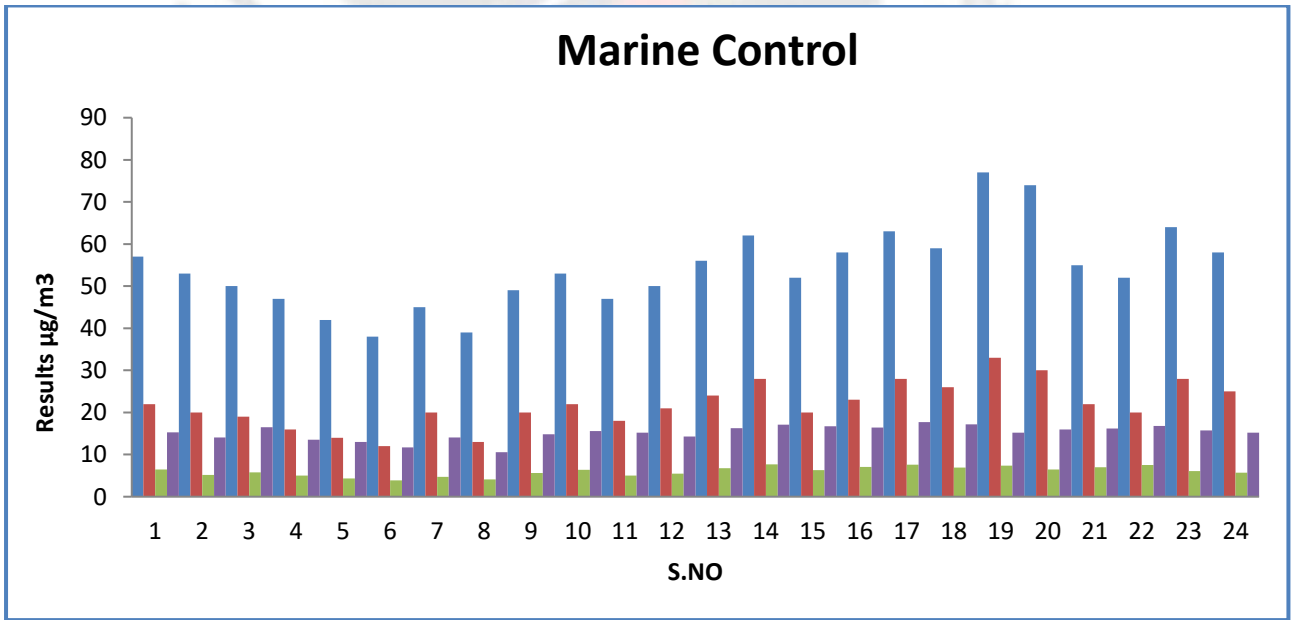
S.No	Parameter	Technique	Unit	Minimum Detectable Limit
1	PM_{10}	Respirable Dust Sampler (Gravimetric method)	$\mu g/m^3$	1.0
2	$PM_{2.5}$	Fine particle Sampler (Gravimetric method)	$\mu g/m^3$	5.0
3	Sulphur Dioxide	Modified West and Gaeke method	$\mu g/m^3$	4.0
4	Nitrogen Oxide	Jacob &Hochheiser method	$\mu g/m^3$	6.0
5	Lead	Atomic Absorption Spectrometry	$\mu g/m^3$	0.5
6	Carbon Monoxide	Draggers Tube	mg/m^3	0.1
7	Ozone	UV Photometric	$\mu g/m^3$	2.0
8	Ammonia	Indophenol blue method	$\mu g/m^3$	2.0
9	Benzene	Gas Chromatography	$\mu g/m^3$	1.0
10	Benzene (α) pyrene	Gas Chromatography	ng/m^3	0.1
11	Arsenic	Atomic Absorption Spectrometry	ng/m^3	1.0
12	Nickel	Atomic Absorption Spectrometry	ng/m^3	5.0

Results and Discussion

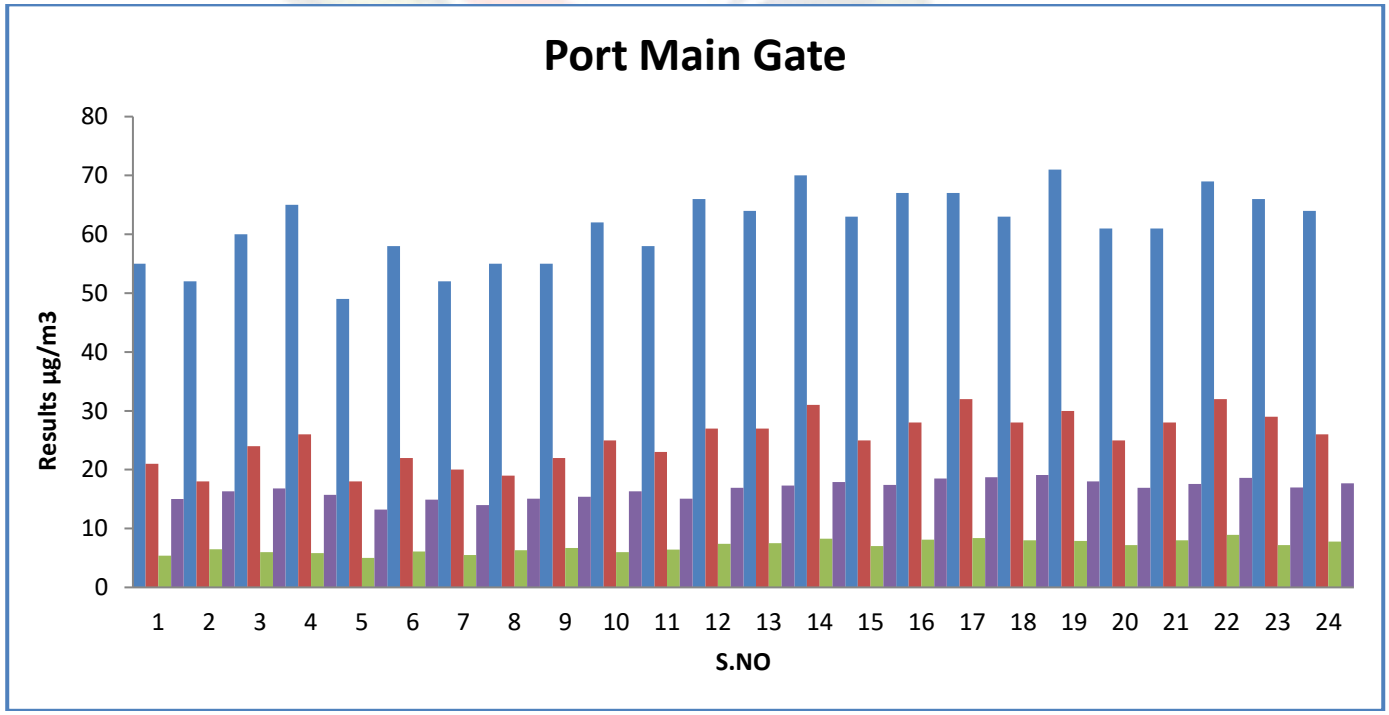
The results of the ambient air quality for the study period are submitted. The minimum, maximum 98th percentile and average values have been computed from the observed raw data for all the AAQ monitoring stations. The summary of these results for all the locations is presented in the Table and the detailed analytical results are shown in Annexure - 2. These are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Industrial, Rural, Residential and other areas"

ANNEXURE - 2 RESULTS OF AMBIENTAIRQUALITYMONITORING DATA

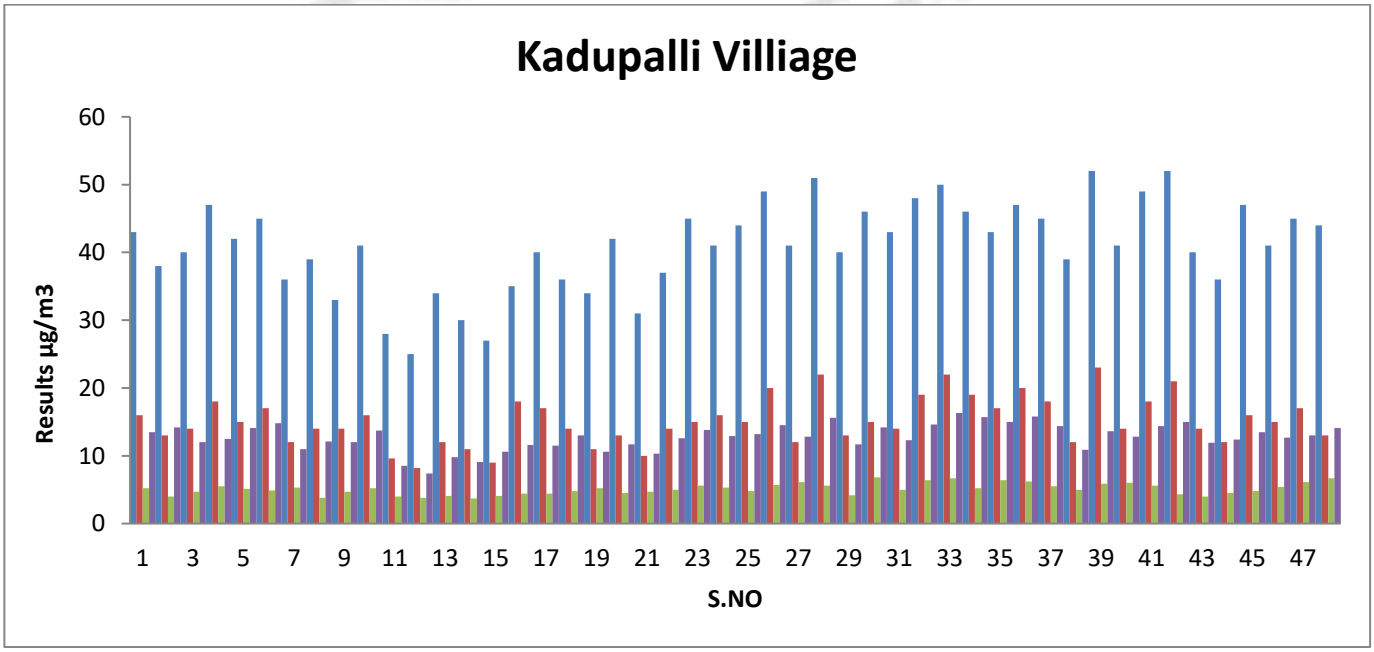
MARINE CONTROL TOWER (AAQ1)													
Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number												
1	11.10.2021	GCS/LAB/S/3835/21-22	57	22	6.5	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	13.10.2021	GCS/LAB/S/3835/21-22	53	20	5.2	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	25.10.2021	GCS/LAB/S/3835/21-22	50	19	5.8	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	27.10.2021	GCS/LAB/S/3835/21-22	47	16	5.0	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	09.11.2021	GCS/LAB/S/3873/21-22	42	14	4.3	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	12.11.2021	GCS/LAB/S/3873/21-22	38	12	3.9	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	22.11.2021	GCS/LAB/S/3873/21-22	45	20	4.7	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	24.11.2021	GCS/LAB/S/3873/21-22	39	13	4.1	10.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	06.12.2021	GCS/LAB/S/3964/21-22	49	20	5.6	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	10.12.2021	GCS/LAB/S/3964/21-22	53	22	6.4	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	20.122021	GCS/LAB/S/3964/21-22	47	18	5.0	15.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	23.12.2021	GCS/LAB/S/3964/21-22	50	21	5.5	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	10.01.2022	GCS/LAB/S/1110/21-22	56	24	6.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	12.01.2022	GCS/LAB/S/1110/21-22	62	28	7.7	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	24.01.2022	GCS/LAB/S/1110/21-22	52	20	6.3	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	27.01.2022	GCS/LAB/S/1110/21-22	58	23	7.1	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	07.02.2022	GCS/LAB/S/1163/21-22	63	28	7.6	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	11.02.2022	GCS/LAB/S/1163/21-22	59	26	6.9	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	21.02.2022	GCS/LAB/S/1163/21-22	67	33	7.4	15.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	23.02.2022	GCS/LAB/S/1163/21-22	64	30	6.5	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	07.03.2022	GCS/LAB/S/1230/21-22	55	22	7.0	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	11.03.2022	GCS/LAB/S/1230/21-22	52	20	7.5	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	21.03.2022	GCS/LAB/S/1230/21-22	64	28	6.1	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	25.03.2022	GCS/LAB/S/1230/21-22	58	25	5.7	15.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1



PORT MAIN GATE (AAQ2)														
Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number												
1	04.10.2021	GCS/LAB/S/3835/21-22	55	21	5.4	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	08.10.2021	GCS/LAB/S/3835/21-22	52	18	6.5	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	18.10.2021	GCS/LAB/S/3835/21-22	60	24	6.0	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	22.10.2021	GCS/LAB/S/3835/21-22	65	26	5.8	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	01.11.2021	GCS/LAB/S/3873/21-22	49	18	5.0	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	05.11.2021	GCS/LAB/S/3873/21-22	58	22	6.1	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	15.11.2021	GCS/LAB/S/3873/21-22	52	20	5.5	14.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	19.11.2021	GCS/LAB/S/3873/21-22	55	19	6.3	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.12.2021	GCS/LAB/S/3964/21-22	55	22	6.7	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	03.12.2021	GCS/LAB/S/3964/21-22	62	25	6.0	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	13.122021	GCS/LAB/S/3964/21-22	58	23	6.4	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	16.12.2021	GCS/LAB/S/3964/21-22	66	27	7.4	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	03.01.2022	GCS/LAB/S/1110/21-22	64	27	7.5	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	07.01.2022	GCS/LAB/S/1110/21-22	60	31	8.3	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	17.01.2022	GCS/LAB/S/1110/21-22	63	25	7.0	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	21.01.2022	GCS/LAB/S/1110/21-22	67	28	8.1	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.02.2022	GCS/LAB/S/1163/21-22	67	32	8.4	18.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.02.2022	GCS/LAB/S/1163/21-22	63	28	8.0	19.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	14.02.2022	GCS/LAB/S/1163/21-22	61	30	7.9	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	18.02.2022	GCS/LAB/S/1163/21-22	61	25	7.2	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	01.03.2022	GCS/LAB/S/1230/21-22	61	28	8.0	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	04.03.2022	GCS/LAB/S/1230/21-22	59	26	8.9	18.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	14.03.2022	GCS/LAB/S/1230/21-22	56	23	7.2	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	18.03.2022	GCS/LAB/S/1230/21-22	54	21	7.8	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1

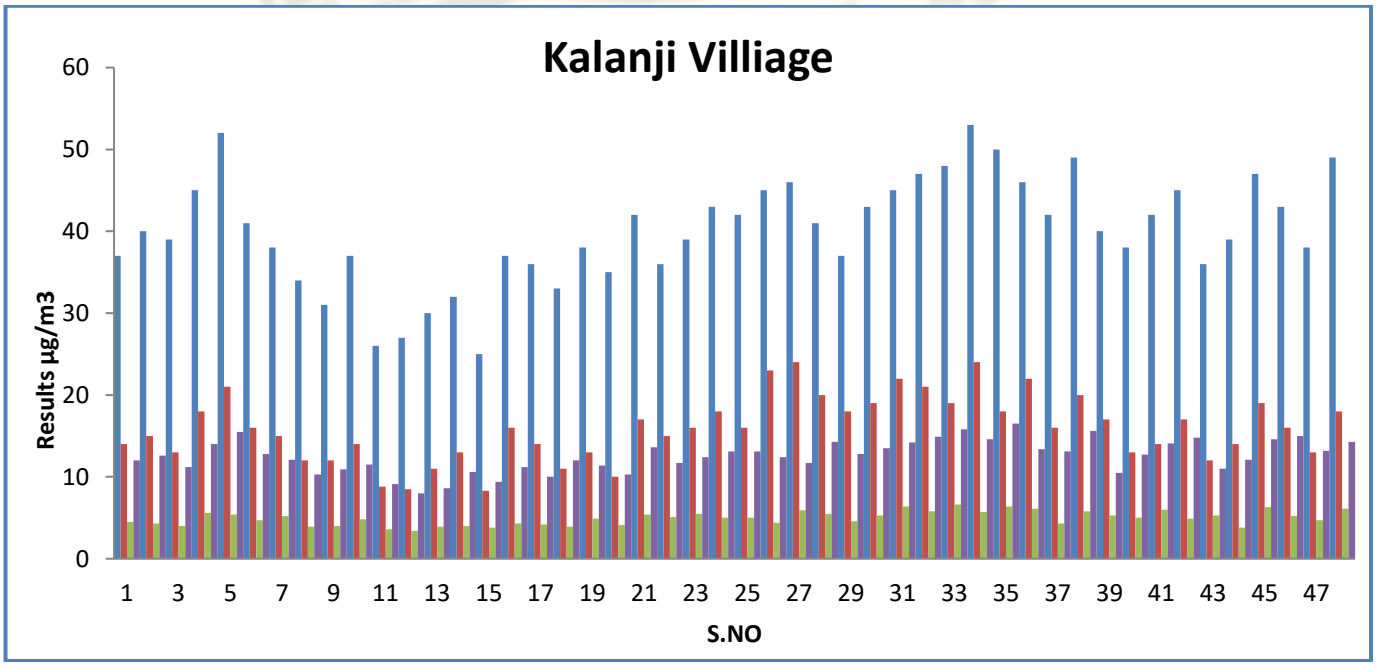


KATTUPALLI VILLAGE (AAQ3)														
Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number												
1	04.10.2021	GCS/LAB/S/3835/21-22	43	16	5.2	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	08.10.2021	GCS/LAB/S/3835/21-22	38	13	4.0	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	11.10.2021	GCS/LAB/S/3835/21-22	40	14	4.7	12.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	13.10.2021	GCS/LAB/S/3835/21-22	47	18	5.5	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	18.10.2021	GCS/LAB/S/3835/21-22	42	15	5.1	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	22.10.2021	GCS/LAB/S/3835/21-22	45	17	4.9	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	25.10.2021	GCS/LAB/S/3835/21-22	36	12	5.3	11.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.10.2021	GCS/LAB/S/3835/21-22	39	14	3.8	12.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.11.2021	GCS/LAB/S/3873/21-22	33	14	4.7	12.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	05.11.2021	GCS/LAB/S/3873/21-22	41	16	5.2	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	09.11.2021	GCS/LAB/S/3873/21-22	28	9.6	4.0	8.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	12.11.2021	GCS/LAB/S/3873/21-22	25	8.2	3.8	7.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	15.11.2021	GCS/LAB/S/3873/21-22	34	12	4.1	9.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	19.11.2021	GCS/LAB/S/3873/21-22	30	11	3.7	9.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	22.11.2021	GCS/LAB/S/3873/21-22	27	9	4.1	10.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	24.11.2021	GCS/LAB/S/3873/21-22	35	18	4.4	11.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.12.2021	GCS/LAB/S/3964/21-22	40	17	4.4	11.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	03.12.2021	GCS/LAB/S/3964/21-22	36	14	4.8	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	06.12.2021	GCS/LAB/S/3964/21-22	34	11	5.2	10.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	07.12.2021	GCS/LAB/S/3964/21-22	42	13	4.5	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	13.122021	GCS/LAB/S/3964/21-22	31	10	4.7	10.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	16.12.2021	GCS/LAB/S/3964/21-22	37	14	5.0	12.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	20.122021	GCS/LAB/S/3964/21-22	45	15	5.6	13.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	23.12.2021	GCS/LAB/S/3964/21-22	41	16	5.3	12.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	03.01.2022	GCS/LAB/S/1110/21-22	44	15	4.8	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	07.01.2022	GCS/LAB/S/1110/21-22	49	20	5.7	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	10.01.2022	GCS/LAB/S/1110/21-22	41	12	6.1	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	11.01.2022	GCS/LAB/S/1110/21-22	51	22	5.6	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	17.01.2022	GCS/LAB/S/1110/21-22	40	13	4.2	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	21.01.2022	GCS/LAB/S/1110/21-22	46	15	6.8	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	24.01.2022	GCS/LAB/S/1110/21-22	43	14	5.0	12.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	27.01.2022	GCS/LAB/S/1110/21-22	48	19	6.4	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	01.02.2022	GCS/LAB/S/1163/21-22	50	22	6.7	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	04.02.2022	GCS/LAB/S/1163/21-22	46	19	5.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	07.02.2022	GCS/LAB/S/1163/21-22	43	17	6.4	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	11.02.2022	GCS/LAB/S/1163/21-22	47	20	6.2	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	14.02.2022	GCS/LAB/S/1163/21-22	45	18	5.5	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	18.02.2022	GCS/LAB/S/1163/21-22	39	12	5.0	10.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	21.02.2022	GCS/LAB/S/1163/21-22	52	23	5.9	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	23.02.2022	GCS/LAB/S/1163/21-22	41	14	6.0	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	01.03.2022	GCS/LAB/S/1230/21-22	49	18	5.6	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	04.03.2022	GCS/LAB/S/1230/21-22	52	21	4.3	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	07.03.2022	GCS/LAB/S/1230/21-22	40	14	4.0	11.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	11.03.2022	GCS/LAB/S/1230/21-22	36	12	4.5	12.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	14.03.2022	GCS/LAB/S/1230/21-22	47	16	4.8	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	18.03.2022	GCS/LAB/S/1230/21-22	41	15	5.4	12.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	21.03.2022	GCS/LAB/S/1230/21-22	45	17	6.1	13.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	25.03.2022	GCS/LAB/S/1230/21-22	44	13	6.7	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1



KALANJI VILLAGE (AAQ4)

Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
National AAQM Standard			100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number												
1	04.10.2021	GCS/LAB/S/3835/21-22	37	14	4.5	12.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	08.10.2021	GCS/LAB/S/3835/21-22	40	15	4.3	12.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	11.10.2021	GCS/LAB/S/3835/21-22	39	13	4.0	11.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	13.10.2021	GCS/LAB/S/3835/21-22	45	18	5.6	14.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	18.10.2021	GCS/LAB/S/3835/21-22	52	21	5.4	15.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	22.10.2021	GCS/LAB/S/3835/21-22	41	16	4.7	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	25.10.2021	GCS/LAB/S/3835/21-22	38	15	5.2	12.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.10.2021	GCS/LAB/S/3835/21-22	34	12	3.9	10.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.11.2021	GCS/LAB/S/3873/21-22	31	12	4.0	10.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	05.11.2021	GCS/LAB/S/3873/21-22	37	14	4.8	11.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	09.11.2021	GCS/LAB/S/3873/21-22	26	8.8	3.6	9.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	12.11.2021	GCS/LAB/S/3873/21-22	27	8.5	3.4	8.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	15.11.2021	GCS/LAB/S/3873/21-22	30	11	3.9	8.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	19.11.2021	GCS/LAB/S/3873/21-22	32	13	4.0	10.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	22.11.2021	GCS/LAB/S/3873/21-22	25	8.3	3.8	9.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	24.11.2021	GCS/LAB/S/3873/21-22	37	16	4.3	11.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.12.2021	GCS/LAB/S/3964/21-22	36	14	4.2	10.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	03.12.2021	GCS/LAB/S/3964/21-22	33	11	3.9	12.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	06.12.2021	GCS/LAB/S/3964/21-22	38	13	4.9	11.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	07.12.2021	GCS/LAB/S/3964/21-22	35	10	4.1	10.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	13.122021	GCS/LAB/S/3964/21-22	42	17	5.4	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	16.12.2021	GCS/LAB/S/3964/21-22	36	15	5.1	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	20.122021	GCS/LAB/S/3964/21-22	39	16	5.5	12.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	23.12.2021	GCS/LAB/S/3964/21-22	43	18	5.0	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	03.01.2022	GCS/LAB/S/1110/21-22	42	16	5.0	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	07.01.2022	GCS/LAB/S/1110/21-22	45	23	4.4	12.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	10.01.2022	GCS/LAB/S/1110/21-22	46	24	5.9	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	11.01.2022	GCS/LAB/S/1110/21-22	41	20	5.5	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	17.01.2022	GCS/LAB/S/1110/21-22	37	18	4.6	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	21.01.2022	GCS/LAB/S/1110/21-22	43	19	5.3	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	24.01.2022	GCS/LAB/S/1110/21-22	45	22	6.4	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	27.01.2022	GCS/LAB/S/1110/21-22	47	21	5.8	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	01.02.2022	GCS/LAB/S/1163/21-22	48	19	6.6	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	04.02.2022	GCS/LAB/S/1163/21-22	53	24	5.7	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	07.02.2022	GCS/LAB/S/1163/21-22	50	18	6.4	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	11.02.2022	GCS/LAB/S/1163/21-22	46	22	6.1	13.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	14.02.2022	GCS/LAB/S/1163/21-22	42	16	4.3	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	18.02.2022	GCS/LAB/S/1163/21-22	49	20	5.8	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	21.02.2022	GCS/LAB/S/1163/21-22	40	17	5.3	10.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	23.02.2022	GCS/LAB/S/1163/21-22	38	13	5.0	12.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	01.03.2022	GCS/LAB/S/1230/21-22	42	14	6.0	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	04.03.2022	GCS/LAB/S/1230/21-22	45	17	4.9	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	07.03.2022	GCS/LAB/S/1230/21-22	36	12	5.3	11.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	11.03.2022	GCS/LAB/S/1230/21-22	39	14	3.8	12.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	14.03.2022	GCS/LAB/S/1230/21-22	47	19	6.3	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	18.03.2022	GCS/LAB/S/1230/21-22	43	16	5.2	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	21.03.2022	GCS/LAB/S/1230/21-22	38	13	4.7	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	25.03.2022	GCS/LAB/S/1230/21-22	49	18	6.1	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1



NATIONAL AMBIENT AIR QUALITY STANDARDS
CENTRAL POLLUTION CONTROL BOARD
NOTIFICATION

New Delhi, the 18th November, 2009

No.B-29016/20/90/PCI-L—In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981), and in super session of the Notification No(s). S.O. 384(E), dated 11th April, 1994 and S.O. 935(E), dated 14th October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted average	Concentration in Ambient Air		Methods of Measurement
			Industrial, Residential, Rural and Other Area	Ecologically sensitive area (notified by Central Govt.)	
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO_2), $\mu g/m^3$	Annual*	50	20	• Improved West and Gaeke • Ultraviolet fluorescence
		24 hours**	80	80	
2	Nitrogen Dioxide (NO_2), $\mu g/m^3$	Annual*	40	30	• Modified Jacob & Hochheiser (Na-Arsenite) • Chemiluminescence
		24 hours**	80	80	
3	Particulate Matter (size less than 10 µm) or PM_{10} µg/m^3	Annual*	60	60	• Gravimetric • TOEM • Beta attenuation
		24 hours**	100	100	
4	Particulate Matter (size less than 2.5 microns) or $PM_{2.5}$ $\mu g/m^3$	Annual*	40	40	• Gravimetric • TOEM • Beta attenuation
		24 hours**	60	60	
5	Ozone (O_3) $\mu g/m^3$	8 hours **	100	100	• UV photometric • Chemiluminescence • Chemical method
		1 hour **	180	180	
6	Lead (Pb) $\mu g/m^3$	Annual*	0.5	0.5	• ASS / ICP method after sampling on EPM 2000 or equivalent filter paper • ED – XRF using Teflon filter
		24 hours**	1.0	1.0	
7	Carbon Monoxide (CO) mg/m^3	8 hours**	2	2	Non Dispersive Infra RED (NDIR) Spectroscopy
		1 hour**	4	4	
8	Ammonia (NH_3) $\mu g/m^3$	Annual*	100	100	• Chemiluminescence • Indophenol blue method
		24 hours**	400	400	
9	Benzene (C_6H_6) $\mu g/m^3$	Annual*	5	5	• Gas chromatography based continuous analyser • Adsorption and desorption followed by GC analysis
10	Benzo (a) Pyrene (BaP) – particulate phase only ng/m^3	Annual*	1	1	Solvent extraction followed by HPLC / GC analysis
11	Arsenic (As) ng/m^3	Annual*	6	6	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni) ng/m^3	Annual*	20	20	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note: Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

iii. AMBIENT NOISE LEVEL INTENSITY

Collection of ambient noise levels at four locations. Spot noise levels where measured with a precalibrated Noise Level Meter – SL- 4023 SD for day and night periods.

DETAILS OF NOISE MONITORING LOCATIONS

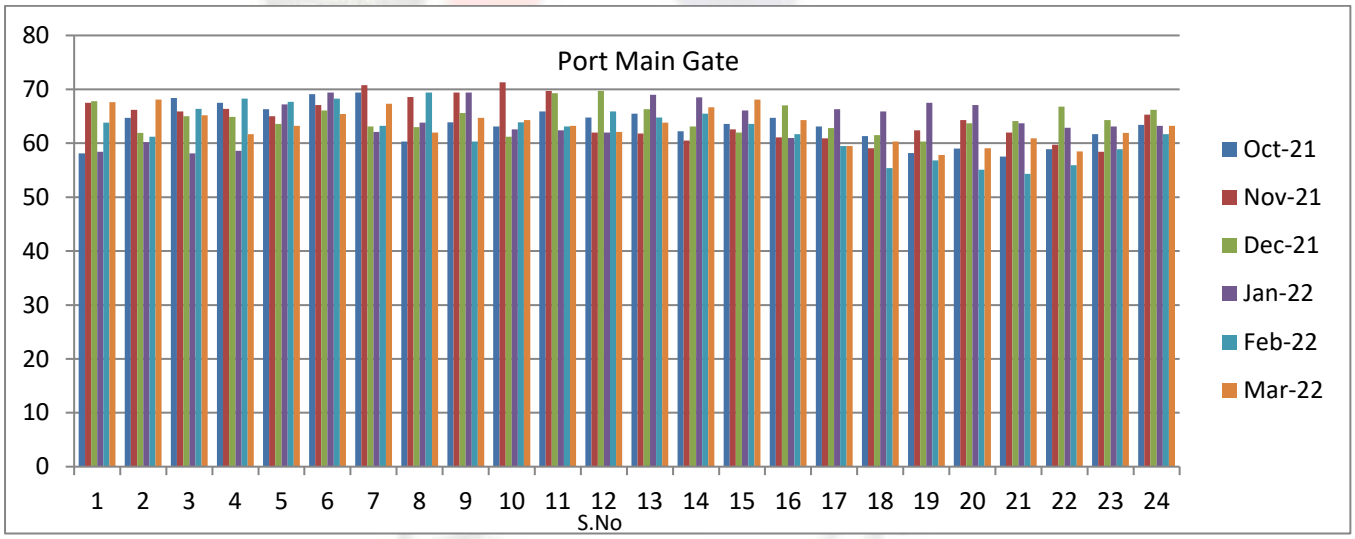
STATION CODE	LOCATIONS	Geographical Location
N1	Port main gate	N 13^0 18.856' E 080^0 19.478'
N2	Marine control tower	N 13^0 18.909' E 080^0 20.756'
N3	Kattupalli village	N 13^0 18.342' E 080^0 19.806'
N4	Kalanji village	N 13^0 20.156' E 080^0 20.023'

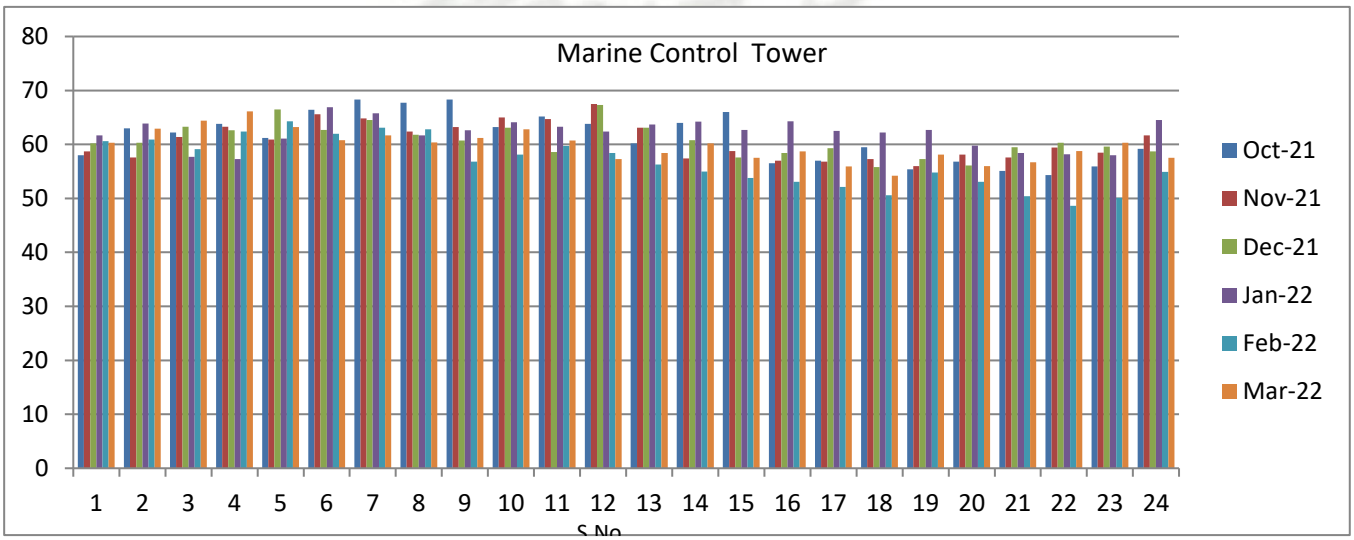
Fig – 4. Noise Level Sampling Locations

The noise levels monitored during the study period are given hereunder in form of Leq day, Leq night compared with CPCB Standards.

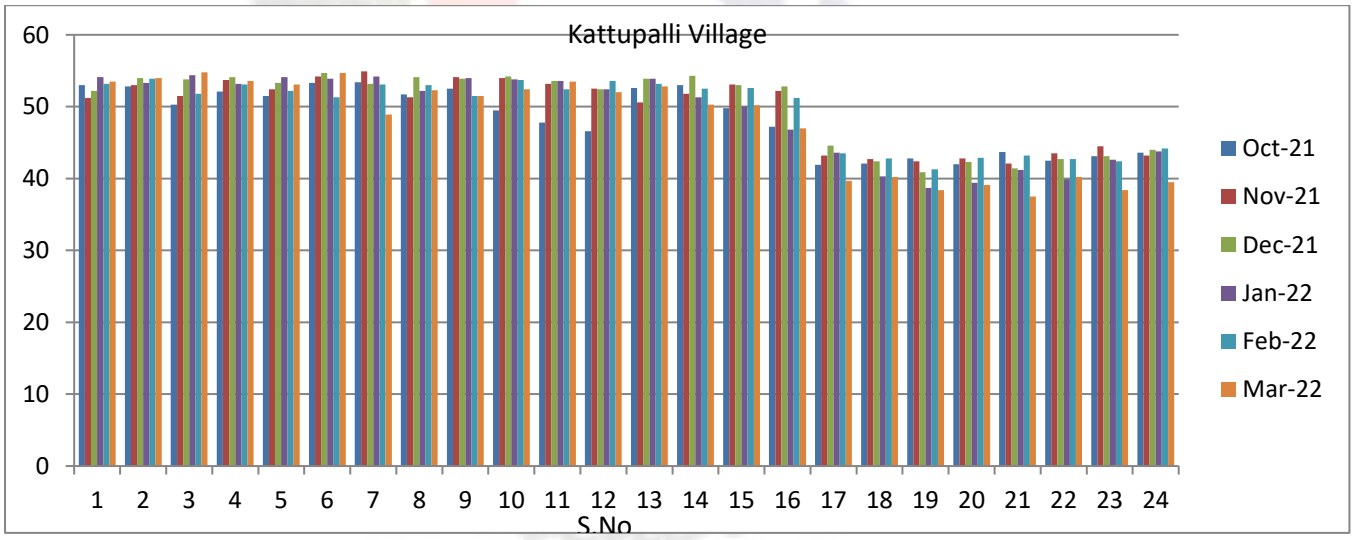
ANNEXURE - 3 RESULTS OF AMBIENT NOISE LEVEL MONITORING DATA

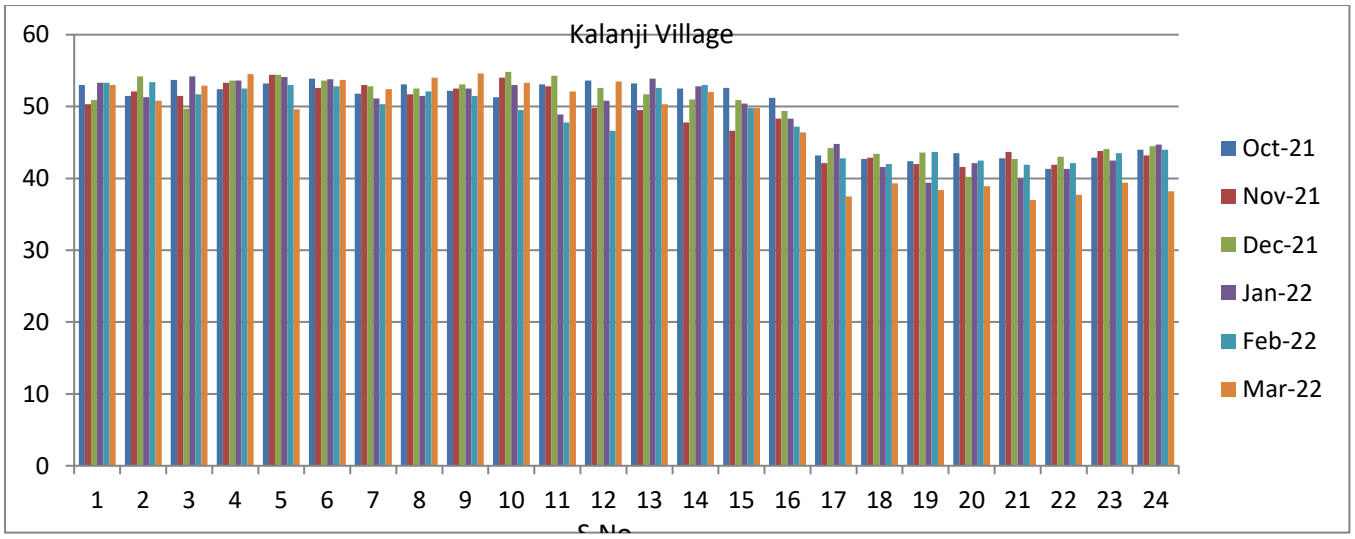
Location		PORT MAIN GATE						MARINE CONTROL TOWER					
Month & Year		Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
Parameter & Unit		Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
S.No	Time of Sampling												
1	06.00 – 07.00 (Day)	58.1	67.5	67.8	58.4	63.8	67.6	58	58.7	60.2	61.7	60.6	60.3
2	07.00 –08.00	64.7	66.2	61.9	60.2	61.2	68.1	63	57.6	60.3	63.9	60.9	62.9
3	08.00 – 09.00	68.4	65.9	65	58.1	66.4	65.2	62.2	61.4	63.3	57.7	59.1	64.4
4	09.00 – 10.00	67.5	66.4	64.9	58.6	68.3	61.7	63.8	63.3	62.6	57.3	62.4	66.1
5	10.00 – 11.00	66.3	65	63.6	67.2	67.7	63.2	61.2	60.9	66.5	61.1	64.3	63.2
6	11.00 – 12.00	69.1	67.1	66.1	69.4	68.3	65.4	66.4	65.6	62.7	66.9	62	60.8
7	12.00 – 13.00	69.4	60.8	63.1	62.1	63.2	67.3	68.3	64.8	64.5	65.8	63.1	61.7
8	13.00 – 14.00	60.3	68.6	63	63.8	69.4	62	67.7	62.4	61.8	61.7	62.8	60.4
9	14.00 – 15.00	63.9	69.4	65.6	69.4	60.3	64.7	68.3	63.2	60.7	62.6	56.8	61.2
10	15.00 – 16.00	63.1	61.3	61.2	62.6	63.9	64.3	63.2	65	63.1	64.1	58.1	62.8
11	16.00 – 17.00	65.9	66.7	69.3	62.4	63.1	63.2	65.2	64.7	58.6	63.3	59.7	60.7
12	17.00 – 18.00	64.8	62	69.7	62	65.9	62.1	63.8	67.5	67.3	62.4	58.4	57.3
13	18.00 – 19.00	65.5	61.8	66.3	69	64.8	63.8	60.2	63.1	63.1	63.7	56.3	58.4
14	19.00 –20.00	62.2	60.5	63.1	68.5	65.5	66.7	64	57.4	60.8	64.2	55	60.2
15	20.00 – 21.00	63.6	62.6	62	66.1	63.6	68.1	66	58.8	57.6	62.7	53.8	57.5
16	21.00 – 22.00	64.7	61.1	67	61	61.7	64.3	56.5	57	58.4	64.3	53.1	58.7
17	22.00 – 23.00 (Night)	63.1	60.9	62.8	66.3	59.5	59.5	57	56.8	59.3	62.5	52.1	55.9
18	23.00 – 00.00	61.3	59.1	61.5	65.9	55.4	60.3	59.5	57.3	55.8	62.2	50.6	54.2
19	00.00 – 01.00	58.2	62.4	60.3	67.5	56.8	57.8	55.4	56	57.3	62.7	54.8	58.1
20	01.00 – 02.00	59	64.3	63.7	67.1	55.1	59.1	56.8	58.1	56.1	59.8	53.1	56
21	02.00 – 03.00	57.5	62	64.1	63.7	54.3	60.9	55.1	57.6	59.5	58.4	50.4	56.7
22	03.00 – 04.00	58.9	59.7	66.8	62.9	55.9	58.5	54.3	59.4	60.3	58.2	48.6	58.8
23	04.00 – 05.00	61.7	58.4	64.3	63.1	58.9	61.9	55.9	58.5	59.6	58	50.1	60.3
24	05.00 – 06.00	63.4	65.3	66.2	63.2	61.7	63.2	59.2	61.7	58.7	64.5	54.9	57.5





Location		KATTUPALLI VILLAGE						KALANJI VILLAGE					
Month & Year		Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
Parameter & Unit		Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
S.No	Time of Sampling												
1	06.00 – 07.00 (Day)	53	51.2	52.2	54.1	53.2	53.5	53	50.3	50.9	53.3	53.3	53
2	07.00 –08.00	52.8	53	54	53.3	53.9	54	51.5	52.1	54.2	51.3	53.4	50.8
3	08.00 – 09.00	50.3	51.5	53.8	54.4	51.8	54.8	53.7	51.5	49.7	54.2	51.7	52.9
4	09.00 – 10.00	52.1	53.7	54.1	53.2	53.1	53.6	52.4	53.3	53.6	53.6	52.5	54.5
5	10.00 – 11.00	51.5	52.4	53.3	54.1	52.2	53.1	53.2	54.4	54.4	54.1	53	49.6
6	11.00 – 12.00	53.3	54.2	54.7	53.9	51.3	54.7	53.9	52.6	53.6	53.8	52.8	53.7
7	12.00 – 13.00	53.4	54.9	53.2	54.2	53.1	48.9	51.8	53	52.8	51.1	50.3	52.4
8	13.00 – 14.00	51.7	51.3	54.1	52.2	53	52.3	53.1	51.7	52.5	51.5	52.1	54
9	14.00 – 15.00	52.5	54.1	53.9	54	51.5	51.5	52.2	52.5	53.1	52.5	51.5	54.6
10	15.00 – 16.00	49.5	54	54.2	53.8	53.7	52.4	51.3	54	54.8	53	49.5	53.3
11	16.00 – 17.00	47.8	53.2	53.6	53.6	52.4	53.5	53.1	52.8	54.3	48.9	47.8	52.1
12	17.00 – 18.00	46.6	52.5	52.4	52.4	53.6	52	53.6	49.8	52.6	50.8	46.6	53.5
13	18.00 – 19.00	52.6	50.6	53.9	53.9	53.2	52.8	53.2	49.5	51.7	53.9	52.6	50.3
14	19.00 –20.00	53	51.8	54.3	51.3	52.5	50.3	52.5	47.8	51	52.8	53	52
15	20.00 – 21.00	49.8	53.1	53	50	52.6	50.2	52.6	46.6	50.9	50.4	49.8	49.8
16	21.00 – 22.00	47.2	52.2	52.8	46.8	51.2	47	51.2	48.3	49.4	48.3	47.2	46.4
17	22.00 – 23.00 (Night)	41.9	43.2	44.6	43.6	43.5	39.7	43.2	42.1	44.2	44.8	42.8	37.5
18	23.00 – 00.00	42.1	42.7	42.4	40.3	42.8	40.2	42.7	42.9	43.4	41.6	42	39.3
19	00.00 – 01.00	42.8	42.4	40.9	38.7	41.3	38.4	42.4	42	43.6	39.4	43.7	38.4
20	01.00 – 02.00	42	42.8	42.3	39.4	42.9	39.1	43.5	41.6	40.2	42.1	42.5	38.9
21	02.00 – 03.00	43.7	42.1	41.4	41.2	43.2	37.5	42.8	43.7	42.7	40	41.9	37
22	03.00 – 04.00	42.5	43.5	42.7	39.9	42.7	40.2	41.3	41.9	43	41.3	42.1	37.7
23	04.00 – 05.00	43.1	44.5	43.1	42.6	42.4	38.4	42.9	43.8	44.1	42.5	43.5	39.4
24	05.00 – 06.00	43.6	43.2	44	43.8	44.2	39.5	44	43.2	44.5	44.7	44	38.2





Ambient Air Quality Standards in respect of Noise

Area Code	Category of Area / Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

Note:- 1. Day time shall mean from 6.00 a.m. to 10.00 p.m.
2. Night time shall mean from 10.00 p.m. to 6.00 a.m.
3. Silence zone is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority
4. Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority.

* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A "decibel" is a unit in which noise is measured.

"A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is an energy mean of the noise level over a specified period.

iv. DG SET EMISSIONS

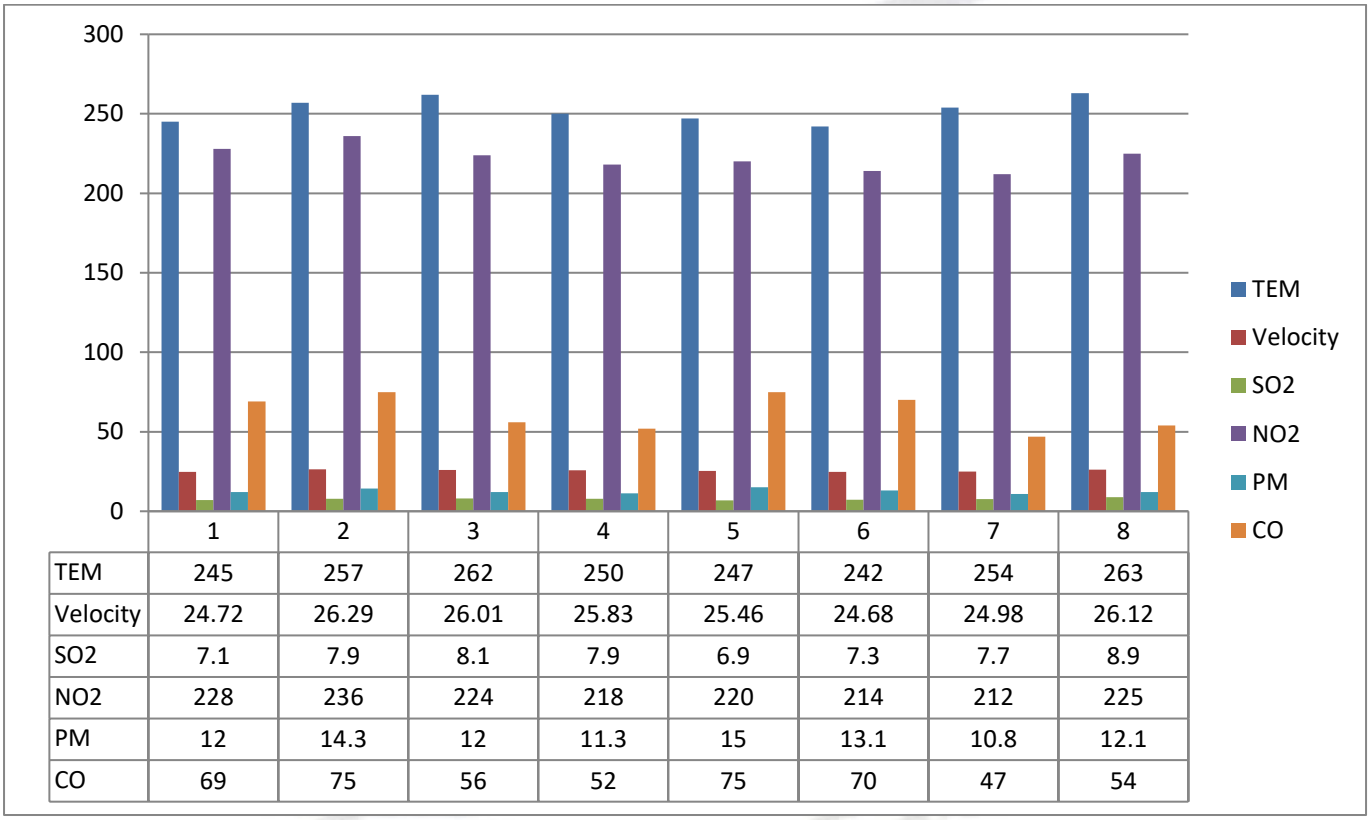
Sampling of Flue gas emission of 2000 KVA DG Set was done and its emissions were determined along with its noise intensity. The Detailed report has been is enclosed as Annexure - 4

DETAILS OF EMISSION MONITORING LOCATIONS

STATION CODE	LOCATIONS	Geographical Location
SM – 1	DG – 1 2000 KVA	13^0 19'6" N 80^0 19' 34" E
SM – 2	DG – 2 2000 KVA	
SM - 3	DG 125 KVA	13^0 18'36" N 80^0 20' 25" E
SM - 3	Liquid Terminal Hot Oil Generator Stack	13^0 19'2.38" N 80^0 20' 6.81" E

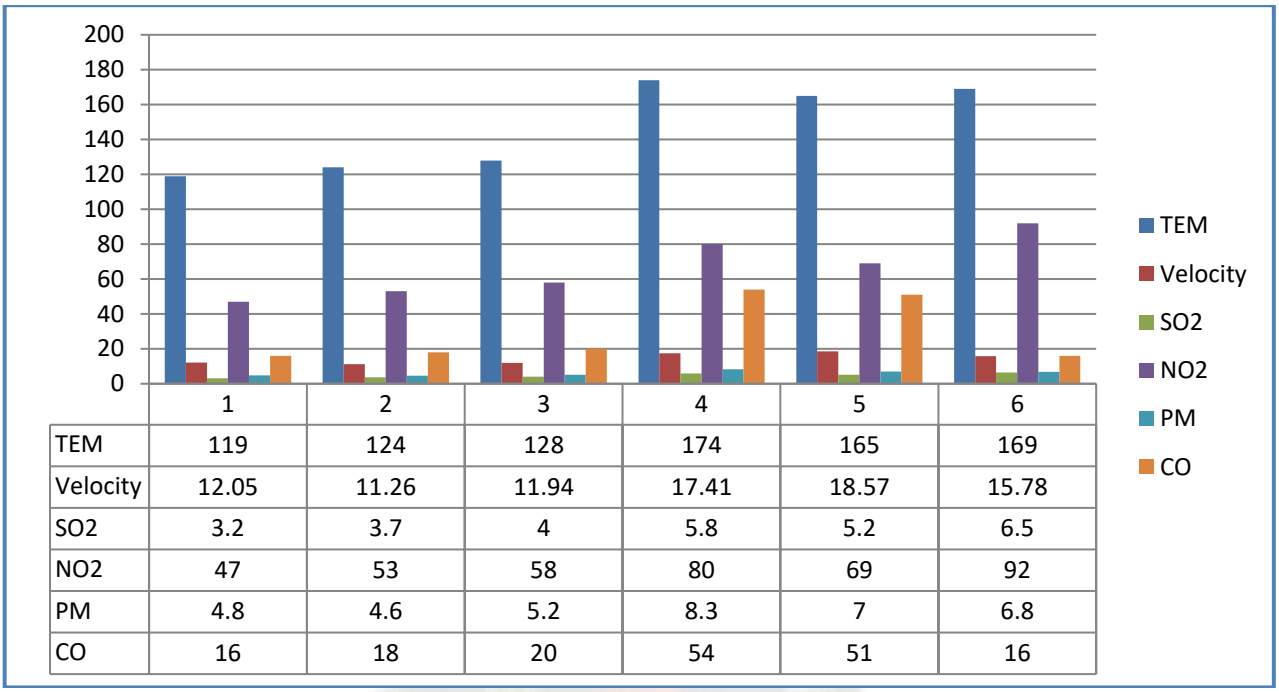
ANNEXURE - 4 RESULTS OF SOURCE EMISSION MONITORING DATA

STACK MONITORING									
Location		DG 2000KVA - 1				DG 2000KVA - 2			
Month & Year		Oct-21	Nov -21	Jan-22	Mar-22	Oct-21	Dec-21	Feb-22	Mar-22
S.No.	Parameters								
1	Stack Temperature, °C	245	257	262	250	247	242	254	263
2	Flue Gas Velocity, m/s	24.72	26.29	26.01	25.83	25.46	24.68	24.98	26.12
3	Sulphur Dioxide, mg/Nm3	7.1	7.9	8.1	7.9	6.9	7.3	7.7	8.9
4	NOX (as NO2) in ppmv	228	236	224	218	220	214	212	225
5	Particular matter, mg/Nm3	12	14.3	12	11.3	15	13.1	10.8	12.1
6	Carbon Monoxide, mg/Nm3	69	75	56	52	75	70	47	54
7	Gas Discharge, Nm3/hr	6420	6674	6543	6645	6587	6447	6376	6557



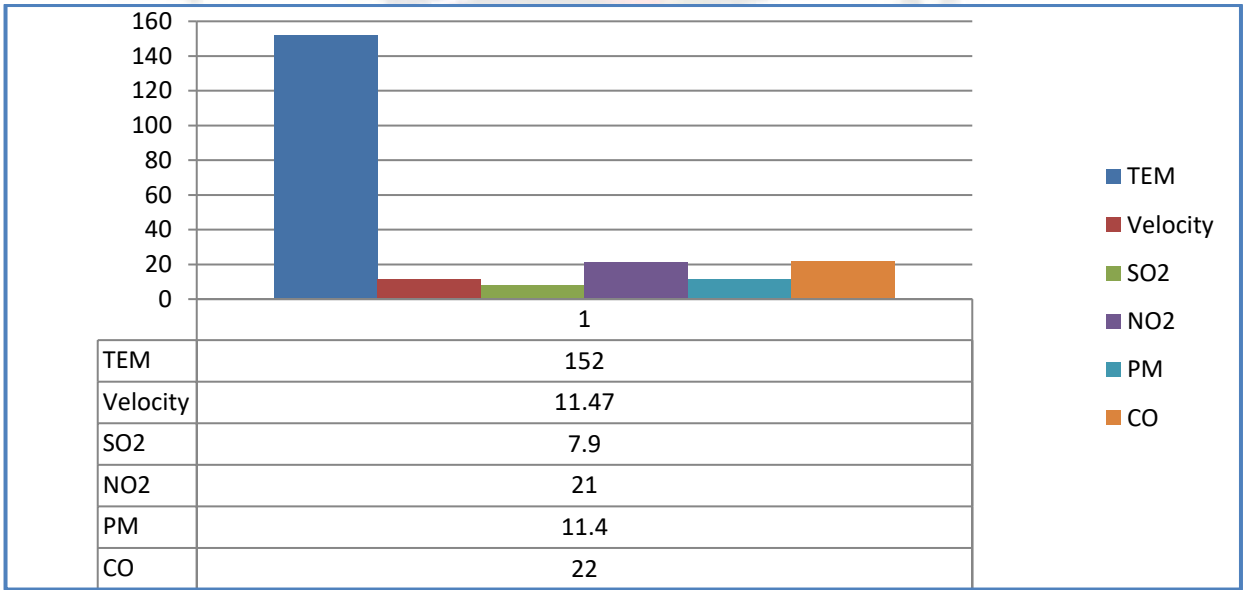
	1	2	3	4	5	6	7	8
TEM	245	257	262	250	247	242	254	263
Velocity	24.72	26.29	26.01	25.83	25.46	24.68	24.98	26.12
SO2	7.1	7.9	8.1	7.9	6.9	7.3	7.7	8.9
NO2	228	236	224	218	220	214	212	225
PM	12	14.3	12	11.3	15	13.1	10.8	12.1
CO	69	75	56	52	75	70	47	54

STACK MONITORING							
Location		DG 125 KVA			DG 500 KVA		
Month & Year		Oct-21	Dec-21	Mar -22	Oct-21	Nov-21	Jan-22
S.No.	Parameters						
1	Stack Temperature, °C	119	124	128	174	165	169
2	Flue Gas Velocity, m/s	12.05	11.26	11.94	17.41	18.57	15.78
3	Sulphur Dioxide, mg/Nm3	3.2	3.7	4	5.8	5.2	6.5
4	NOX (as NO2) in ppmv	47	53	58	80	69	92
5	Particular matter, mg/Nm3	4.8	4.6	5.2	8.3	7	6.8
6	Carbon Monoxide, mg/Nm3	16	18	20	54	51	16
7	Gas Discharge, Nm3/hr	581	535	563	1732	1886	1588



	1	2	3	4	5	6
TEM	119	124	128	174	165	169
Velocity	12.05	11.26	11.94	17.41	18.57	15.78
SO2	3.2	3.7	4	5.8	5.2	6.5
NO2	47	53	58	80	69	92
PM	4.8	4.6	5.2	8.3	7	6.8
CO	16	18	20	54	51	16

STACK MONITORING		
Location		Liquid Terminal Hot Oil Generator
Month & Year		Feb-22
S.No.	Parameters	
1	Stack Temperature, °C	152
2	Flue Gas Velocity, m/s	11.47
3	Sulphur Dioxide, mg/Nm3	7.9
4	NOX (as NO2) in ppmv	21
5	Particular matter, mg/Nm3	11.4
6	Carbon Monoxide, mg/Nm3	22
7	Gas Discharge, Nm3/hr	36254



	1
TEM	152
Velocity	11.47
SO2	7.9
NO2	21
PM	11.4
CO	22

Parameter		Area Category	Total engine rating of the plant (includes existing as well as new generator sets)	Generator sets commissioning date		
				Before 1.7.2003	Between 1.7.2003 and 1.7.2005	On or after 1.7.2005
NO_X (as NO_2) (At 15% O_2, dry basis, in ppmv		A	Up to 75 MW	1100	970	710
		B	Up to 150 MW			
		A	More than 75 MW	1100	710	360
		B	More than 150 MW			
NMHC (as C) (at 15% O_2), mg/Nm^3		Both A and B		150	100	
PM (at 15% O_2), mg/Nm^3	Diesel Fuels- HSD & LDO	Both A and B		75	75	
	Furnace Oils- LSHS & FO	Both A and B		150	100	
CO (at 15% O_2), mg/Nm^3		Both A and B		150	150	

[1] Inserted by Rule 2(b) of the Environment (Protection) Second Amendment Rules, 2008 notified by G.S.R.280(E), dated 11.4.2008.

[2] Serial No.96 and entries relating thereto inserted by Rule 2 of the Environment (Protection) Third Amendment Rules, 2002 notified vide Notification G.S.R.489(E), dated 9.7.2002.

v. STP WATER SAMPLE ANALYSIS

Water samples were collected at the following points.

- 30 KLD Treated Water Outlet
- 5 KLD Treated Water Outlet

DETAILS OF STP WATER LOCATIONS

STATION CODE	LOCATIONS	Geographical Location
STP – 1	30 KLD	13^0 18'36" N 80^0 20' 25" E
STP – 2	5 KLD	13^0 19'6" N 80^0 19' 35" E

Analysis results of the water sample collected from the above location are enclosed as Annexure – 5.

ANNEXURE - 5 RESULTS OF STP WATER QUALITY DATA

STP WATER													
Location		STP 5KLD INLET						STP 5KLD OUTLET					
Month & Year		Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No	Parameters												
1	pH @ 25°C	7.02	6.91	7.18	7.11	7.4	6.92	7.39	7.34	7.63	7.73	7.68	7.27
2	Total Suspended Solids	86	54	27	54	26	40	2.8	26	3.6	4	2.1	8.4
3	BOD at 27°C for 3 days	62	46	36	72	56	72	4.5	8	5.2	5.9	4.8	7.8
4	Fecal Coliform	540	410	210	340	300	520	8.4	120	60	78	86	110
5	COD	296	262	189	268	296	364	20	44	28	35	30	34
6	Oil & Grease	7.4	5.7	2.5	3.6	3.9	4.3	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	1382	848	824	981	1048	1186	1078	782	690	656	794	892
8	Chlorides (as Cl)	548	402	245	274	382	402	445	377	313	284	367	188
9	Sulphates (as SO_4)	38	5.45	23	29	42	38	16	30	38	100	23	21

STP WATER													
Location		STP 10KLD INLET						STP 10KLD OUTLET					
Month & Year		Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No	Parameters												
1	pH @ 25°C	7.74	7.36	7.16	7.32	7.19	7.25	7.98	7.42	7.6	7.56	7.57	7.86
2	Total Suspended Solids	46	128	48	64	52	64	7.2	26	7.8	7	19	11
3	BOD at 27°C for 3 days	68	55	51	82	75	82	4.8	12	16	15	15	9.6
4	Fecal Coliform	410	360	280	320	410	510	82	90	140	110	146	110
5	COD	312	274	209	324	346	378	36	76	97	58	37	28
6	Oil & Grease	4.5	4.8	3.6	5	5.4	5.2	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	1268	1330	1088	926	908	1140	374	750	794	842	821	918
8	Chlorides (as Cl)	479	519	435	367	352	398	44	269	288	333	305	326
9	Sulphates (as SO_4)	41	2.42	30	45	33	26	30	1.45	87	5.6	17	15

STP WATER													
Location		STP 30KLD INLET						STP 30KLD OUTLET					
Month & Year		Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No	Parameters												
1	pH @ 25°C	6.5	6.46	7.25	6.98	7.38	7.20	7.12	7.03	7.41	7.57	7.71	7.63
2	Total Suspended Solids	118	98	158	176	82	94	18	22	20	12.0	19	17
3	BOD at 27°C for 3 days	319	172	346	314	196	226	5	11	7	7	11	12
4	Fecal Coliform	1480	1320	2400	2100	1780	1840	190	240	94	80	146	160
5	COD	362	424	1292	1156	814	962	38	72	36	40	58	46
6	Oil & Grease	9.3	8.5	10	8.2	7.7	9.4	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	1758	918	1136	918	1362	1518	1302	812	842	734	804	1126
8	Chlorides (as Cl)	665	430	401	338	551	604	313	372	308	296	412	238
9	Sulphates (as SO_4)	40	82	60	34	28	32	14	39	84	5.2	14	20

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 13th October, 2017

G.S.R. 1265(E).—In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. **Short title and commencement.**—(1) These rules may be called the Environment (Protection) Amendment Rules, 2017.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in Schedule – I, after serial number 104 and the entries relating thereto, the following serial number and entries shall be inserted, namely:—

Sl. No.	Industry	Parameters	Standards	
1	2	3	4	
		Effluent discharge standards (applicable to all mode of disposal)		
"105	Sewage Treatment Plants (STPs)		Location	Concentration not to exceed
			(a)	(b)
		pH	Anywhere in the country	6.5-9.0
		Bio-Chemical Oxygen Demand (BOD)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	20
			Areas/regions other than mentioned above	30
		Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	<50
			Areas/regions other than mentioned above	<100
		Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml	Anywhere in the country	<1000
*Metro Cities are Mumbai, Delhi, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Pune.				

vi. DRINKING WATER SAMPLE ANALYSIS

Drinking Water samples were collected at the Canteen or Office Building. Analysis results of the water sample collected from the above location are enclosed as Annexure – 6.

vii. RAW WATER SAMPLE ANALYSIS

Raw water samples were collected at the Pond. Analysis results of the water sample collected from the above location are enclosed as Annexure – 7.

ANNEXURE – 6 RESULTS OF WATER SAMPLE (DRINKING WATER) QUALITY DATA

DRINKING WATER								
Month & Year		Unit	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No.	Parameters							
1	pH @ 25°C	-	8.20	7.06	6.76	7.61	7.46	7.78
2	Total Hardness as CaCo3	mg/L	5.9	BDL(DL:1.0)	6.0	34	BDL(DL:1.0)	BDL(DL:1.0)
3	Chloride as Cl	mg/L	19	14	27	100	12	22
4	Total Dissolved Solids	mg/L	38	22	42	196	26	30
5	Calcium as Ca	mg/L	0.79	BDL(DL:0.4)	1.6	3.2	BDL(DL:0.4)	BDL(DL:0.4)
6	Sulphate as SO4	mg/L	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
7	Total Alkalinity as CaCo3	mg/L	5.05	6.5	11	15	11	13
8	Magnesium as Mg	mg/L	0.96	BDL(DL:0.24)	0.48	6.3	BDL(DL:0.24)	BDL(DL:0.24)
9	Color	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
10	Odour	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
11	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
12	Turbidity	NTU	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
13	Nitrate as No3	mg/L	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)	BDL(DL:1.0)
14	Iron as Fe	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
15	Total Residual Chlorine	mg/L	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
16	Copper as Cu	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
17	Manganese as Mn	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
18	Fluoride as F	mg/L	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
19	Phenolic compounds as C_6H_5OH	mg/L	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)
20	Mercury as Hg	mg/L	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)
21	Cadmium as Cd	mg/L	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)
22	Selenium as Se	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
23	Arsenic as As	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
24	Lead as Pb	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
25	Zinc as Zn	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
26	Anionic Detergents as MBAS	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
27	Total Chromium as Cr	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
28	Phenolphthalein Alkalinity as $CaCO_3$	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
29	Aluminium as Al	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
30	Boron as B	mg/L	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
31	Mineral Oil	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
32	Polynuclear Aromatic Hydrocarbons as	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
33	Pesticides	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
34	Cyanide as CN	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
35	E. coli	MPN/100ml	Absence	Absence	Absence	Absence	Absence	Absence
36	Total Coliform	MPN/100ml	Absence	Absence	Absence	Absence	Absence	Absence

ANNEXURE – 7RESULTS OF RAINWATER HARVESTING POND WATER SAMPLE QUALITY DATA

RAW WATER SAMPLE						
Month & Year		Unit	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No.	Parameters					
1	pH @ 25°C	-	8.25	8.03	7.68	7.96
2	Total Hardness as CaCo3	mg/L	103	77	65	92
3	Chloride as Cl	mg/L	269	303	147	210
4	Total Dissolved Solids	mg/L	648	612	582	858
5	Calcium as Ca	mg/L	20	14.5	11	16
6	Sulphate as SO4	mg/L	47	28	18	32
7	Total Alkalinity as $CaCo_3$	mg/L	43	32	33	120
8	Magnesium as Mg	mg/L	13	9.9	8.9	13
9	Color	Hazen	<1.0	<1.0	<1.0	<1.0
10	Odour	-	Unobjectionable	Unobjectionable	Unobjectionable	Unobjectionable
11	Taste	-	Agreeable	Dis Agreeable	Dis Agreeable	Dis Agreeable
12	Turbidity	NTU	1.6	0.6	0.5	1.1
13	Nitrate as No3	mg/L	3.45	2.45	2.13	3.86
14	Iron as Fe	mg/L	0.11	0.08	0.06	0.11
15	Total Residual Chlorine	mg/L	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
16	Copper as Cu	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
17	Manganese as Mn	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
18	Fluoride as F	mg/L	0.19	0.22	0.27	0.51
19	Phenolic compounds as C_6H_5OH	mg/L	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)
20	Mercury as Hg	mg/L	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)	BDL(DL 0.001)
21	Cadmium as Cd	mg/L	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)	BDL(DL 0.003)
22	Selenium as Se	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
23	Arsenic as As	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
24	Lead as Pb	mg/L	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)	BDL(DL 0.01)
25	Zinc as Zn	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
26	Anionic Detergents as MBAS	mg/L	Nil	Nil	Nil	Nil
27	Total Chromium as Cr	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
28	Phenolphthalein Alkalinity as $CaCO_3$	mg/L	Nil	Nil	Nil	Nil
29	Aluminium as Al	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
30	Boron as B	mg/L	0.27	0.37	0.31	0.47
31	Mineral Oil	mg/L	Nil	Nil	Nil	Nil
32	Polynuclear Aromatic Hydrocarbons as	mg/L	Nil	Nil	Nil	Nil
33	Pesticides	mg/L	Nil	Nil	Nil	Nil
34	Cyanide as CN	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
35	E. coli	MPN/100ml	Absence	Absence	Absence	Absence
36	Total Coliform	MPN/100ml	Absence	Absence	Absence	Absence

viii. Marine Sampling

Marine Water samples and sediment samples were collected at locations South side berth and North side berth. Analysis data of Marine and sediments as represented in Annexure – 8 & 9.

DETAILS OF MARINE WATER AND SEDIMENT LOCATIONS

STATION CODE	LOCATIONS	Geographical Location
MW – 1 / MS – 1	CB – 1	13^0 18'50" N 80^0 20' 51" E
MW – 2 / MS – 2	CB – 2	13^0 18'46" N 80^0 20' 49" E
MW – 3 / MS – 3	BERTH – 3	13^0 18'41" N 80^0 21' 4" E

Fig – 5. Water and Marine Sampling Locations

ANNEXURE – 8 RESULTS OF MARINE WATER QUALITY DATA

MARINE WATER														
S.NO	PARAMETER	UNITS	CB - 1											
			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	20	35	15	40	20	35	15	45	20	35	15	40
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	8.27	8.36	8.14	8.24	8.03	8.13	7.90	8.06	7.93	8.25	7.94	8.05
4	Temperature	°C	28	28	27	27	28	28	29	29	28	28	30	30
5	Turbidity	NTU	14	31	9.2	34	7.5	26	9.2	44	7.8	35	12	39
6	Total Suspended Solids	mg/L	18	25	15	28	10	20	14	31	12	27	21	30
7	BOD at 27 oC for 3	mg/L	4.1	4.0	4.1	4.5	4.3	4.7	4.6	4.5	4.8	4.8	4.6	4.5
8	COD	mg/L	120	130	135	162	126	152	132	144	124	135	122	136
9	Dissolved oxygen	mg/L	2.6	2.5	2.5	2.3	2.8	2.5	2.9	2.6	2.8	2.7	2.8	2.5
10	Salinity at 25 °C	ppt	31.8	34.8	30.4	28.5	31.2	29.8	39.6	40.7	37.7	38.0	39.5	40.8
11	Oil & Grease	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
Nutrient Parameters														
12	Nitrate as No3	mg/L	7.05	8.45	5.98	7.42	6.75	9.14	6.94	9.49	6.03	7.12	6.96	8.46
13	Nitrite as No2	mg/L	2.41	3.01	2.64	3.44	2.09	3.98	2.57	4.06	2.15	3.68	2.48	3.53
14	Ammonical Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
15	Total Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
16	Inorganic phosphates as PO4	mg/L	4.83	5.42	3.71	5.98	3.12	6.56	4.99	7.40	4.46	6.19	4.92	7.40
17	Silica as SiO2	mg/L	5.47	7.17	5.98	8.03	4.86	9.42	5.23	8.12	5.12	8.84	5.78	6.97
18	Particulate Organic Carbon	µgC/L	15	20	18	23	15	20	14	17	11	15	14	19
19	Pertoleum Hydrocarbons	µg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
Heavy Metals														
20	Cadmium as Cd	mg/L	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)
21	Copper as Cu	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
22	Total Iron as Fe	mg/L	0.58	0.74	0.47	0.81	0.52	0.73	0.49	0.69	0.57	0.78	0.50	0.73
23	Zinc as Zn	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
24	Lead as Pb	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
25	Mercury as Hg	mg/L	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)
26	Nickel as Ni	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
27	Total Chromium as Cr	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
Bacteriological Parameters														
28	Escherichia Coli (ECLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
29	Faecal Coliform (FCLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
30	Pseudomonas aeruginosa (PALO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
31	Streptococcus faecalis (SFLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
32	Shigella (SHLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
33	Salmonella (SLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
34	Total Coliform (TC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
35	Total Viable Count (TVC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
36	Vibrio cholera (VC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
37	Vibrio	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence

CB - 1														
Month & Year			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	9.48	11.07	9.15	11.46	8.48	10.52	9.05	10.12	9.86	10.42	9.05	10.12
39	Chlorophyll a	mg /m3	6.05	6.83	5.29	6.32	6.15	6.86	6.58	7.21	7.21	7.96	6.58	7.21
40	Phaeopigment	mg /m3	2.14	3.52	2.48	3.91	2.47	3.28	3.13	3.75	2.87	3.59	3.13	3.75
41	Total Biomass	ml /100 m3	1.83	1.56	1.74	1.98	1.63	1.80	2.37	2.06	1.65	2.03	2.37	2.06
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	11	15	10	13	15	17	13	12	12	15	13	12
43	Bacteriastrum varians	nos/ml	14	16	12	18	9	12	8	6	7	12	8	6
44	Chaetoceros didymus	nos/ml	12	10	15	17	13	19	19	21	10	13	19	21
45	Chaetoceros decipiens	nos/ml	10	13	8	10	11	6	12	14	8	17	12	14
46	Biddulphia mobiliensis	nos/ml	17	11	14	7	10	13	18	10	6	11	18	10
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	5	8	6	10	12	15	9	11	13	16	9	11
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	13	17	11	14	17	20	16	19	11	9	16	19
51	Coscinodiscus granii	nos/ml	15	19	18	15	8	11	18	22	14	18	18	22
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	23	25	20	22	16	20	17	18	9	7	17	20
54	Laudaria annulata	nos/ml	14	19	13	16	6	8	11	7	13	15	11	7
55	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
56	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
57	Leptocylindrus danicus	nos/ml	19	22	9	12	14	16	13	12	19	24	13	12
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	16	18	17	21	19	24	14	16	12	18	14	16
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	20	24	22	26	14	18	21	23	17	25	21	23
62	Thalassionema nitzschioides	nos/ml	6	8	5	7	9	6	15	17	21	23	15	17
63	Triceratium reticulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
64	Ceratium trichoceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
65	Ceratium furca	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
66	Ceratium macroceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
67	Ceracium longipes	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
ZOOPLANKTONS														
68	Acrocalanus gracilis	nos/ml	11	14	9	12	7	9	19	23	11	15	19	23
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	8	10	11	14	13	16	16	17	9	18	16	17
71	Eutintinus sps	nos/ml	13	16	15	11	10	6	13	14	14	17	13	14
72	Centropages furcatus	nos/ml	12	15	16	19	12	17	11	13	12	10	11	13
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	7	5	10	8	15	12	14	11	18	20	14	11
75	Euterpina acutifrons	nos/ml	16	12	14	10	18	15	10	8	11	14	10	8
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	15	21	17	22	9	13	15	12	17	19	15	12
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	19	18	12	15	16	19	11	10	9	13	11	10
80	Gastropod veliger	nos/ml	17	20	8	17	11	14	20	25	16	20	20	25

S.NO	PARAMETER	UNITS	CB - 2											
			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	10	40	25	40	20	45	15	40	25	35	15	40
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	8.21	8.29	8.29	8.32	8.09	8.21	7.82	8.09	7.97	8.19	7.86	8.12
4	Temperature	°C	28	28	27	27	28	28	29	29	28	28	30	30
5	Turbidity	NTU	17	37	13	35	8.4	31	10	37	8.5	31	10	37
6	Total Suspended Solids	mg/L	20	30	18	26	12	22	16	26	14	24	20	28
7	BOD at 27 oC for 3	mg/L	4.9	4.6	4.0	4.8	4.4	4.9	4.5	4.4	4.7	4.7	4.3	4.6
8	COD	mg/L	116	142	142	154	120	160	128	137	121	130	115	128
9	Dissolved oxygen	mg/L	2.7	2.4	2.4	2.6	2.6	2.5	2.7	2.6	2.9	2.8	2.7	2.6
10	Salinity at 25 °C	ppt	33.5	36.2	29.6	29.1	30.8	30.3	39.2	39.1	38.2	38.6	39.1	40.0
11	Oil & Grease	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
Nutrient Parameters														
12	Nitrate as No3	mg/L	7.42	10	6.42	8.93	6.96	8.07	6.28	9.21	5.27	8.24	6.27	10.25
13	Nitrite as No2	mg/L	2.78	3.78	2.15	3.56	2.43	4.23	2.23	3.52	2.01	3.96	2.13	2.98
14	Ammonical Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
15	Total Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
16	Inorganic phosphates as PO4	mg/L	4.45	6.96	43.14	6.25	3.07	7.12	5.67	7.85	4.89	7.12	5.59	6.86
17	Silica as SiO2	mg/L	6.13	7.43	5.27	7.98	5.92	8.65	4.35	8.09	4.86	8.92	4.28	7.41
18	Particulate Organic Carbon	µgC/L	12	18	16	21	14	24	16	20	14	17	16	18
19	Pertoleum Hydrocarbons	µg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
Heavy Metals														
20	Cadmium as Cd	mg/L	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)
21	Copper as Cu	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
22	Total Iron as Fe	mg/L	0.41	0.71	0.50	0.78	0.58	0.87	0.453	0.74	0.61	0.70	0.54	0.67
23	Zinc as Zn	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
24	Lead as Pb	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
25	Mercury as Hg	mg/L	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)
26	Nickel as Ni	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
27	Total Chromium as Cr	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
Bacteriological Parameters														
28	Escherichia Coli (ECLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
29	Faecal Coliform (FCLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
30	Pseudomonas aeruginosa (PALO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
31	Streptococcus faecalis (SFLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
32	Shigella (SHLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
33	Salmonella (SLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
34	Total Coliform (TC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
35	Total Viable Count (TVC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
36	Vibrio cholera (VC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
37	Vibrio	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence

CB - 2														
Month & Year			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	9.72	10.90	8.27	10.03	8.91	10.37	8.86	10.21	8.12	9.05	8.86	10.21
39	Chlorophyll a	mg /m3	6.01	7.47	6.85	7.91	6.00	7.34	5.74	5.82	7.45	6.12	5.74	5.82
40	Phaeopigment	mg /m3	2.68	3.12	2.12	3.86	2.73	3.51	2.86	3.91	3.54	3.96	2.86	3.91
41	Total Biomass	ml /100 m3	2.14	1.85	2.49	1.62	1.95	2.08	1.69	1.45	1.58	2.12	1.69	1.45
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	7	11	8	6	11	13	14	12	10	18	14	12
43	Bacteriastrum varians	nos/ml	5	9	9	11	7	10	12	13	9	11	12	13
44	Chaetoceros didymus	nos/ml	13	17	11	14	15	17	10	8	11	14	10	8
45	Chaetoceros decipiens	nos/ml	15	16	7	12	9	8	16	9	13	12	16	9
46	Biddulphia mobiliensis	nos/ml	12	14	10	9	8	12	21	17	12	15	21	17
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	10	12	13	15	10	13	11	5	10	8	11	5
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	19	23	16	13	14	18	9	7	8	13	9	7
51	Coscinodiscus granii	nos/ml	20	25	14	18	12	15	17	14	15	20	17	14
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	14	11	19	16	22	19	20	11	14	9	20	11
54	Laudaria annulata	nos/ml	16	13	12	10	13	7	8	15	19	10	8	15
55	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
56	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
57	Leptocylindrus danicus	nos/ml	17	21	6	15	9	12	19	23	21	17	19	23
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	9	10	15	19	20	26	13	10	10	19	13	10
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	23	26	17	20	12	15	25	22	20	18	25	22
62	Thalassionema nitzschioides	nos/ml	18	20	10	9	8	5	14	10	18	15	14	10
63	Triceratium reticulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
64	Ceratium trichoceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
65	Ceratium furca	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
66	Ceratium macroceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
67	Ceracium longipes	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
ZOOPLANKTONS														
68	Acrocalanus gracilis	nos/ml	15	17	6	10	11	14	10	16	13	16	16	13
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	12	14	15	18	10	8	7	14	16	14	14	17
71	Eutintinus sps	nos/ml	10	11	8	13	5	9	16	10	14	10	10	9
72	Centropages furcatus	nos/ml	9	10	14	17	16	20	5	8	10	16	8	10
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	11	9	7	11	14	17	10	11	12	15	11	17
75	Euterpina acutifrons	nos/ml	15	12	11	16	13	21	17	21	9	13	21	18
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	17	19	13	16	10	7	6	19	13	17	19	20
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	13	15	10	9	18	23	15	17	12	15	17	14
80	Gastropod veliger	nos/ml	23	21	12	14	9	10	11	22	10	21	22	24

S.NO	PARAMETER	UNITS	BERTH - 3											
			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	20	30	25	45	15	30	25	40	15	30	20	35
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	8.17	8.31	8.26	8.37	8.03	8.14	8.15	8.14	8.11	8.24	8.20	8.38
4	Temperature	°C	28	28	27	27	28	28	29	29	28	28	30	30
5	Turbidity	NTU	11	27	14	30	7.6	22	13	20	11	22	8.9	24
6	Total Suspended Solids	mg/L	13	24	16	36	11	18	16	23	14	28	12	30
7	BOD at 27 oC for 3	mg/L	4.9	4.5	4.2	4.4	4.4	4.6	4.6	4.0	4.3	4.5	4.6	5.1
8	COD	mg/L	112	146	135	168	120	148	108	156	105	138	112	147
9	Dissolved oxygen	mg/L	2.8	2.5	2.7	2.3	2.8	2.5	2.7	2.4	2.6	2.5	2.5	2.4
10	Salinity at 25 °C	ppt	37.0	41.2	30.1	34.9	31.5	33.0	34.5	36.1	34.2	35.9	36.9	38.2
11	Oil & Grease	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
Nutrient Parameters														
12	Nitrate as No3	mg/L	6.96	7.42	6.14	7.83	6.86	7.52	6.15	7.89	4.96	6.50	6.12	7.74
13	Nitrite as No2	mg/L	1.84	2.70	1.59	2.11	1.91	2.79	2.13	3.10	1.87	2.42	2.07	3.29
14	Ammonical Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
15	Total Nitrogen	mg/L	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
16	Inorganic phosphates as PO4	mg/L	3.12	4.75	3.78	5.15	3.05	4.27	3.91	5.10	3.13	5.56	3.84	5.08
17	Silica as SiO2	mg/L	5.49	6.92	6.13	7.09	7.83	9.12	6.57	8.19	5.92	7.14	4.86	6.23
18	Particulate Organic Carbon	µgC/L	18	20	15	23	11	19	15	17	12	15	14	17
19	Pertoleum Hydrocarbons	µg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
Heavy Metals														
20	Cadmium as Cd	mg/L	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)	BDL (DL : 0.003)	BDL (DL :0.003)
21	Copper as Cu	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
22	Total Iron as Fe	mg/L	0.47	0.61	0.54	0.78	0.42	0.65	0.48	0.71	0.53	0.79	0.50	0.63
23	Zinc as Zn	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
24	Lead as Pb	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
25	Mercury as Hg	mg/L	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)	BDL (DL : 0.001)	BDL (DL :0.001)
26	Nickel as Ni	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
27	Total Chromium as Cr	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)	BDL (DL : 0.05)
Bacteriological Parameters														
28	Escherichia Coli (ECLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
29	Faecal Coliform (FCLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
30	Pseudomonas aeruginosa (PALO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
31	Streptococcus faecalis (SFLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
32	Shigella (SHLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
33	Salmonella (SLO)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
34	Total Coliform (TC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
35	Total Viable Count (TVC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
36	Vibrio cholera (VC)	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence
37	Vibrio	cfu/ml	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence	Absence

BERTH - 3														
Month & Year			Oct - 21		Nov - 21		Dec - 21		Jan - 22		Feb - 22		Mar - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	8.14	9.92	8.78	10.15	7.68	9.05	8.52	9.74	9.04	10.26	8.71	9.54
39	Chlorophyll a	mg /m3	6.76	8.08	6.91	8.77	7.42	8.37	6.35	7.49	6.47	7.21	5.96	7.48
40	Phaeopigment	mg /m3	3.10	4.83	2.65	3.89	2.14	3.01	3.86	4.27	2.93	3.58	3.78	4.52
41	Total Biomass	ml /100 m3	1.91	2.56	2.13	2.96	2.47	2.80	2.08	2.32	1.85	2.03	1.63	2.17
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	10	15	16	18	14	10	11	15	12	19	9	11
43	Bacteriastrum varians	nos/ml	13	10	10	7	9	13	13	7	16	14	11	13
44	Chaetoceros didymus	nos/ml	7	9	5	11	7	15	15	18	7	12	12	15
45	Chaetoceros decipiens	nos/ml	18	14	13	10	15	17	12	20	11	16	16	18
46	Biddulphia mobiliensis	nos/ml	9	13	11	15	13	18	10	15	13	10	14	16
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	20	22	17	13	12	10	8	6	Nil	Nil	10	12
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	11	17	9	12	7	9	16	12	10	8	9	10
51	Coscinodiscus granii	nos/ml	11	19	14	18	16	12	9	14	14	16	6	8
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	20	16	12	9	19	16	21	18	18	20	15	17
54	Laudaria annulata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
55	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
56	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
57	Leptocylindrus danicus	nos/ml	11	7	15	14	10	17	13	15	17	19	14	9
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	11	18	15	21	18	24	21	25	14	21	10	13
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	21	25	20	23	17	20	19	23	18	24	21	25
62	Thalassionema nitzschioides	nos/ml	17	21	8	16	11	18	7	12	11	16	18	19
63	Triceratium reticulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
64	Ceratium trichoceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
65	Ceratium furca	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
66	Ceratium macroceros	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
67	Ceracium longipes	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
ZOOPLANKTONS														
68	Acrocalanus gracilis	nos/ml	11	14	13	17	10	14	7	16	15	12	13	15
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	8	12	10	14	15	18	14	12	13	17	14	12
71	Eutintinus sps	nos/ml	10	8	7	9	11	13	9	14	19	13	17	19
72	Centropages furcatus	nos/ml	19	21	12	16	16	19	6	10	12	10	15	21
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	13	15	14	18	8	10	13	11	13	16	10	13
75	Euterpina acutifrons	nos/ml	14	10	9	13	5	7	15	9	16	20	11	16
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	16	18	11	15	13	17	12	15	18	22	12	14
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	20	25	16	18	18	20	10	22	21	18	18	21
80	Gastropod veliger	nos/ml	16	19	8	12	12	15	21	17	11	16	9	13

ANNEXURE – 9 RESULTS OF MARINE SEDIMENT QUALITY DATA

SEA SEDIMENT								
Location			CB – 1					
Month & Year		Unit	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No.	Parameters							
1	Total organic matter	%	0.75	0.78	0.85	0.73	0.68	0.64
2	% Sand	%	16	13	12	16	14	17
3	%silt	%	32	34	35	35	33	32
4	%Clay	%	52	53	53	49	53	51
5	Iron (as Fe)	mg/kg	20.4	21.7	25.8	19.4	18.3	17.5
6	Aluminium (as Al)	mg/kg	11264	10012	9476	9948	8964	9428
7	Chromium (as cr)	mg/kg	39	32	39	41	33	43
8	Copper (as cu)	mg/kg	70	58	46	86	79	94
9	Manganese (as Mn)	mg/kg	132	124	115	128	221	160
10	Nickel (as Ni)	mg/kg	14	17	19	20	11.6	19
11	Lead (as Pb)	mg/kg	36	31	22	28	41	21
12	Zinc (as Zn)	mg/kg	252	206	236	324	228	337
13	Mercury(as Hg)	mg/kg	0.37	0.34	0.32	0.31	0.42	0.36
14	Total phosphorus as P	mg/kg	143	156	140	150	130	162
15	Octane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
16	Nonane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
17	Decane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
18	Undecane	mg/kg	0.75	0.78	0.73	0.77	0.69	0.63
19	Dodecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
20	Tridecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
21	Tetradecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
22	Phntadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
23	Hexadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
24	Heptadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
25	Octadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
26	Nonadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
27	Elcosane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
I. Nematoda								
28	Oncholaimussp	nos/m^2	11	8	11	13	16	15
29	Tricomasp	nos/m^2	12	14	17	11	13	10
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	17	12	10	19	15	11
31	Quinqulinasp	nos/m^2	24	21	15	14	11	18
32	Discorbinellasp.,	nos/m^2	18	13	19	18	10	9
33	Bolivinaspathulata	nos/m^2	6	10	13	22	21	17
34	Elphidiumsp	nos/m^2	15	11	18	16	14	13
35	Noniondepressula	nos/m^2	20	23	20	12	23	22
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	26	27	24	20	17	24
37	Anadoraveligers	nos/m^2	19	15	22	19	24	16
	Total No. of individuals	nos/m^2	168	154	169	164	161	157
	Shanon Weaver Diversity Index		2.24	2.23	2.27	2.28	2.27	2.26

Location		CB – 2						
Month & Year		Unit	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No.	Parameters							
1	Total organic matter	%	0.69	0.72	0.80	0.64	0.60	0.71
2	% Sand	%	14	15	11	17	16	18
3	%silt	%	33	31	34	32	34	31
4	%Clay	%	53	54	55	51	50	51
5	Iron (as Fe)	mg/kg	22.5	23.8	26.2	17.5	17.1	18.6
6	Aluminium (as Al)	mg/kg	10058	8964	9048	9428	9005	10123
7	Chromium (as cr)	mg/kg	42	35	42	43	31	35
8	Copper (as cu)	mg/kg	81	64	55	94	93	78
9	Manganese (as Mn)	mg/kg	137	108	123	160	164	141
10	Nickel (as Ni)	mg/kg	21	20	15	19	14.0	17
11	Lead (as Pb)	mg/kg	33	26	28	21	25	32
12	Zinc (as Zn)	mg/kg	291	242	258	337	272	286
13	Mercury(as Hg)	mg/kg	0.33	0.30	0.37	0.36	0.30	0.38
14	Total phosphorus as P	mg/kg	164	139	135	162	133	175
15	Octane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
16	Nonane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
17	Decane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
18	Undecane	mg/kg	0.64	0.71	0.74	0.70	0.74	0.77
19	Dodecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
20	Tridecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
21	Tetradecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
22	Phntadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
23	Hexadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
24	Heptadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
25	Octadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
26	Nonadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
27	Elcosane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
I. Nematoda								
28	Oncholaimussp	nos/m^2	17	14	9	14	18	13
29	Tricomasp	nos/m^2	9	11	15	8	15	11
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	13	10	13	15	13	19
31	Quinqulinasp	nos/m^2	11	19	12	21	14	15
32	Discorbinellasp.,	nos/m^2	15	17	21	16	19	18
33	Bolivinaspathulata	nos/m^2	10	13	18	18	15	22
34	Elphidiumsp	nos/m^2	18	15	11	19	10	16
35	Noniondepressula	nos/m^2	24	26	22	17	24	12
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	21	24	27	21	18	20
37	Anadoraveligers	nos/m^2	23	20	25	23	24	19
	Total No. of individuals	nos/m^2	161	169	173	172	170	165
	Shanon Weaver Diversity Index		2.25	2.26	2.24	2.27	2.27	2.28

Location		BERTH – 3						
Month & Year		Unit	Oct - 21	Nov - 21	Dec - 21	Jan - 22	Feb - 22	Mar - 22
S.No.	Parameters							
1	Total organic matter	%	0.67	0.75	0.83	0.71	0.64	0.73
2	% Sand	%	16	14	12	18	17	16
3	%silt	%	34	35	36	31	32	35
4	%Clay	%	50	51	52	51	51	49
5	Iron (as Fe)	mg/kg	19.8	17.1	20.4	18.6	17.3	19.4
6	Aluminium (as Al)	mg/kg	9895	9017	9217	10123	9724	9948
7	Chromium (as cr)	mg/kg	37	29	33	35	30	41
8	Copper (as cu)	mg/kg	75	70	49	78	86	74
9	Manganese (as Mn)	mg/kg	149	114	102	141	183	129
10	Nickel (as Ni)	mg/kg	15	13	17	15	12.9	20
11	Lead (as Pb)	mg/kg	28	25	20	32	27	28
12	Zinc (as Zn)	mg/kg	350	310	281	286	256	324
13	Mercury(as Hg)	mg/kg	0.29	0.31	0.35	0.38	0.32	0.31
14	Total phosphorus as P	mg/kg	178	134	127	175	135	150
15	Octane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
16	Nonane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
17	Decane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
18	Undecane	mg/kg	0.70	0.65	0.69	0.75	0.79	0.71
19	Dodecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
20	Tridecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
21	Tetradecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
22	Phntadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
23	Hexadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
24	Heptadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
25	Octadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
26	Nonadecane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
27	Elcosane	mg/kg	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
I. Nematoda								
28	Oncholaimussp	nos/m^2	10	12	15	17	14	15
29	Tricomasp	nos/m^2	16	15	10	12	11	8
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	14	8	12	11	17	14
31	Quinqulinasp	nos/m^2	20	25	17	18	15	21
32	Discorbinellasp.,	nos/m^2	12	14	18	9	22	16
33	Bolivinaspathulata	nos/m^2	13	16	20	17	18	10
34	Elphidiumsp	nos/m^2	21	18	14	13	12	19
35	Noniondepressula	nos/m^2	17	20	25	22	20	17
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	23	19	21	24	19	21
37	Anadoraveligers	nos/m^2	12	15	19	16	23	25
	Total No. of individuals	nos/m^2	158	162	171	159	171	166
	Shanon Weaver Diversity Index		2.27	2.26	2.27	2.26	2.28	2.26

ANNEXURE – 4

(TNCZMA COMPLIANCE)

Compliance to Tamil Nadu Coastal Zone Management Authority (TNCZMA) Conditions vide letter no. 6064/EC.3/2014-1 dated 26.06.2014

Annexure – 4

Sl. No	Conditions	Compliance
i	The unit shall compliance with all the conditions stipulated in Environment Clearance issued in No. 10-130/2007-IA-III, Ministry of Environment & Forest, Government of India, dated 3rd July 2009	**Being complied**
ii	The proposed activities should not cause coastal erosion and alter the beach configuration. The shoreline changes shall be monitored continuously	**Being Complied.** In past, LTSB has been continuously monitoring shoreline studies through Institute of Ocean Management, Anna University, Chennai. Further, MIDPL also engaged Institute of Ocean Management, Anna University, Chennai. for shoreline studies of the concerned area. Shoreline Change Monitoring Report is submitted along with the Half Yearly Compliance Report for the period Oct'19-Mar'20 vide our Letter No. MIDPL/EC-HYC/2020/11 dated 31.05.2020.
iii	Chemical waste generated and the sewage generated, if any should not be discharged into the sea and shall be properly handled	**Complied.** Domestic wastewater generated from various sources such as washing water from canteen and toilet flushing water from office buildings are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance within the port premises after confirming permissible limit. Inlet & outlet characteristic of Sewage water is regularly monitored and analysed by NABL accredited laboratory. The monitoring results for the period October'21 to March'22 is enclosed as **Annexure - III.**
iv	The wastewater generated shall be collected, treated and reused properly	**Complied.** MIDPL is having 3 STPs of capacity 30KLD, 10KLD & 5KLD at various locations inside the port premises to treat the maximum wastewater flow of 45KLD. Domestic wastewater generated from various sources such as washing water from canteen and toilet flushing water from office buildings are being collected, treated in STP's and the entire

<table>
<tr><td></td><td></td><td>treated sewage water is reused for green belt maintenance within the port premises after confirming permissible limit. Inlet & outlet characteristic of Sewage water is regularly monitored and analysed by NABL accredited laboratory.

Average quantity of Sewage water treated in STPs during the compliance period is as furnished below.
<table>
<tr><th>Location</th><th>STP Capacity</th><th>Avg. Quantity of Sewage Water Treated (Oct'21 to Mar'22)</th></tr>
<tr><td>Near IWMS</td><td>30 KLD</td><td>398</td></tr>
<tr><td>Near CFS</td><td>5 KLD</td><td>119</td></tr>
<tr><td>Near Liquid Terminal</td><td>10 KLD</td><td>86</td></tr>
</table>

The monitoring results for the period October'21 to March'22 is enclosed as Annexure - III.

Summary of STP treated water analysis results during compliance period as mentioned below.
<table>
<tr><th>Parameter</th><th>Unit</th><th>Min</th><th>Max</th><th>TNPCB Limit</th></tr>
<tr><td>pH</td><td>-</td><td>7.03</td><td>7.71</td><td>6.5 to 9</td></tr>
<tr><td>TSS</td><td>mg/l</td><td>12</td><td>22</td><td>30</td></tr>
<tr><td>BOD</td><td>mg/l</td><td>5</td><td>12</td><td>20</td></tr>
<tr><td>COD</td><td>mg/l</td><td>36</td><td>72</td><td>100</td></tr>
<tr><td>Faecal Coliform</td><td>MPN/100ml</td><td>80</td><td>240</td><td><1000</td></tr>
</table>

All the parameters are well within the prescribed norms.</td></tr>
<tr><td>v</td><td>The proponent shall implement oil spill mitigation measures without fail</td><td>Complied.

Oil Spill contingency plan (OSCP) has been prepared and is being implemented at site. OSCP along with list of Oil spill control equipment already submitted vide our Letter No. MIDPL/TNPCB/GMP/EC-HYC dated 14.05.2018.</td></tr>
<tr><td>vi</td><td>Disaster management plan shall be implemented and mock drills shall be carried out properly and periodically.</td><td>Complied.

MIDPL has already formulated detailed Disaster Preparedness & Management Plan to handle any Natural and industrial hazards at site.

Regular Mock Drills are conducted as per the Crisis Management Plan. The details of drills conducted towards dock safety for the period October'21 to March'22 is enclosed as Annexure- 5.</td></tr>
</table>

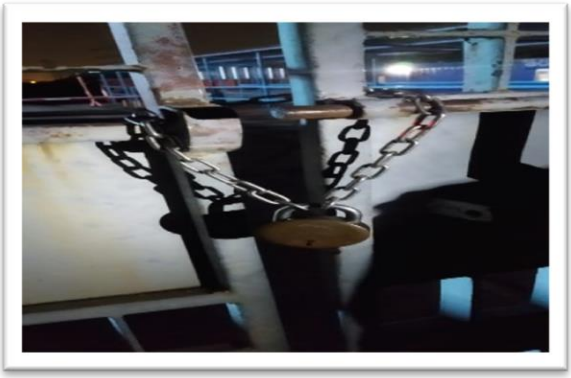
ANNEXURE – 5

(MIDPL MOCK DRILLS)

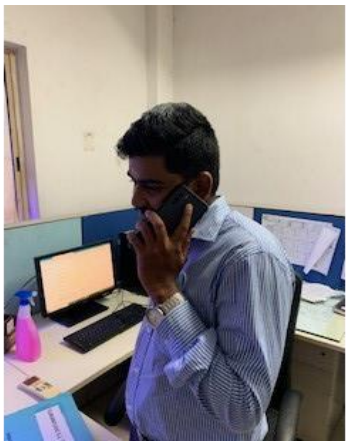
Annexure – V

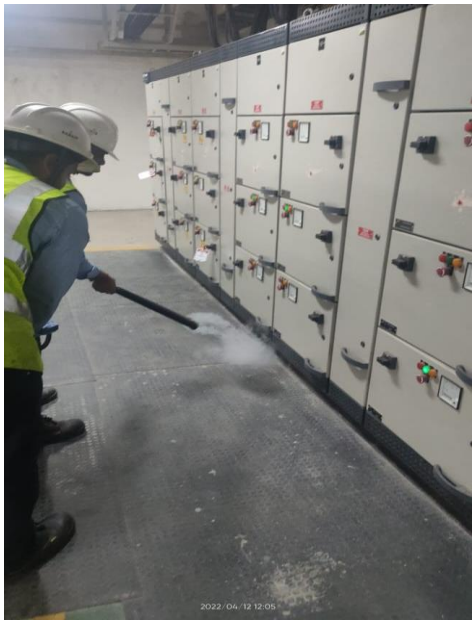
Marine Infrastructure Developer Pvt. Ltd, Kattupalli Port. Mock Drills – Oct'21 to Mar'22				
S. No	**Date**	**Time**	**Scenario**	**Participants**
1	09.10.2021	16:30 Hrs	Smuggling Of Weapons and Other Equipment's by Hiding inside The Cargo Vehicle	12
2	10.10.2021	04:30 Hrs	Failure of total power supply at night.	12
3	06.11.2021	16:10 Hrs	An empty car lying parked dg room for last 03 days	17
4	17.12.2021	17:10 Hrs	Attempt To Forcible Entry Carrying Weapons.	12
5	19.12.2021	12:30 Hrs	Scuffle Between Workers Inside	17
6	22.12.2021	23:30 Hrs	Attempt to Hijack the Cargo	10
7	25.12.2021	16:30 Hrs	Scuffle Between Cargo Vehicle	16
8	04.01.2022	15:30 Hrs	Attempt to intrusion through boundary wall.	16
9	08.01.2022	15:30 Hrs	An empty truck made force entry and disappeared inside port premises.	16
10	24.02.2022	16:25 Hrs	Perimeter fencing forced breached.	20
11	24.02.2022	21:45 Hrs	Entry on other EP through access control lane.	15
12	25.03.2022	16:30 Hrs	Thread to Explode Hijacked Vessel in Port.	10

Mock Drills – Oct'21 to Mar'22
(Photos)



Marine Infrastructure Developer Pvt. Ltd (MIDPL)				
Mock Drills - Oct 2021 to March 2022				
S.No.	**Date**	**Time**	**Scenario**	**Participants**
1	16.10.2021	15:52 Hrs	Minor Fire at Backside of the CFS	23
2	08.12.2021	11:12 Hrs	Man Down near ALL warehouse (MIDPL)	8
3	12.03.2022	12.00 Hrs	Short Circuit in LT Substation	12




2022/04/12 12:05

ANNEXURE – 6

(EMP COMPLIANCE)

Annexure – VI

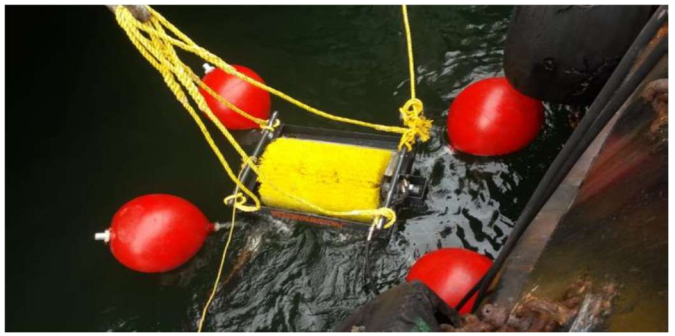
EMP COMPLIANCE STATUS

EMP (OPERATIONAL PHASE) - COMPLIANCE STATUS				
S.No.	**Activity**	**Relevant Environmental components likely to be impacted**	**Proposed Mitigation Measures**	**Compliance Status**
1.	Cargo handling and Inland Cargo movement and storage areas.	Air Quality	• Use of dust suppression system etc., • Use of low Sulphur diesel fuel is proposed • Dust suppression measures at loading/unloading points, storage area and at internal roads • Regularization of truck movement • Periodic cleaning of cargo spills, • Speed regulations for vehicles engaged in transportation • Greenbelt Development	**Complied.** The Major air pollution generated by port activities include vehicle movements, dry cargos operations and other port activities. The following is practiced controlling of air pollutions at port premises: • Water sprinkling on truck path • Mobile Hopper during cargo handling • Road cleaning with sweeping machines • Installed Vehicle Pollution Under Control (PUC) checking facility at Port. • Ensuring Tarpaulin cover over the dry cargo materials at open yard • Using the closed warehouse for storage of fine dry cargos materials. • Trucks covered with Tarpaulin for dry cargo vehicle movements • Using low Sulphur diesel fuel for DG sets. • Installed Retrofitting of DG Sets for reduction of emission level to the norms prescribed. • Adequate Greenbelt has been developed & is being maintained in the port area. 27,407 Nos. of trees has been planted as on date.

				 Water sprinkling  Mobile Hopper  Road cleaning   closed warehouse  Covered with Tarpaulin   
		Noise	• Personal Protecting Equipment (PPE) • Greenbelt Development • Counselling and traffic regulation	**Complied.** Traffic and noise level control measures is monitored regularly for all vehicle movements like containers, trucks movements and dumpers & other road equipment operating for import /export of cargos at various locations of port premises. Following control

				measures are implemented at Kattupalli Port for Noise Control. • Adequate Greenbelt development with avenue plantation • DG sets are having acoustic enclosures as per the standard practice. • Musical Horns are completely banned inside the port premises • Vehicle speed limit is restricted to 30 Km/ Hr. • Adopting latest technology operation to restrict the vehicular movements inside terminal 
		Traffic Addition	• The existing Kattupalli Port site is well connected by existing road and rail. In addition, port approach road is developed as a part of initial development. All the roads are in good condition to accommodate traffic.	**Complied.** Kattupalli Port is having a dedicated road connectivity connecting State Highways and National Highways. NH-5 (Chennai – Kolkata) is about 30 km from Port. The cargo handled are directly goes to the roads mentioned above which are outside the City Limits of Chennai. Handling of cargo in Kattupalli Port does not affect the regular traffic. The Outer Ring Road from NH-45 connecting NH 4 – NH 205 – NH 5 is getting take-off from Minjur. Further, the Outer ring road is proposed to be

				connected to Section I (NPAR Project) of Chennai Peripheral Ring Road on an extent of 134 km starting from Kattupalli to Mahabalipuram. The project is getting commenced shortly, which will further enhance the cargo carrying capacity of Kattupalli Port. Kattupalli Port is located Close proximity to majority of CFSs serving immediate hinterland and enabling faster evacuation of cargo.
2	Aqueous discharges in harbour basin	Marine water quality and ecology	• Ships are prohibited from discharging wastewater, bilge, oil wastes, etc. into the near-shore as well as harbour waters. • Ships would also comply with the MARPOL convention. • As a part of mitigation measure for accidental spillage of Oil, Construction Contractor/ Kattupalli Port n Oil spill contingency plan is prepared and in place. • Provision of waste reception facility Ballast Water • Management Guideline as issued by Ministry of Shipping – India Shall be adhered.	**Complied.** • Ships/vessels calling at port are not permitted to dump any wastes/bilge water/ballast water during the berthing period. The waste reception facilities developed at Kattupalli Port as per the Guidelines issued by Government of India (GoI) and MARPOL regulation is strictly implemented. • Hazardous wastes are handled as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (as amended). Hazardous wastes are disposed through approved TNPCB /CPCB vendor. • Oil Spill contingency Plan is in place and MIDPL is maintaining oil spill equipment as per Coast Guard guidelines and conducting oil spill mock drills at regular intervals. • Management Guideline as issued by Ministry of Shipping – India are being adhered to. • Regular monitoring of Marine Water and Sediment quality are being carried out by NABL accredited laboratory.

3	Cargo and Oil spills	Marine water quality and ecology	• In case of any cargo spillage during transfer from/to ships, it will be attempted to recover the spills. • Oil spill control equipment such as booms / barriers will be provided for containment and skimmers will be provided for recovery. • Response time for shutting down the fuelling, containment and recovery will be quicker.	• Oil Spill contingency Plan is in place and MIDPL is maintaining oil spill equipment as per Coast Guard guidelines and conducting oil spill mock drills at regular intervals.    

4	Maintenance dredging	Maintenance dredging Marine Ecology	• Maintenance dredging material is being disposed of at identified disposal location at sea. • It will be ensured that dumping of the excess/unusable dredge material would be uniform. • Additional Environmental Monitoring Program comprising of monitoring of marine water quality, marine sediment quality and marine ecology will be initiated one week prior to commencement of dredging and will be carried out during the dredging period.	**Complied.** • Annual maintenance dredging of around 0.18 Mcum was carried out during the compliance period October 2021 to March 2022. Dredge materials were dumped in the spoil ground which has already been identified by LTSB through modelling studies. • However Marine Water, sediment & ecology is being monitored on regular basis and reports of the same are being submitted to all the concerned authorities. Monitoring report for the period Oct'21 to Mar'22 is attached as **Annexure- III.**
5	Water Supply	Water resources	• The water requirement proposed activities shall be met by existing water supply as it was considered during initial development	**Complied.** The main source of raw water is from existing Chennai Metropolitan Water Supply and Sewage Board (CMWSSB), Desalination plant, Kattupalli, which is located adjacent to Kattupalli Port.
6	Wastewater Discharge	Water Quality	• Collection of runoff from stock piles and directing into settling tanks • Available Sewage treatment plant within port area will be utilized. • Treated wastewater from STP will be used for irrigating the greenbelt	**Complied.** Domestic wastewater generated are being collected, treated in STP's and the entire treated sewage water is reused for green belt maintenance after confirming the treated water quality parameters are meeting the prescribed norms. Inlet & outlet characteristic of Sewage water is regularly analysed by NABL accredited laboratory. The monitoring results for the period Oct'21 to Mar'22 is enclosed as **Annexure - III**.
7	Solid Waste Management	Groundwater and Soil quality	• Composted biodegradable waste will be used as manure in greenbelt. • Other recyclable wastes will be sold.	**Complied.** • 100% utilization of STP sludge for greenbelt maintenance as manure. • All the non-hazardous wastes like paper, wood, metal scraps generated from the terminal are also collected, stored in the Integrated Waste

				Management Shed (IWMS) and are handled as per 5R principle. • The recyclable and the bio-degradable waste are recycled by the composting method. The compost is used in the nursery and for the gardening purposes.
8	Handling of hazardous wastes	Fire accidents due to products handling	• No Hazardous cargo Handling /storage is envisaged • Hazardous wastes (used oil & used battery if any) will be sent to TSDF located at Gummidipoondi, along with other shipyard wastes. The consent for the same was already obtained and the same can be extended. • Medical facilities including first aid will be available for attending to injured workers • Emergency alarms, provision of fire hydrant system and fire station. • Effective Disaster Management Plan (DMP) which covers onsite and offsite emergency plans. • Recovery of spills to the extent possible.	**Complied.** • No Hazardous cargo is handled. • Hazardous wastes are handled as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (as amended). Hazardous wastes are disposed through approved TNPCB /CPCB vendor. MIDPL has obtained Hazardous Waste Authorization from TNPCB for handling and disposal of the wastes. Details of the same are submitted to TNPCB as a part of Hazardous waste annual return (Form 4) on regular basis. Annual Hazardous Waste Return for FY 2020-21 is attached as **Annexure – II**. • Occupational Health Centre is available at Kattupalli Port on 24 X 7 basis. • Emergency alarms, fire hydrant system and Fire station equipped with Fire Tender and Fire crew are available at Kattupalli Port. • Disaster Management Plan (DMP) is in place which covers both onsite and offsite emergency plans. • MIDPL is equipped with adequate facility for recovery of spills.  

9	Fishing activity	Fishermen livelihood	• The cargo handling activities involved in operation phase are confined to the project area and hence no hindrance to fishing is anticipated Continuing to Educate the fishermen about Port activities • Regular Interactions will be carried out with the fishing community • Conflicts if any with fishing community will be amicably resolved in all cases	**Complied.** • Our activities are confined to approved Port Limits and there is no hindrance to fishing activity.
10	Operation of port – Handling of Proposed Traffic	Socio-economic conditions of the region	The present employment potential of Port is around 250 Nos. and Total Shipyard cum Port is around 2000 nos. The employment potential will increase about 20 nos as direct employment due to proposed activity and will also enhance indirect employment potential in the region. Together with this employment potential, project will help to enhance the socio economic conditions of the area with better schooling, communication and transport facilities that will be developed/ triggered as a part of overall economic development of the region.	**Being Complied.** Major CSR activities carried out during the compliance period are as follows; **1. Education:** 431 Students benefited during compliance period. • Conducting evening education centres in 10 places for the students, through which 310 students benefits from this program. • 42 students from our project area who are government school have written Aakash entrance exam • 84 Students from Pulicat region visited the Defense Expo, Ministry of Defense, AVADI.

				  2. **Community Health:** • Medical care for the community through MHCU- 3088 persons benefited. • **SuPoshan:** o Nutrition program we reached 2049 persons

				○ Celebrated Newborn Week in November 21, family counselling and FGD on nutrition awareness for SAM/ MAM children – 550 people benefitted. • Our Port CEO Sir has officially inaugurated the Mobile Health Care Unit. • Emergency Response: Nov 21 Flood Relief support for 11 villages, food provided for 4000 persons • 11th March 22 provided three tractors provided towards SWM to maintain overall cleanliness in villages - benefiting 7800 families from three panchayats. • Mobilized 2408 persons Covid-19 Vaccination. 

				 3. **Sustainable Livelihood Development:** • 30 model farmers started their cultivation using organic protocols • Harvesting of 30 farmers' first organic yield • Promotion of Kitchen garden - 1550 families. • Skill Development Program: 72 students under training. • Supporting beneficiaries linking with government schemes by our AF project field team – 453 persons • Organic rice sale for port empolyees-25 of them bought from the vendor directly. • 30 Model farmers received inputs • 30 Model farmers provided sprayers

				• Value added training for farmers from KVK - 55 beneficiaries. • 15 persons from Irulas community were trained on fishing in less water by Fisheries Department • Women have acquired skilling in Tailoring and Beautician: Undertraining: 57 • Supporting beneficiaries linking with government schemes by our AF project field team – 278 beneficiaries.  

				 4. **Community Infrastructure Development:** • Drinking water facility- RO plant installed in KR Palayam- 450 Families are benefited. • Five High Mast Lights has been installed at five locations - 500 families are benefited. 

				
		Natural Hazards	The existing Disaster Management Plan (DMP) will be implemented at the time of disaster; COO will act as the overall in-charge of the control of educative, protective and rehabilitation activities to ensure least damage to life and property.	**Noted for Compliance.** Disaster Management Plan (DMP) is in place which covers both onsite and offsite emergency plans. Regular Mock Drills are conducted as per the Disaster Management Plan. The details of drills conducted for the period October'21 to March'22 is enclosed as **Annexure- 5.**

		Induced Development	Offers an efficient and cost effective supply chain/ value proposition to the local importers and exporters in states of Tamil Nadu, Andhra Pradesh, Kerala and Karnataka.	**Being Complied.** Kattupalli Port is having a dedicated road connectivity connecting State Highways and National Highways, which offers an efficient and cost-effective supply chain/ value proposition to the local importers and exporters in the states of Tamil Nadu, Andhra Pradesh, Kerala and Karnataka. We are presently moving Inland Container Depot (ICD) rail bound Containers ex Kattupalli through Concor's ICD at Tondiarpet to ICD Bangalore. The containers are road bridged by Concor to/from Kattupalli Port to Tondiarpet and vice versa. This service the customers and facilitate the EXIM trade.

ANNEXURE – 7

(MIDPL FORM-V FY 2020-21)

adani
Ports and Logistics

KATTUPALLI PORT
CHENNAI's NEW GATEWAY

MIDPL/TNPCB/2021-22/119 **Date: 23/09/2021**

To,
The Member Secretary,
Tamil Nadu Pollution Control Board,
76, Mount Salai,
Guindy,
Chennai – 600 032

Dear Sir,

Sub: Submission of Environmental Statement (Form V) for the financial year ending 31st March, 2021 of Marine Infrastructure Developer Private Limited, Kattupalli Port, Chennai

Ref: 1. Consent Order No. 2105136876761 under Water Act dated 13.09.2021
2. Consent Order No. 2105236876761 under Air Act dated 13.09.2021

With reference to the captioned subject and cited references above, we submit herewith the Environmental Statement of **M/s Marine Infrastructure Developer Private Limited,** in Form-V prescribed under Rule 14 of the Environment (Protection) Rules 1986 for the financial year ending 31st March 2021.

Submitted for your kind information and records.

Thanking you,

For, **M/s. Marine Infrastructure Developer Private Limited**

23/9/21

Jai Singh Khurana
Managing Director

Encl: As above

Copy To:

1) The Joint Chief Environmental Engineer, Tamilnadu Pollution Control Board, First Floor, 950/1, Poonamallee High Road, Arumbakkam, Chennai-600 106
2) The District Environmental Engineer, Tamil Nadu Pollution Control Board, Gummidipoondi – 601201.

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

Marine Infrastructure Developer Pvt Ltd
(Kattupalli Port)
Kattupalli Village, Ponneri Taluk,
Tiruvallur District 600 120,
Tamil Nadu, India

Tel +91 44 2824 3062

CIN: U74999TN2016PTC103769

Vijayasankar K

From: Sathish Kumar R
Sent: Thursday, September 23, 2021 1:02 PM
To: eccompliance-tn@gov.in
Cc: Jai Khurana; Milind Sangtiani; Vijayasankar K; Subramanian A
Subject: Submission of Environmental Statement (Form V) for the financial year ending 31st March, 2021 of Marine Infrastructure Developer Private Limited, Kattupalli Port, Chennai
Attachments: MIDPL Form V 2020-21 23.09.2021.pdf

Importance: High

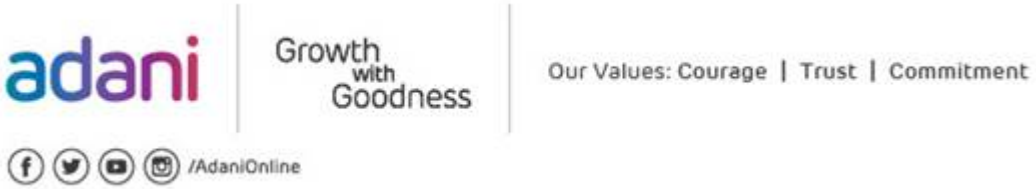
Dear Sir / Madam,

With reference to the captioned subject, we submit herewith the **Environmental Statement** of **M/s Marine Infrastructure Developer Private Limited,** in **Form-V** prescribed under Rule 14 of the Environment (Protection) Rules 1986 for the financial year ending 31st March 2021.

Submitted for your kind information and records.

Thanks and Regards

R. Sathish Kumar
Head - Environment (Southern Ports) | Adani Ports and Special Economic Zone Limited |
Mob +91 91760 00959 | Direct: +91 44 2796 8177 | Extn. 69177 |
sathish.r@adani.com | www.adaniports.com |



Form-V

(See rule 14 of Environment (Protection) Rules, 1986)

Environmental Statement for the financial year ending 31st March 2021

PART – A

i) Name and Address of the owner/occupier of the industry operation or process	:	**Mr. Jai Singh Khurana** **Managing Director** Marine Infrastructure Developer Private Limited Kattupalli Port, Kattupalli Village, Ponneri Taluk, Thiruvallur District – 600 120 Tamil Nadu, India
ii) Industry Category	:	**Primary** : Red **Secondary** : 1065- Ports & Harbour, Jetties and Dredging Operations.
iii) Production Capacity	:	**Cargo Handling Capacity :** 24.65 MMTPA • Containers - 21.60 MTPA • Ro-Ro (automobiles) - 0.22 MTPA • Project cargo - 0.44 MTPA • Breakbulk / General Cargo (Barytes/ Gypsum/ Limestone/ Granite/ Steel Cargo) - 1.82 MTPA • Edible oil, CBFS, Base Oil, Lube Oil and Non-Hazardous Liquid Cargo - 0.57 MMTPA.
iv) Year of establishment	:	2009, with the issue of Environmental Clearance to L&T Ship Building. Bifurcation of Environmental Clearance of L&T Ship Building to Marine Infrastructure Developer Private Limited on 09th February 2018.
v) Date of the last environmental statement submitted	:	Vide our Letter No. MIDPL/TNPCB/2020-21/32 dated 21.09.2020.

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

PART – B

WATER AND RAW MATERIAL CONSUMPTION

(i) Water Consumption

S. No	Water Consumption (m^3/ Day)	During the previous Financial year (2019-2020)	During the Current Financial year (2020-2021)
1.	Process	NIL	NIL
2.	Cooling	NIL	NIL
3.	Domestic	138.25	124.66

(ii) Raw Material Consumption

S. No	Name of the Raw Material	Name of the Product	Consumption during the financial year 2019-20.	Consumption during the financial year 2020-21.
1	Not Applicable	Not Applicable	NIL	NIL
The unit does not undergo any manufacturing process. The water consumed is mainly for Firefighting, dust suppression on roads, Greenbelt development and maintenance, etc.				

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

PART – C

POLLUTION DISCHARGE TO ENVIRONEMENT/ UNIT OF OUTPUT

(Parameters as specified in the consent issued)

<table>
<tr><th>Pollutants</th><th>Quality of Pollutants Discharged (Mass/day)</th><th>Concentration of Pollutants discharges (mass/volume)</th><th>Percentage of variation from prescribed standards with reasons</th></tr>
<tr><td>a) Water</td><td colspan="3">STP Treated Water Characteristics: -
<table>
<tr><th rowspan="2">Parameter</th><th rowspan="2">Consent Limit</th><th colspan="3">Actual</th><th rowspan="2">% Variation with prescribed standard</th></tr>
<tr><th>30 KLD</th><th>10 KLD</th><th>5 KLD</th></tr>
<tr><td>pH</td><td>5.5-9</td><td>7.32</td><td>7.21</td><td>7.57</td><td>-Nil-</td></tr>
<tr><td>Total Suspended Solids (mg/l)</td><td>30</td><td>18.54</td><td>8.0</td><td>17.18</td><td>-Nil-</td></tr>
<tr><td>BOD (3 days at 27°C) (mg/l)</td><td>20</td><td>15.27</td><td>3.0</td><td>13.68</td><td>-Nil-</td></tr>
</table></td></tr>
<tr><td>b) Air</td><td colspan="3">DG sets are provided as standby power source and are used during power failure only. The Height of DG stacks as per CPCB/TNPCB Standards. All the monitored parameters are well within the prescribed standards.</td></tr>
<tr><td>Particulate Matter (mg/Nm3)</td><td colspan="3" rowspan="3">DG stack emission report is enclosed as Annexure 1.</td></tr>
<tr><td>Sulphur Dioxide (ppm)</td></tr>
<tr><td>Nitrogen Oxide (ppm)</td></tr>
</table>

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

PART-D

HAZARDOUS WASTES

(As specified under Hazardous Waste Management and Handling Rules 1989)

Hazardous Wastes	Total Quantity (Kg)	
	During the previous financial Year (2019-20)	During the current financial Year (2020-21)
(a) From Process	• Cargo residue, washing water and sludge containing oil (3.1) - 50.310 T	• Cargo residue, washing water and sludge containing Oil (3.1)- 44.42 MT • Discarded Containers/ Barrels (33.1)- 3.57 MT • Used/Waste/ Spent Oil (5.1)- 5.4 MT
(b) From Pollution control facilities	NA	NA

PART-E

SOLID WASTES

TOTAL QUANTITY GENERATED			
Solid Waste		During the previous Financial Year (2019-20)	During the current Financial Year (2020-21)
a)	From process	NIL	NIL
b)	From pollution control facilities- STP	192 kgs	168 kgs
c)	1. Quantity recycled or reutilized within the Unit	192 kgs	168 kgs
	2. Sold	NIL	NIL
	3. Disposed	NIL	NIL

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

PART-F

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

- **"Zero Waste to Landfill" Initiative** - No waste is being sent to landfill or incineration facility. MIDPL is having Integrated Waste Management System (IWMS) to proper segregate & recover the materials and are handled as per 5R (Reuse, Recycle, Recover and Reprocess) principle.

- MIDPL has awarded with Zero Waste to Landfill Management System (ZWTL MS 2020) from TÜV Rheinland India Pvt. Ltd (Annexure – 2).

- Hazardous waste includes Cargo residue, washing water and sludge containing oil, Discarded Containers/ Barrels and Used/Waste/ Spent Oil. All the hazardous wastes are collected and stored properly in Integrated Waste Management Shed & are being disposed to TNPCB authorized /registered recyclers in line with the Hazardous and Other Waste (Management & Transboundary Movement) Rules, 2016 (As amended).

- The used batteries and E–waste are stored in Integrated Waste Management Shed and disposed through TNPCB approved vendors as per the E-waste Management Rules 2016 (as amended).

- Hazardous Waste Annual returns in Form 4 was submitted in line with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

- 100% utilization of STP sludge for greenbelt maintenance as manure.

- MIDPL certified as "Single Use Plastic (SUP) Free" site from CII –ITC Centre of Excellence for Sustainable Development (Annexure – 3)

- **Plastic free Drive:**
  - MIDPL has displayed stickers at various places at the facility, spreading awareness as plastic are prohibited now.

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- Awareness sessions organized among department and contract workers. Made shop keepers and canteen owners to stop providing plastic carry bags to carry the material.
- Confirms to stop usage of plastic cups to serve tea and water pouches within the premises of MIDPL.
- Regular supervision by Team Members at Port Canteens for verification of prohibition of plastic.

PART-G

Impact on pollution control measures on conservation of natural resources and consequently on the cost of production

- Solar panels of 450 kW were installed at MIDPL and the power generated from solar panel ranges between 55,000-65,000 units per months. MIDPL has invested nearly Rs.2 Crs. for developing this solar plant there by achieved reduction of conventional energy and contributed for resource conservation.
- 15 RTGs retrofitted into Electrical power-driven system at the project cost of Rs.44 Crs. Key Cost benefits includes reduction in diesel consumption and emission level.
- Sewage Treatment Plants (30 KLD,10 KLD and 5 KLD STPs) are in continuous operation and the treated effluent water quality is meeting the TNPCB norms. STP treated water is used for Gardening purpose, thereby reducing freshwater consumption. The total cost spent on STP operation and maintenance during the year 2020-21 is Rs. 11.62 Lakhs.
- Biogas facility was setup at MIDPL to convert the kitchen waste to useful heat energy. The biogas unit generates output of 3kg / day. The plant capacity is 6 cubic meter / day.
- Unit is undertaking Regular Environmental Monitoring in port through NABL accredited laboratory. We have also installed and operating Continuous Ambient Air Quality Monitoring Station (SO2, NOx, CO, PM10 & 2.5, BTX analyser to monitor VOC) and Meteorological Station (Wind Speed, Wind Direction, Ambient Temperature, Atmospheric Pressure, Relative Humidity, Rainfall and Solar Radiation). Real time data of CAAQMS is connected to TNPCB server. All the monitored environmental parameters are well within the prescribed standards and the details of monitored data

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is regularly being submitting to TNPCB, CPCB, MoEF&CC and other concerned authorities.

- All the domestic effluent generated at port is treated at existing Sewage Treatment Plants (30 KLD, 10 KLD and 5 KLD) and the entire treated sewage water is being reused within port premises for gardening.
- Motion sensor and timers installed at buildings to reduce energy consumption.
- Installed and operating Vehicle Pollution Under Control (PUC) checking facility to control vehicular emission in port premises.
- RTG Container Stacking monitoring system implemented and achieved energy saving up to 18000 Units per year amounting to Rs. 1.35 L /Year.
- Air conditioners fitted with energy saving device "Eco Plug"
- Streetlight and High mast lighting controlled by light intensity sensor.
- 12,320 trees & 9,600 Shrubs planted as part of Greenbelt development program in the year 2020-21. Drip Line and Sprinkler Irrigation System is provided at MIDPL during the year 2020-21.

PART-H

Additional investment proposal for Environment protection including abatement of pollution, prevention of pollution

Regular Expenditure (cost in INR lakhs/year)		
S. No	**Description**	**Cost**
1	Comprehensive Environmental Monitoring	4.93
2	AAQ/NL/SM Survey & STP Treated Water Quality Analysis	0.48
3	Environment Studies	52.86
4	Training & Awareness program	0.20
5	Integrated Waste Management & Pollution Under Check Facility	1.85
6	O&M of STP's	11.62
7	Housekeeping	77.8
8	Greenbelt Maintenance	79.47
	Total	**229.2**

PART-I

ANY OTHER PARTICULARS IN RESPECT TO ENVIRONMENT

- Working towards achieving "Zero Waste Inventory" as per our Group Environment Policy and all wastes are being handled in line with 5R Principle.
- Paperless Operation is in place (Except for Statutory requirements) using application tools and Software – Terminal Info Gateway (TIG).
- Energy Conservation Committee to measure the amount of energy consumed and to actions to reduce the energy consumed through port operations.
- Water Warriors Committee to identify and reduce the water consumption. The committee would propose innovative water solutions
- Integrated Management System (ISO 9001:2015, 14001:2015 and 45001:2018) certified Port.
- Working towards Implementation and obtaining "5S" Certification at MIDPL
- Working towards Implementing Energy Management System ISO 50001:2018
- Environmental benchmarking has been performed for GHG Emission with global ports.

Date: 23.09.2021

(Signature of a person carrying out an industry operation or process)

23/9/21

Name : **Jai Singh Khurana**

Designation: **Managing Director**

Address : Marine Infrastructure Developer Pvt Ltd (MIDPL)
Kattupalli Village, Ponneri Taluk,
Thiruvallur District – 600 120
Tamil Nadu, India.

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Annexure-1

MIDPL- STACK MONITORING (MAY'2020 TO MARCH'2021)														
Location		DG 2000KVA - 1												Avg
Month & Year		April'2020	May'2020	June'2020	July'2020	Aug'2020	Sep'2020	Oct'2020	Nov'2020	Dec'2020	Jan'2021	Feb'2021	March'2021	
S. No.	Parameters													
1	Stack Temperature, °C	The sampling was not taken Due to Covid 19 lockdown	255	267	260	274	262	268	261	249	256	242	269	260.27
2	Flue Gas Velocity, m/s		24.98	25.44	24.25	25.37	26.01	26.94	25.68	26.92	27.42	25.96	24.12	25.74
3	Sulphur Dioxide, mg/Nm3		6.2	6.7	7.2	8.4	8.9	9.4	9	7.8	8.3	7.5	9.3	8.06
4	NOX (as NO2) in ppmv		201	219	227	236	228	235	227	217	234	221	236	225.55
5	Particulate Matter, mg/Nm3		32.1	34.5	32.8	34.1	36.8	34.1	36.1	38.4	35.1	32.9	34.2	34.65
6	Carbon Monoxide, mg/Nm3		75	86	90	95	87	92	94	87	89	80	91	87.82
7	Gas Discharge, Nm3/hr		6337	6311	6127	6213	6512	6670	6442	6908	6943	6753	5961	6470.64

MIDPL- STACK MONITORING (May'2020 to March'2021)														
Location		DG 2000KVA - 2												Avg
Month & Year		April'2020	May'2020	June'2020	July'2020		Sep'2020	Oct'2020	Nov'2020	Dec'2020	Jan'2021	Feb'2021	March'2021	
S. No.	Parameters													
1	Stack Temperature, °C	The sampling was not taken Due to Covid 19 lockdown	251	261	249	---	255	264	257	252	239	220	261	250.90
2	Flue Gas Velocity, m/s		25.12	23.98	24.98		25.53	26.27	26.09	26.92	27.51	24.43	23.75	25.46
3	Sulphur Dioxide, mg/Nm3		6.5	5.9	6.8		7.7	8.6	8	8.5	8	7.1	8.8	7.59
4	NOX (as NO2) in ppmv		209	214	218		215	232	221	223	218	210	234	219.40
5	Particulate Matter, mg/Nm3		30.9	33.1	31.7		33.4	35.9	33.2	36.2	32.4	31.9	32.9	33.16
6	Carbon Monoxide, mg/Nm3		81	83	96		83	90	93	91	78	75	88	85.80
7	Gas Discharge, Nm3/hr		6420	6015	6445		6478	6553	6594	6925	7197	6638	5957	6522.20

MIDPL- STACK MONITORING (Aug'20, Oct'20 to March'2021)												
Location		DG 125 KVA										Avg
Month & Year			Aug'2020		Oct'2020	Nov'2020	Dec'2020	Jan'2021	Feb'2021	March'2021		
S. No.	Parameters											
1	Stack Temperature, °C	---	420	---	146	140	130	124	117	124		171.57
2	Flue Gas Velocity, m/s		9.87		9.98	10.17	11.02	11.98	11.08	12.41		10.93
3	Sulphur Dioxide, mg/Nm3		-		4.7	4.5	4.1	4.3	4	4.9		4.42
4	NOX (as NO2) in ppmv		-		85	78	70	66	54	62		69.17
5	Particulate Matter, mg/Nm3		-		15.8	16.7	14.3	15.7	16.8	18.1		16.23
6	Carbon Monoxide, mg/Nm3		<0.2		21	25	19	22	19	23		21.50
7	Gas Discharge, Nm3/hr		443		449	463	515	569	535	592		509.43

ANNEXURE - R

TÜVRheinland®
Precisely Right.

Certificate

Standard: **Zero Waste to Landfill Management System (ZWTL MS 2020)**

Certificate Holder: **Marine Infrastructure Developer Private Limited**
Kattupalli Port, Tiruvallur - 600120
Tamil Nadu,India

Scope: **Providing Port Facilities for Handling and Storage of Bulk Cargo, Containerized Cargo and Liquid Terminal Operations**

Proof has been furnished by means of an audit that the Requirements of ZWTL MS 2020 are met, with the achievement of waste diversion rate of above 99%

Validity: This certificate is valid from 01-06-2021 until 31-05-2024
Subject to satisfactory annual surveillance audits.

Certificate No. TUV/ZWLMS/2021/Adani Ports/0502

New Delhi, 01-06-2021

TÜV Rheinland India Pvt. Ltd.
Office 610, 6rd Floor, iThum
Tower, A–40, Sector-62,
Noida- 201301, India

ANNEXURE - 3

CII-ITC Centre of Excellence
for Sustainable Development

Confederation of Indian Industry

Certificate

Single-use Plastic Free

Marine Infrastructure Developer Private Limited

Kattupalli Village, Ponneri Taluk, Tiruvallur District, Tamil Nadu 600 120. India.

This is to certify that Marine Infrastructure Developer Private Limited at the location mentioned above is Single-use Plastic Free as verified by the Confederation of Indian Industry for the period 01 April 2020 to 31 March 2021 under the provisions of the **Plastics-use Protocol: Verification and Certification (1.0)**.

PLASTICS-USE PROTOCOL

CONFEDERATION OF INDIAN INDUSTRY CII NEW DELHI

Ms Seema Arora
Deputy Director General
Confederation of Indian Industry (CII)
Centre of Excellence for Sustainable Development (CESD)

Certificate Date: 6 May 2021

Certificate No: CII/PuP/2021/011

This certificate has been awarded after the company fulfilled the requirements for phasing-out single-use plastics and providing evidence for it. Responsibility for the data provided to CII rests solely with the company. The conditions of certification are detailed in the Annex.

CII-ITC Centre of Excellence
for Sustainable Development

Confederation of Indian Industry

Annex

The certification applies to the following single-use plastic items identified and phased out by Marine Infrastructure Developer Private Limited:

- Cutlery (knives, forks, spoons, chopsticks)
- Crockery (plates, glasses, cups) and plastic food containers
- Straws
- Stirrers
- Carry bags
- Items of decoration (polystyrene)
- Garbage bags
- Sheets for food wrapping and spreading on dining tables
- Plastic coated teacups and tumblers
- Water pouches
- Flags
- Gloves

This certification is based on the verification of data set for the period from 1 April 2020 to 31 March 2021.

Organizational Boundary: Marine Infrastructure Developer Private Limited

Operational Boundary: Administrative, canteen, kitchen and operational areas

Material Boundary: Single-use Plastics

Reference
Verification date: 8 April 2021
Verification Report No: PuP/Verification/2021/AdaniPort/003
Mode: On account of the COVID-19 pandemic, the verification process was virtual and followed provisions outlined in the Verification Procedure 1.0 of the Protocol