Subramanian A

From: Sathish Kumar R
Sent: Wednesday, November 30, 2022 5:27 PM
To: 'eccompliance-tn@gov.in'
Cc: 'monitoring-ec@nic.in'; 'ssuresh.cpcb@nic.in'; memsec@tnpcb.gov.in; 'DEE Gummidipoondi'; 'tndoe@nic.in'; G.J. Rao; Ramde Karangiya; Milind Sangtiani; 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 April 2022 to September 2022 – Reg.
Attachments: MIDPL HYC Apr'22 to Sep'22.pdf

Importance: High

MIDPL/EC-HYC/2022/190 Date: 29.11.2022

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 Madam / 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 April 2022 to September 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 **April 2022 to September 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
Deputy General Manager - Environment | Adani Ports and SEZ Limited |
Mob +91 91760 00959 | Direct: +91 44 2796 8177 | Extn. 69177 |
sathish.r@adani.com | www.adaniports.com |

adani
Ports and Logistics

KATTUPALLI PORT
CHENNAI's NEW GATEWAY

MIDPL/EC-HYC/2022/190

Date: 29.11.2022

Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office
Ist and IInd Floor, Handloom Export Promotion Council,
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Thanking you,

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

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

G.J. Rao
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)
KATTUPALLI PORT, 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

APRIL 2022 TO SEPTEMBER 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

(April 2022 to September 2022)

adani Ports and Logistics	**Marine Infrastructure Developer Pvt Ltd**	**From: April 2022 To : September 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	**Complied.** No withdrawal of groundwater from CRZ Area. Presently Port is procuring Desalinated water from

	withdrawn from outside the CRZ area, specific prior permission from the concerned State /Central Groundwater board shall be obtained in this regard.	M/s. Chennai Metropolitan Water Supply and 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.** No maintenance dredging activity carried out during the compliance period April 2022 to September 2022.
(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 and the report is under preparation for the year 2022. However, Report for the year 2020 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 meeting between the proponent and CWDL	**Complied.** Distance maintained as agreed. 

(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.
(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). • Sea water pump house with 3 Nos of vertical pumps, 2 Nos of Jockey pump and 2 Nos of Foam Pumps (1 Electrical and 1 DG pump) • fire hydrant points (76 Single Hydrant Points & 26 Double Hydrant Points), 4 Tower Monitors, 3 Water monitors and 20 water cum foam monitors are placed at various strategic locations. MIDPL is facilitated with a Fire Tender with the following features: • Water Tank Capacity – 5500 lts • Foam Tank Capacity – 500 lts • DCP Extinguishers - 75 kg – 2nos • 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 2021-22 is attached as **Annexure – II.**
(xiii)	The wastewater generated from the activity shall be collected, treated and reused properly.	**Complied.** MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. Average quantity of Sewage water treated in STPs during the compliance period is as furnished below.

Location	STP/ETP Capacity	Avg. Quantity of Sewage Water Treated (Apr'22 to Sep'22)
Near IWMS	STP 30 KLD	11.5 KLD
Near CFS	STP 5 KLD	3.1 KLD
Near Liquid Terminal	STP 10 KLD	2.8 KLD
Near Liquid Terminal	ETP 50 KLD	0.09 KLD

The monitoring results for the period April'22 to September'22 is enclosed as **Annexure - III**.

Summary of STP & ETP treated water analysis results during compliance period as mentioned below.

STP TREATED WATER ANALYSIS REPORT(AVG)				
Parameter	**Unit**	**Min**	**Max**	**TNPCB Limit**
pH	-	7.23	7.96	6.5 to 9
TSS	mg/l	8.4	23	30
BOD	mg/l	6	12	20
COD	mg/l	24	73	100
Faecal Coliform	MPN/100ml	80	280	<1000

ETP TREATED WATER ANALYSIS REPORT(AVG)				
Parameter	**Unit**	**RO-1**	**RO-2**	**TNPCB Limit**
pH	-	8.64	8.92	6.5 to 9
TSS	mg/l	4.8	2.2	200
TDS	mg/l	2056	1384	2100
BOD	mg/l	12	7.4	100
Oil & Grease	mg/l	BDL	BDL	10

All the parameters are well within the prescribed norms.

30 KLD STP

10 KLD STP

5 KLD STP

(xiv)	Sewage Treatment Facility should be provided in accordance with the CRZ Notification.	**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 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.

30 KLD STP

10 KLD STP

5 KLD STP

Summary of STP treated water analysis results during compliance period as mentioned below.

Parameter	Unit	Min	Max	TNPCB Limit
pH	-	7.23	7.96	6.5 to 9
TSS	mg/l	8.4	23	30
BOD	mg/l	6	12	20
COD	mg/l	24	73	100
Faecal Coliform	MPN/100ml	80	280	<1000

The monitoring results for the period April'22 to September'22 is enclosed as **Annexure - III**.

All the parameters are well within the prescribed norms.

(xv)	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.	**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, 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.

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–wastes are also stored in Integrated Waste Management Shed and disposed through approved vendor in line to 5 R principle.

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	Quantity Disposed
1.	Oil Contaminated Cotton Waste	IWMS	Disposed to authorized recycler	4.84 MT
2.	Used Oil	IWMS	Disposed to authorized Recycler	1.60 MT
3.	E-Waste	IWMS	Sold to Registered recycler / re-processor	5.84 MT
4.	Battery Waste	IWMS	Sold to Registered recycler / re-processor	8.88 MT
5.	Bio Medical Waste	Occupational Health Centre (OHC)	Sent to CBWTF for scientific Disposal.	3.9 Kg

(xvi)	Installation and operation of DG set if any shall comply with the guidelines of CPCB.	**Complied**. Tamil Nadu Electricity Board (TNEB) Power supply and inhouse Solar Plant (1 MW Capacity) are 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 April'22 to September'22 is attached as Annexure III. All the DG Sets are retrofitted 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.** **Ambient Air Quality** (twice in a week) including VOC is monitored through NABL accredited laboratory. Quality of Ambient Air confirm to the standard laid down by TNPCB / CPCB. Summary of Ambient Air Quality Monitored during Apr'22 to Sep'22 is tabulated below.

Ambient Air Quality Monitoring Locations: 4 Nos.

Parameter	Unit	Min	Max	NAAQM Norms
AAQM				
PM_{10}	µg/m³	41	71	100
$PM_{2.5}$	µg/m³	15	32	60
SO_2	µg/m³	5.0	8.9	80
NO_2	µg/m³	12.9	19.0	80
CO	mg/m³	<1.0	<1.0	2.0
Benzene	µg/m³	<1.0	<1.0	5
Benzo[a]Pyrene	ng/m³	<0.1	<0.1	1

Detailed Air Quality Monitoring Reports for the period April'22 to September'22 is enclosed as **Annexure-III.**

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

<table>
<tr><td>(xviii)</td><td>The project proponent shall undertake green belt development all along the periphery of the project area and also alongside the road.</td><td>Complied.

MIDPL is having adequate Greenbelt covering 25.43Ha (which includes 28,017 nos of trees covering 9.81Ha inside the Port premises and around 35,000 trees covering 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. 610 Nos of trees planted during the compliance period.</td></tr>
<tr><td>(xix)</td><td>All necessary clearances from the concerned agencies shall be obtained before initiating the project.</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>(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.

Oil Spill contingency Plan (OSCP) is in place and MIDPL is maintaining oil spill equipment as per Coast Guard guidelines and conducting oil spill mock drills at regular intervals.

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.

Details of Training and Mock Drill carried out during compliance period are as follows;</td></tr>
</table>

		<table><tr><th>Activity/ Drill</th><th>Number of Persons trained</th><th>Total Manhours Trained</th></tr><tr><td>IMO OSR Level-1 Training Conducted by Indian Coast Guard – 23rd to 27th May 2022</td><td>05</td><td>200</td></tr><tr><td>OSPR Equipment Quarterly Drill / Inspection- 24th & 25th August 2022</td><td>22</td><td>220</td></tr><tr><td>Total</td><td>27</td><td>420</td></tr></table>    
(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	**Complied.** Requisite permission for Water Supply and Electricity has been obtained from Chennai Metropolitan Water

	project are provided by the PWD/ Electricity Department.	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.	**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.  

		   
(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 Regulation Zone Notification 1991 & its amendments. All the construction designs /drawings relating to the proposed construction activities must have approvals of the concerned State	**Complied.** Project is in operation phase. All construction activity has been done in line to the existing Central/local rules including CRZ Notification, 2011 and CRZ & Environmental Clearance obtained

	Government Departments /Agencies.	
(ii)	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. shall be ensured for construction workers during the construction phase of the project so as to avoid felling of trees/mangroves and pollution of water and the surroundings.	**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 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	Quantity Disposed
1.	Dry Waste (Paper, Plastic, Metal waste, etc.)	IWMS	Material recovery Sent for Recycling	10.95MT
2.	Wet Waste (Food Waste)	Biogas Unit	Reprocess	1.07 MT
3.	Solid waste Dry and Wet port	Daily Disposal	Dry and Wet Waste separately for material recovery and composting respectively.	12.58 MT
4.	Sludges	STPs	Reprocessed for gardening manure	0.13 MT

Sewage & Effluent Treatment Facility:

MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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.

Average quantity of Sewage water treated in STPs during the compliance period is as furnished below.

Location	STP/ETP Capacity	Avg. Quantity of Sewage Water Treated (Apr'22 to Sep'22)
Near IWMS	**STP 30 KLD**	**11.5 KLD**
Near CFS	**STP 5 KLD**	**3.1 KLD**
Near Liquid Terminal	**STP 10 KLD**	**2.8 KLD**
Near Liquid Terminal	**ETP 50 KLD**	**0.09 KLD**

The monitoring results for the period April'22 to September'22 is enclosed as **Annexure - III**.

Summary of STP & ETP treated water analysis results during compliance period as mentioned below.

STP TREATED WATER ANALYSIS REPORT(AVG)				
Parameter	**Unit**	**Min**	**Max**	**TNPCB Limit**
pH	-	7.23	7.96	6.5 to 9
TSS	mg/l	8.4	23	30
BOD	mg/l	6	12	20
COD	mg/l	24	73	100
Faecal Coliform	MPN/100ml	80	280	<1000

ETP TREATED WATER ANALYSIS REPORT(AVG)				
Parameter	**Unit**	**RO-1**	**RO-2**	**TNPCB Limit**
pH	-	8.64	8.92	6.5 to 9
TSS	mg/l	4.8	2.2	200
TDS	mg/l	2056	1384	2100
BOD	mg/l	12	7.4	100
Oil & Grease	mg/l	BDL	BDL	10

All the parameters are well within the prescribed norms

30 KLD STP

10 KLD STP

5 KLD STP

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 Apr'22 to Sep'22 is as summarised below.

Total Ambient Air & Noise Sampling Locations: 4 Nos.

Parameter	Unit	Min	Max	NAAQM Norms
AAQM				
PM_{10}	$\mu g/m^3$	41	71	100
$PM_{2.5}$	$\mu g/m^3$	15	32	60
SO_2	$\mu g/m^3$	5.0	8.9	80
NO_2	$\mu g/m^3$	12.9	19.0	80
CO	mg/m^3	<1.0	<1.0	2.0
Benzene	$\mu g/m^3$	<1.0	<1.0	5
Benzo[a] Pyrene	ng/m^3	<0.1	<0.1	1

		<table><tr><th>Noise</th><th>Unit</th><th>Min</th><th>Max</th><th>NAAQM Norms</th></tr><tr><td>Day Time</td><td>dB(A)</td><td>40</td><td>68.4</td><td>75</td></tr><tr><td>Night Time</td><td>dB(A)</td><td>36.2</td><td>64.6</td><td>70</td></tr></table> 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 April'22 to September'22 is enclosed as **Annexure –III.** 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. Copies of the consent orders attached as Annexure - VIII
(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. 
(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.** MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. The monitoring results for the period April'22 to September'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 suggestion / representation has been received while processing the proposal.	**Complied.** This EC is just a bifurcation of original EC of LTSB.
(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

<table>
<tr>
<td>(x)</td>
<td>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</td>
<td>Complied.

Separate budget for the Environment Protection is earmarked every year. All the expenses are recorded in advanced accounting system (SAP) of the organization.

Expenditure for Environment Management measures during April'22 to September'22 is Rs. 145.84 Lakhs. The breakup details are as follows;

<table>
<tr><th>S. No.</th><th>Description of Work</th><th>Cost (Rs.) in Lakhs</th></tr>
<tr><td>1</td><td>Comprehensive Environmental Monitoring and other Environment related studies like Impact Assessment Study, 3 Season monitoring Study, etc.,</td><td>66.66</td></tr>
<tr><td>2</td><td>Integrated Waste Management</td><td>1.55</td></tr>
<tr><td>3</td><td>O&M of STP's & ETP</td><td>9.57</td></tr>
<tr><td>3</td><td>Housekeeping</td><td>46.67</td></tr>
<tr><td>4</td><td>Greenbelt</td><td>21.39</td></tr>
</table>
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</tr>
<tr>
<td>(xi)</td>
<td>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.</td>
<td>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 compliance period, Scientist "D", MoEFF&CC, IRO, Chennai visited port on 24.05.2022 and issued certified copy of compliance report of CRZ and EC vide their Letter No. E.P./12.1/2017-18/35/TN/564 dated 30.05.2022. Copy of the certified copy of the compliance report is attached as Annexure – IX.

Further, monthly visits were made by TNPCB Officials to monitor the compliance and all the necessary</td>
</tr>
</table>

		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.**
(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.

		MIDPL engaged Institute of Ocean Management, Anna University, Chennai to carry out shoreline study along with the details of combined effect on both the ports (i.e Ennore Port and Kattupalli Port) to monitor the impact of the post dumping and the report is under preparation for the year 2022. Report for the year 2020 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 Ports and shall be submitted to the Ministry,	**Complied.** 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 April'22 to September'22. MIDPL engaged Institute of Ocean Management, Anna University, Chennai for the above studies and the report is under preparation for the year 2022. Report for the year 2020 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/Granit	**Being Complied**. MIDPL is handing Containers, Ro-Ro, Project Cargo, Break bulk / General Cargo, Edible Oil, CBFS, Base oil and Lube Oil & Other Non-Hazardous liquid cargo only.

<table>
<tr>
<td></td>
<td>e/Steel cargo) – 1.82 MTPA and (v) Edible oil, CBFS, Base oil and Lube oil and non-hazardous liquid cargo - 0.57 MTPA</td>
<td>MIDPL has obtained “No increase in Pollution Load Certificate” from TNPCB Vide TNPCB Lr. No. T1/TNPCB /F.022882/RL/GMP/ NIPL / 2021 dated 12.01.2021 for the proposed change in cargo Mix (additional handling of Rock Phosphate, Dolomite, Bauxite cargos and increase the non-hazardous liquid cargo capacity from 0.57 MMTPA to 0.72 MMTPA by optimally deploying the port infrastructure being developed without change in the overall handling capacity approved in the EC & CRZ by MoEF & CC) and subsequently, obtained CTO orders vide Consent Order No. 2105236876761 (Air Act) and 2105136876761 (Water Act) on 13.09.2021 valid till 31.03.2026. Details of Cargo handled with quantity are presented in the below table.
<table>
<tr><th>.No.</th><th>Description</th><th>Capacity</th></tr>
<tr><td>1</td><td>Containers</td><td>21.60 MMTPA</td></tr>
<tr><td>2</td><td>Ro-Ro – Automobiles</td><td>0.07 MMTPA</td></tr>
<tr><td>3</td><td>Project Cargo</td><td>0.44 MTPA</td></tr>
<tr><td>4</td><td>Break Bulk/general cargo (Barytes / Gypsum / Limestone / Granite / Steel Cargo / Rock Phosphate / Bauxite / Dolomite cargoes)</td><td>1.82 MTPA</td></tr>
<tr><td>5</td><td>Edible oil, CBFS, Base Oil, Lube and Non-Hazardous Liquid Cargo</td><td>0.72 MTPA</td></tr>
<tr><td colspan="2">Total Handling capacity at Port</td><td>24.65 MTPA</td></tr>
</table>
</td>
</tr>
<tr>
<td>(ii)</td>
<td>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.</td>
<td>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.</td>
</tr>
</table>

(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 Coastal Regulation Zone Notification, 2011 and its subsequent amendments made there under from time to time.	**Noted for Compliance.**
6	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.	**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 - 50KL — P/SC/TN/14/6260 (P266084) — 16.08.2012
7	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 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.	**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.
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.**

<table>
<tr><td>9</td><td>Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.</td><td>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 2021-2022 was submitted to TNPCB vide letter No. MIDPL/TNPCB/2021-22/179 dated 22.09.2022. Copy of the same is attached as Annexure VII. Form V for the year 2021-22 is also uploaded on Company website (Form-V_Environment-Statement_MIDPL_FY2021_22.pdf (adaniports.com)) and sent to Regional Office of MoEF&CC through e-mail on 22.09.22.
The details of the past six Half yearly compliance reports are as tabulated below for reference.
<table>
<tr><th>S.No.</th><th>Compliance period</th><th>Date of submission</th></tr>
<tr><td>1.</td><td>Oct'18 to Mar'19</td><td>24.05.2019</td></tr>
<tr><td>2.</td><td>Apr'19 to Sep'19</td><td>25.11.2019</td></tr>
<tr><td>3.</td><td>Oct'19 to Mar'20</td><td>31.05.2020</td></tr>
<tr><td>4.</td><td>Apr'20 to Sep'20</td><td>27.11.2020</td></tr>
<tr><td>5.</td><td>Oct'20 to Mar'21</td><td>20.05.2021</td></tr>
<tr><td>6.</td><td>Apr'21 to Sep'21</td><td>24.11.2021</td></tr>
<tr><td>7.</td><td>Oct'21 to Mar'22</td><td>17.05.2022</td></tr>
</table></td></tr>
<tr><td>10</td><td>This CRZ and Environmental Clearance is valid till 2" July, 2019.</td><td>Noted.</td></tr>
<tr><td>11</td><td>This issue with the approval of the Competent Authority.</td><td>Noted.</td></tr>
</table>

ANNEXURE – 1

(DoE COMPLIANCE STATUS)

adani Ports and Logistics	**Marine Infrastructure Developer Pvt Ltd**	**From : April 2022 To : September 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.** MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. Average quantity of Sewage water treated in STPs during the compliance period is as furnished below.

Location	STP/ETP Capacity	Avg. Quantity of Sewage Water Treated (Apr'22 to Sep'22)
Near IWMS	STP 30 KLD	11.5 KLD
Near CFS	STP 5 KLD	3.1 KLD
Near Liquid Terminal	STP 10 KLD	2.8 KLD
Near Liquid Terminal	ETP 50 KLD	0.09 KLD

<table>
<tr>
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<td>
The monitoring results for the period April'22 to September'22 is enclosed as Annexure - III.

Summary of STP & ETP treated water analysis results during compliance period as mentioned below.
<table>
<tr><th colspan="5">STP TREATED WATER ANALYSIS REPORT(AVG)</th></tr>
<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>7.23</td><td>7.96</td><td>6.5 to 9</td></tr>
<tr><td>TSS</td><td>mg/l</td><td>8.4</td><td>23</td><td>30</td></tr>
<tr><td>BOD</td><td>mg/l</td><td>6</td><td>12</td><td>20</td></tr>
<tr><td>COD</td><td>mg/l</td><td>24</td><td>73</td><td>100</td></tr>
<tr><td>Faecal Coliform</td><td>MPN/100ml</td><td>80</td><td>280</td><td><1000</td></tr>
</table>

<table>
<tr><th colspan="5">ETP TREATED WATER ANALYSIS REPORT(AVG)</th></tr>
<tr><th>Parameter</th><th>Unit</th><th>RO-1</th><th>RO-2</th><th>TNPCB Limit</th></tr>
<tr><td>pH</td><td>-</td><td>8.64</td><td>8.92</td><td>6.5 to 9</td></tr>
<tr><td>TSS</td><td>mg/l</td><td>4.8</td><td>2.2</td><td>200</td></tr>
<tr><td>TDS</td><td>mg/l</td><td>2056</td><td>1384</td><td>2100</td></tr>
<tr><td>BOD</td><td>mg/l</td><td>12</td><td>7.4</td><td>100</td></tr>
<tr><td>Oil & Grease</td><td>mg/l</td><td>BDL</td><td>BDL</td><td>10</td></tr>
</table>

All the parameters are well within the prescribed norms.

</td>
</tr>
<tr>
<td>iv</td>
<td>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</td>
<td>Complied.

LTSB carried out the studies during Construction Phase.</td>
</tr>
</table>

	Environmental Management Plan [EMP].	
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. This EC & CRZ Clearance is just a bifurcation of original EC & CRZ clearance of LTSB in name of MIDPL & LTSB.
General Conditions		
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. This EC & CRZ Clearance is just a bifurcation of original EC & CRZ clearance of LTSB in name of MIDPL & LTSB. 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 and the report is under preparation for the year 2022. However, Report for the year 2020 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. MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. All the parameters are well within the prescribed norms.
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 and spirit. MIDPL is having an adequate Greenbelt covering 25.43Ha (which includes 5.33Ha 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 30.09.2022) is 28,017 Nos., and 610 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 April 2022 to September 2022 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-2022/156

Date: 27/06/2022

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'2021 to March'2022- Reg.

M/s. Marine Infrastructure Developer Private Limited has submitted the Hazardous Waste Annual Returns (Form 4) in Online Consent Management and Monitoring System (OCMMS) for the period April'21 to March'22 vide Return No. *46315655*

Soft copy of the submitted Form 4 is attached herewith for your kind information and records.

Thanking you.

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

27/06/22

R. Sathish Kumar
Head - Environment

Marine Infrastructure Developer Pvt Ltd
Chennai
600 120

Encl: As above

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

FORM 4

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

Annual Return

under

Hazardous & Other Wastes(Management & Transboundary Movement) Rules, 2016

Transboundary Movement) Rules, 2016

To be submitted to State Pollution Control Board by 30th day of June of every year for the preceding period April to March

Return No : *46315655* **Period :** *2021-2022*

1. Name of facility/Industry **Industry Address of facility/Industry**	*MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED* *PB No. 001, KATTUPALLI PORT, KATTUPALLI VILLAGE*
2. UID	*R17AMB9758447*
3.Authorisation No **Date of issue:** **Date of Expiry**	*19HFC20312718* *30/04/2019* *29/04/2024*
4. (i) Name of the authorised person & Designation	*Jai Singh Khurana* *Managing Director*
(ii) Correspondence Address	*Ramcon Fortuna Towers, 4th floor No 1/2, Kodambakkam High Road, Nungambakkam, Chennai- 600034*
(iii) Mobile No	*9176000959*
(iv) Land Line No (with area code)	
(iv) Fax number (with area code)	
(vi) e-mail	*sathish.r@adani.com*

5. Production during the year (product wise), wherever applicable

Sr.no	Product Name	Quantity	Unit
1	*Containers*	*6347685.6*	*Metric Ton*
2	*Ro-Ro Automobiles*	*0*	*Metric Ton*
3	*project Cargo*	*0*	*Metric Ton*
4	*Break Bulk / General Cargo*	*653742.98*	*Metric Ton*
5	*Edible Oil, CBFS, Base oil, Lube and Non-Hazardous liquid cargo*	*388739.48*	*Metric Ton*

Part A. To be filled by hazardous waste generators

Sr.no	Category	Unit	Quantity in stock at the beginning of the year	Total quantity of waste generated	Quantity dispatched to disposal facility	Quantity dispatched to recycler or co-processors or pre-processor	Quantity dispatched to others	Quantity utilised in house	Quantity in storage at the end of the year

1	Schedule I - 3. Cleaning, emptying and maintenance of petroleum oil storage tanks including ships - 3.1-Cargo residue, washing water and sludge containing oil	Metric Ton	0	0	0	0	0	0	0
2	Schedule I - 33 Disposal of barrels / containers used for handling of hazardous wastes / chemicals - 33.1. Chemical-containing residue arising from decontamination	Metric Ton	0	0	0	0	0	0	0
3	Schedule I - 5. Industrial operations using mineral or synthetic oil as lubricant in hydraulic systems or other applications - 5.1-Used or spent oil	Metric Ton	0	2.079	2.079	2.079	0	0	0

Part B. To be filled by Treatment, storage and disposal facility operators									
Sr.no	Category	Unit	Quantity in stock at the beginning of the year	Total quantity received	Quantity treated	Quantity disposed in landfills as such and after treatment	Quantity incinerated (If applicable)	Quantity processed other than specified above	Quantity in storage at the end of the year

Part C. To be filled by recyclers or co-processors or other users										
Sr.no	Category	Unit	Quantity in stock at the beginning of the year	Quantity of waste received during the year from Domestic sources	Quantity of waste received during the year Imported	Quantity recycled or co-processed or used	Quantity of waste generated	Quantity of waste disposed	Quantity re-exported (wherever applicable)	Quantity in storage at the end of the year

Quantity of products dispatched during the year (wherever applicable)			
Sr.no	Product dispatched	Quantity	Unit

Date : 25/06/2022

Place : Tiruvallur

Jai Singh Khurana

Name of the Occupier or Operator of the disposal facility

Marine Infrastructure Developer Pvt Ltd. Chennai 600 120

ANNEXURE – 3

(MIDPL MONITORING REPORT APR'22 - SEP'22)

REPORT ON

COMPREHENSIVE ENVIRONMENTAL MONITORING

FOR

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

APRIL 2022 - SEPTEMBER 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 Apr 2022 to Sep 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 ^{o}C for 3 days • Dissolved oxygen • Salinity at 25 ^{o}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	Monthly Once

		• Delta HCH • 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	Monthly Once

		• Potassium • 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 di-oxide 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	Instrument Manual, 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	
	Phytobenthos 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 - Apr 2022 - Sep 2022

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 Apr 2022 - Sep 2022.

The following parameters were recorded

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

ANNEXURE - 1 MICROMETEOROLOGY DATA

Apr - 2022

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-04-2022 00:00:00 To: 30-04-2022 23:59:59							
Created By: ADANI Created At: 01.05.2022							
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	*4.1*	*225*	*91.9*	*0.0*	*1005.0*	*32.7*	*260.8*
Min	*2.2*	*122*	*87.3*	-	*1002.2*	*30.3*	*104.6*
Max	*6.5*	*246*	*96.1*	-	*1008.2*	*33.3*	*483.0*
01-04-2022	*5.0*	*237*	*93.9*	*0.0*	*1005.1*	*32.0*	*212.3*
02-04-2022	*4.7*	*240*	*93.5*	*0.0*	*1006.4*	*32.2*	*239.1*
03-04-2022	*2.2*	*246*	*96.1*	*0.0*	*1006.7*	*30.3*	*196.3*
04-04-2022	*3.9*	*242*	*90.7*	*0.0*	*1006.7*	*32.4*	*275.5*
05-04-2022	*3.8*	*239*	*90.3*	*0.0*	*1008.2*	*32.2*	*261.9*
06-04-2022	*3.3*	*220*	*91.7*	*0.0*	*1008.2*	*31.7*	*256.6*
07-04-2022	*6.5*	*122*	*87.5*	*0.0*	*1006.5*	*32.8*	*312.9*
08-04-2022	*5.6*	*138*	*87.3*	*0.0*	*1006.1*	*32.5*	*483.0*
09-04-2022	*	*	*	*	*	*	*
10-04-2022	*	*	*	*	*	*	*
11-04-2022	*	*	*	*	*	*	*
12-04-2022	*	*	*	*	*	*	*
13-04-2022	*3.2*	*234*	*93.8*	*0.0*	*1003.4*	*32.8*	*104.6*
14-04-2022	*4.0*	*232*	*90.4*	*0.0*	*1003.8*	*32.9*	*269.4*
15-04-2022	*5.1*	*235*	*91.7*	*0.0*	*1003.4*	*33.1*	*271.8*
16-04-2022	*4.4*	*235*	*91.7*	*0.0*	*1002.2*	*33.3*	*249.4*
17-04-2022	*3.8*	*232*	*91.4*	*0.0*	*1003.1*	*33.1*	*237.2*
18-04-2022	*3.2*	*212*	*94.9*	*0.0*	*1005.1*	*32.8*	*252.3*
19-04-2022	*3.1*	*232*	*93.8*	*0.0*	*1006.1*	*33.0*	*263.1*
20-04-2022	*3.2*	*244*	*92.2*	*0.0*	*1004.7*	*33.0*	*263.3*
21-04-2022	*4.0*	*241*	*90.0*	*0.0*	*1004.4*	*33.0*	*271.6*
22-04-2022	*3.3*	*212*	*89.1*	*0.0*	*1005.9*	*32.8*	*287.5*
23-04-2022	*3.8*	*219*	*91.1*	*0.0*	*1006.0*	*33.1*	*281.2*
24-04-2022	*3.3*	*227*	*91.4*	*0.0*	*1004.8*	*32.8*	*260.6*
25-04-2022	*5.1*	*238*	*91.2*	*0.0*	*1003.9*	*32.8*	*255.6*
26-04-2022	*4.6*	*242*	*91.8*	*0.0*	*1004.3*	*32.9*	*247.8*
27-04-2022	*3.9*	*239*	*92.8*	*0.0*	*1004.0*	*32.9*	*260.2*
28-04-2022	*4.5*	*237*	*92.4*	*0.0*	*1004.7*	*32.9*	*268.5*
29-04-2022	*3.9*	*232*	*93.9*	*0.0*	*1004.3*	*33.2*	*258.0*
30-04-2022	*4.5*	*234*	*95.2*	*0.0*	*1002.9*	*33.0*	*240.6*
Remarks:	*Power supply problem						

May - 2022

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-05-2022 00:00:00 To: 31-05-2022 23:59:59							
Created By: ADANI Created At: 01.06.2022 09:30:00							
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	5.6	220	89.3	0.0	1000.3	32.8	233.2
Min	3.3	158	67.0	-	996.4	29.3	49.1
Max	10.0	244	98.7	-	1003.9	34.8	312.9
01-05-2022	4.6	234	96.6	0.0	1001.2	33.3	245.9
02-05-2022	3.7	216	88.3	0.0	1001.1	33.1	250.6
03-05-2022	3.5	233	95.7	0.0	1002.5	33.7	244.4
04-05-2022	3.6	216	96.7	0.0	1003.9	33.1	192.7
05-05-2022	3.3	205	93.5	0.0	1003.3	32.9	244.3
06-05-2022	3.9	206	94.8	0.0	1002.5	33.5	223.7
07-05-2022	4.6	184	93.0	0.0	1001.7	32.6	238.9
08-05-2022	4.0	158	97.0	0.0	999.8	32.9	202.0
09-05-2022	3.7	193	95.8	0.0	997.3	32.5	72.5
10-05-2022	5.9	224	98.7	0.0	996.4	29.3	49.1
11-05-2022	8.4	244	84.0	0.0	997.3	31.0	131.3
12-05-2022	9.6	235	86.8	0.0	999.7	29.9	127.2
13-05-2022	6.0	234	95.1	0.0	999.4	31.2	181.7
14-05-2022	4.8	225	92.5	0.0	999.3	32.8	254.8
15-05-2022	5.3	229	95.3	0.0	1000.4	32.5	280.1
16-05-2022	4.9	229	95.1	0.0	1000.1	31.7	237.7
17-05-2022	3.7	241	96.3	0.0	999.5	32.1	218.5
18-05-2022	5.1	233	94.9	0.0	999.8	32.7	312.9
19-05-2022	5.1	231	92.3	0.0	1000.7	32.8	271.2
20-05-2022	6.8	213	79.5	0.0	1001.3	32.9	228.1
21-05-2022	10.0	242	69.0	0.0	999.9	33.9	285.4
22-05-2022	8.2	219	67.0	0.0	997.7	34.8	252.5
23-05-2022	7.0	220	80.0	0.0	997.9	33.8	298.9
24-05-2022	5.0	225	89.6	0.0	1000.3	33.7	268.9
25-05-2022	4.2	227	87.6	0.0	1002.1	33.9	275.7
26-05-2022	7.4	231	83.4	0.0	1002.2	33.2	232.3
27-05-2022	6.6	203	82.6	0.0	1001.6	33.3	283.4
28-05-2022	6.5	207	88.6	0.0	1000.5	33.2	273.4
29-05-2022	6.6	221	87.3	0.0	1000.4	33.5	286.5
30-05-2022	5.9	229	88.2	0.0	999.8	33.5	274.2
31-05-2022	6.3	220	82.8	0.0	998.9	34.1	291.5

June - 2022

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-06-2022 00:00:00 To: 30-06-2022 23:59:59							
Created By: ADANI Created At: 01.07.2022 10:05:00							
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	5.6	219	87.0	125.6	1000.3	33.0	252.0
Min	2.2	192	78.4	-	998.4	30.4	120.8
Max	8.1	247	95.1	-	1002.4	34.5	304.0
01-06-2022	6.1	219	84.9	0.0	998.8	34.0	265.3
02-06-2022	5.6	223	81.4	0.0	998.8	34.2	244.3
03-06-2022	5.1	216	82.0	0.0	998.4	34.1	269.0
04-06-2022	4.5	218	87.3	0.0	998.8	33.4	169.1
05-06-2022	6.4	230	91.3	0.0	998.7	33.5	239.6
06-06-2022	8.1	197	88.3	0.0	1000.2	32.1	226.9
07-06-2022	6.5	232	78.4	0.0	999.7	33.7	248.6
08-06-2022	7.0	239	81.6	0.0	999.0	34.2	260.8
09-06-2022	6.0	210	85.9	0.0	999.2	33.8	269.7
10-06-2022	6.5	236	82.3	0.0	999.9	34.5	274.7
11-06-2022	7.0	235	83.5	0.0	1000.9	33.8	219.1
12-06-2022	6.5	193	88.3	0.0	1001.3	33.7	304.0
13-06-2022	5.0	204	86.3	1.0	1002.4	32.7	284.1
14-06-2022	5.6	192	88.2	0.0	1001.3	33.8	288.3
15-06-2022	6.0	205	82.4	0.0	1001.2	33.2	303.8
16-06-2022	5.4	197	87.0	0.0	1001.4	32.9	298.5
17-06-2022	4.9	206	89.2	0.0	1001.5	32.8	270.9
18-06-2022	3.8	233	92.7	9.6	1001.9	32.3	185.2
19-06-2022	4.3	233	94.2	0.0	1002.0	32.4	237.7
20-06-2022	5.2	239	93.0	31.0	1001.0	30.8	299.4
21-06-2022	5.9	227	95.1	37.2	999.9	30.4	191.4
22-06-2022	3.4	226	92.4	17.8	1001.0	31.9	266.5
23-06-2022	2.2	247	93.8	0.0	1002.2	31.9	120.8
24-06-2022	6.2	228	87.9	7.0	1000.5	33.0	288.0
25-06-2022	6.9	225	84.5	5.0	998.8	32.4	275.7
26-06-2022	7.5	237	83.5	0.0	999.4	33.1	277.0
27-06-2022	5.4	214	82.8	0.0	1001.2	32.7	181.1
28-06-2022	4.0	194	88.3	0.0	1001.3	32.1	198.6
29-06-2022	5.3	215	87.4	3.0	999.4	32.9	289.0
30-06-2022	4.5	213	89.5	14.0	998.9	32.5	272.1

July - 2022

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-07-2022 00:00:00 To: 31-07-2022 23:59:59							
Created By: ADANI Created At: 01.08.2022 10:30:00							
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	6.0	224	89.4	0.0	1000.6	31.8	217.2
Min	3.7	165	74.1	-	996.9	30.1	138.2
Max	9.9	256	97.7	-	1003.8	33.2	312.9
01-07-2022	5.9	219	89.8	0.0	998.9	32.2	261.3
02-07-2022	5.4	230	89.5	0.0	998.1	32.2	269.2
03-07-2022	5.7	238	88.0	0.0	998.2	33.0	178.6
04-07-2022	6.8	246	79.3	0.0	998.3	33.2	187.0
05-07-2022	7.8	243	82.7	0.0	998.3	31.7	196.0
06-07-2022	5.6	234	93.0	0.0	1000.2	31.0	160.2
07-07-2022	6.7	233	87.2	0.0	1001.6	31.8	151.3
08-07-2022	6.5	256	87.9	0.0	1000.8	30.9	139.9
09-07-2022	6.9	234	88.0	0.0	998.9	30.4	138.2
10-07-2022	7.4	234	94.2	0.0	999.2	30.6	138.9
11-07-2022	9.6	231	88.0	0.0	1000.8	31.0	142.3
12-07-2022	8.1	239	84.1	0.0	1000.1	31.9	229.9
13-07-2022	7.6	235	86.1	0.0	998.1	31.5	143.0
14-07-2022	9.9	238	75.8	0.0	996.9	32.9	289.0
15-07-2022	7.8	237	74.1	0.0	998.4	33.0	231.4
16-07-2022	7.8	228	80.8	0.0	999.8	32.3	238.0
17-07-2022	6.7	231	93.7	0.0	1000.5	31.2	166.1
18-07-2022	5.2	237	92.5	0.0	1001.6	31.5	153.4
19-07-2022	4.7	197	91.7	0.0	1001.6	32.4	297.1
20-07-2022	4.6	230	92.5	0.0	1001.8	32.3	282.3
21-07-2022	6.4	235	92.7	0.0	1001.3	31.5	262.1
22-07-2022	3.7	209	97.7	0.0	1001.7	32.0	197.2
23-07-2022	4.4	206	95.9	0.0	1001.0	31.5	170.4
24-07-2022	4.2	224	91.9	0.0	1001.7	31.6	209.2
25-07-2022	4.2	202	90.4	0.0	1002.5	32.0	284.9
26-07-2022	6.2	211	96.6	0.0	1003.8	30.1	154.8
27-07-2022	4.3	181	93.4	0.0	1003.3	31.3	296.7
28-07-2022	4.7	165	94.1	0.0	1003.8	31.9	312.9
29-07-2022	3.7	202	94.0	0.0	1003.4	32.2	266.4
30-07-2022	3.8	219	92.2	0.0	1002.2	32.6	291.4
31-07-2022	4.2	224	92.1	0.0	1000.2	32.9	295.6

Aug - 2022

Marine Infrastructure Developer Private Ltd							
Report Type: Average Report							
From: 01-08-2022 00:00:00 To: 31-08-2022 23:59:59							
Created By: ADANI Created At: 01.09.2022 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	6.1	216	88.8	42.1	1000.6	32.1	237.3
Min	2.6	162	66.8	-	996.9	30.2	100.8
Max	10.9	245	99.9	-	1003.6	34.1	309.0
01-08-2022	5.2	187	92.1	0.0	999.5	32.8	306.2
02-08-2022	3.8	187	99.1	0.0	998.4	31.5	188.4
03-08-2022	2.6	185	99.8	2.6	998.8	30.4	127.6
04-08-2022	3.9	218	99.9	3.8	999.0	30.2	100.8
05-08-2022	7.8	241	91.3	0.1	999.2	30.5	152.6
06-08-2022	9.7	241	85.7	0.0	998.6	31.4	191.4
07-08-2022	9.6	232	84.5	0.0	997.4	31.9	167.8
08-08-2022	10.2	237	79.4	0.0	996.9	32.7	226.8
09-08-2022	10.9	236	66.8	0.0	997.3	33.8	245.7
10-08-2022	10.5	234	70.5	0.0	997.6	33.6	301.8
11-08-2022	8.8	236	72.0	0.0	999.3	33.9	309.0
12-08-2022	6.9	241	74.9	0.0	1000.2	34.1	296.7
13-08-2022	5.7	203	82.4	0.0	1000.8	33.2	273.4
14-08-2022	4.7	220	85.2	0.0	1002.0	32.6	209.9
15-08-2022	4.9	223	89.0	0.0	1003.2	32.7	236.1
16-08-2022	4.8	245	94.0	0.0	1003.6	32.7	260.6
17-08-2022	5.0	233	91.5	0.0	1003.4	32.5	275.6
18-08-2022	5.4	218	90.1	0.0	1001.9	32.4	274.4
19-08-2022	5.4	202	92.6	0.0	1001.7	32.7	178.3
20-08-2022	5.6	211	87.0	0.0	1001.3	33.3	254.3
21-08-2022	6.0	208	86.4	0.2	1000.9	32.8	215.2
22-08-2022	5.9	207	91.9	7.0	1000.5	31.6	201.2
23-08-2022	6.6	217	93.3	0.2	1000.9	31.2	217.3
24-08-2022	5.3	232	89.9	4.6	1002.6	32.4	259.9
25-08-2022	5.8	234	89.2	0.0	1001.8	32.0	300.2
26-08-2022	4.6	212	93.3	0.2	1001.5	31.5	287.7
27-08-2022	5.9	206	95.5	0.0	1001.4	30.6	245.4
28-08-2022	4.9	220	93.4	0.0	1001.1	31.0	277.8
29-08-2022	4.3	179	99.2	2.4	1002.6	31.4	263.5
30-08-2022	3.8	162	95.4	0.8	1003.6	32.0	296.3
31-08-2022	3.2	182	96.7	20.2	1003.1	31.3	213.1

Sep - 2022

Marine Infrastructure Developer Private Ltd

Report Type: Average Report

From: 01-09-2022 00:00:00 To: 30-09-2022 23:59:59

Created By: ADANI Created At: 01.10.2022 09:10:15

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	4.5	223	92.0	61.7	1002.3	31.8	95.0
Min	1.1	176	79.4	-	1000.0	28.9	14.8
Max	9.5	251	99.9	-	1005.4	33.2	302.9
01-09-2022	1.1	251	99.9	14.2	1003.4	28.9	99.2
02-09-2022	2.5	217	94.0	0.2	1003.8	30.9	298.8
03-09-2022	3.6	216	93.8	0.0	1003.4	31.8	260.7
04-09-2022	4.3	230	95.9	0.0	1002.9	32.3	258.9
05-09-2022	4.3	225	90.6	0.0	1002.2	32.8	272.9
06-09-2022	3.6	227	93.3	0.0	1001.6	33.2	302.9
07-09-2022	4.4	189	98.6	0.0	1002.0	30.6	171.3
08-09-2022	4.1	248	99.9	0.4	1001.8	29.6	76.4
09-09-2022	4.4	209	94.0	6.8	1000.8	30.9	180.9
10-09-2022	5.4	237	90.1	0.0	1000.4	31.7	131.3
11-09-2022	9.5	231	84.1	0.0	1000.0	32.7	188.4
12-09-2022	6.3	230	89.0	0.0	1000.4	32.5	256.2
13-09-2022	4.9	230	90.5	0.0	1002.3	32.6	18.8
14-09-2022	5.5	234	95.4	0.0	1004.5	32.4	18.5
15-09-2022	3.1	236	93.5	0.0	1005.4	31.4	17.5
16-09-2022	4.5	222	92.1	0.4	1003.0	32.0	17.9
17-09-2022	4.8	237	92.7	1.0	1002.4	32.8	14.8
18-09-2022	4.4	223	90.6	1.7	1002.8	32.8	17.1
19-09-2022	5.3	237	87.2	0.0	1002.6	32.5	18.2
20-09-2022	5.6	243	79.4	0.0	1002.0	32.3	18.3
21-09-2022	5.1	208	83.5	0.2	1002.1	32.4	19.5
22-09-2022	5.8	211	84.5	0.0	1002.5	33.2	19.7
23-09-2022	3.9	213	84.5	0.0	1003.3	33.1	19.6
24-09-2022	4.5	187	86.7	0.0	1002.8	32.6	19.7
25-09-2022	4.7	182	89.1	0.0	1002.0	32.6	19.7
26-09-2022	2.9	250	96.0	0.0	1003.0	31.7	20.0
27-09-2022	4.6	176	93.7	20.4	1002.0	31.8	19.7
28-09-2022	3.8	227	99.4	15.0	1001.1	30.6	19.0
29-09-2022	3.4	227	99.9	0.6	1001.1	30.2	27.0
30-09-2022	3.8	226	99.4	0.8	1001.1	30.3	26.3

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

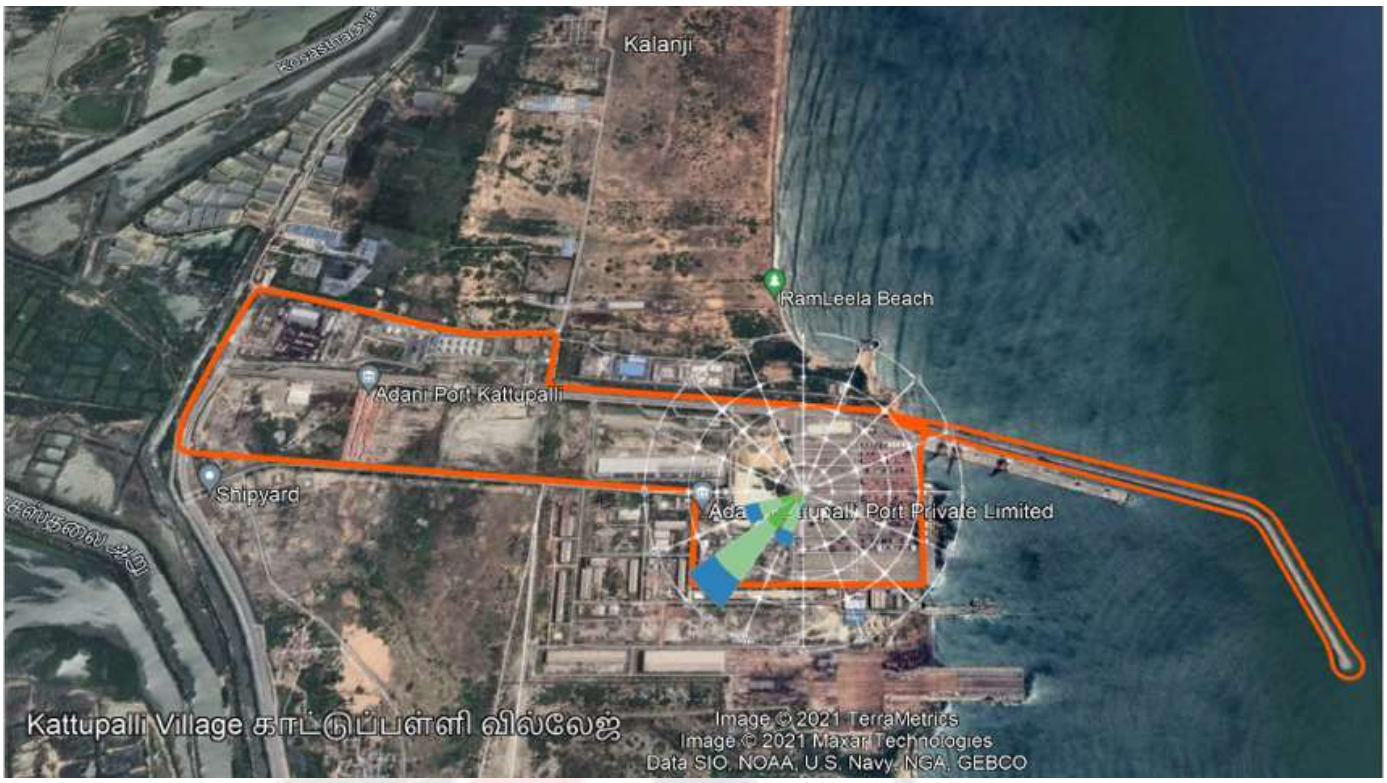
The frequency of monitoring that has been followed for sampling of ambient air quality is that one sample per weekly twice at three locations.

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

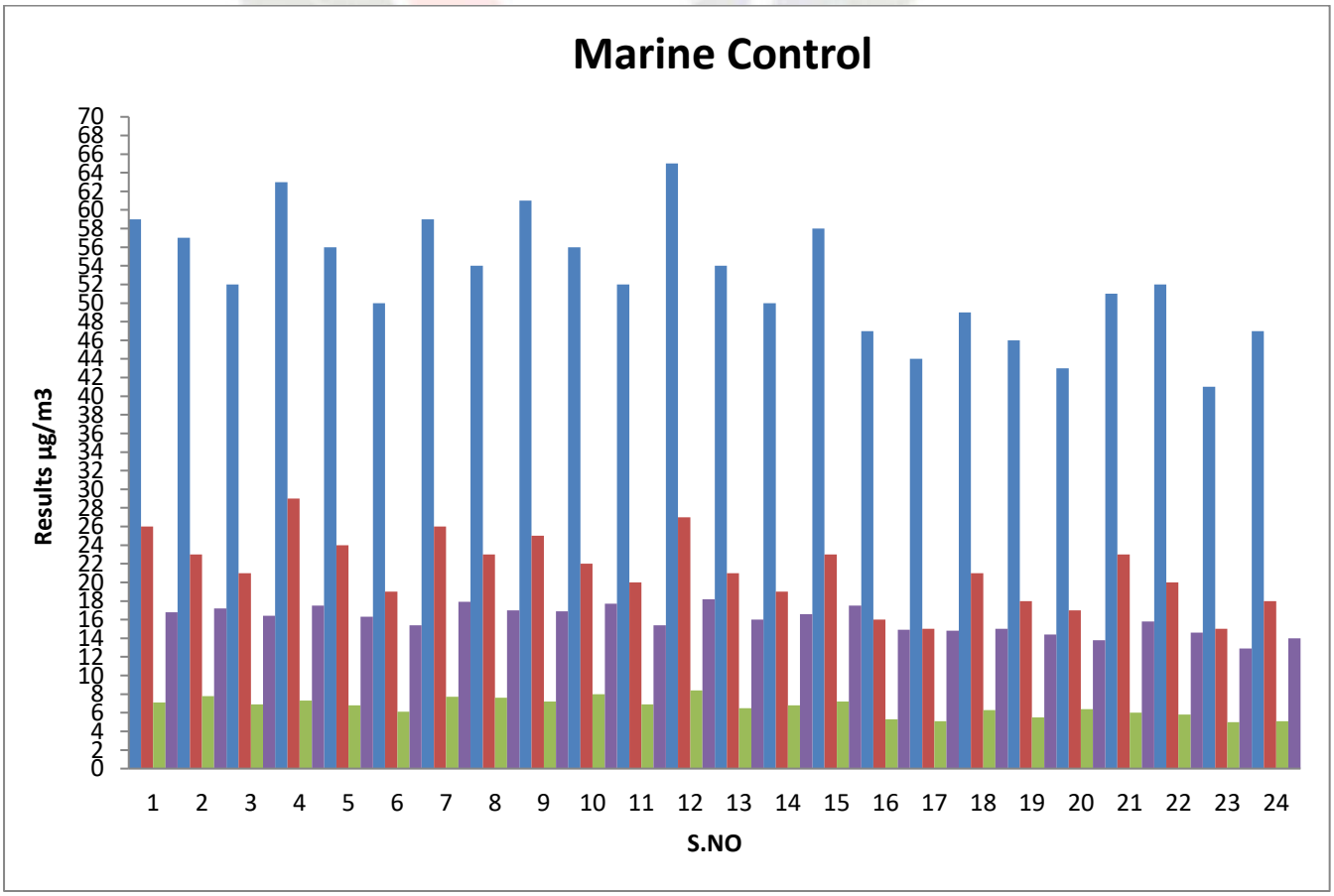
Results and Discussion

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

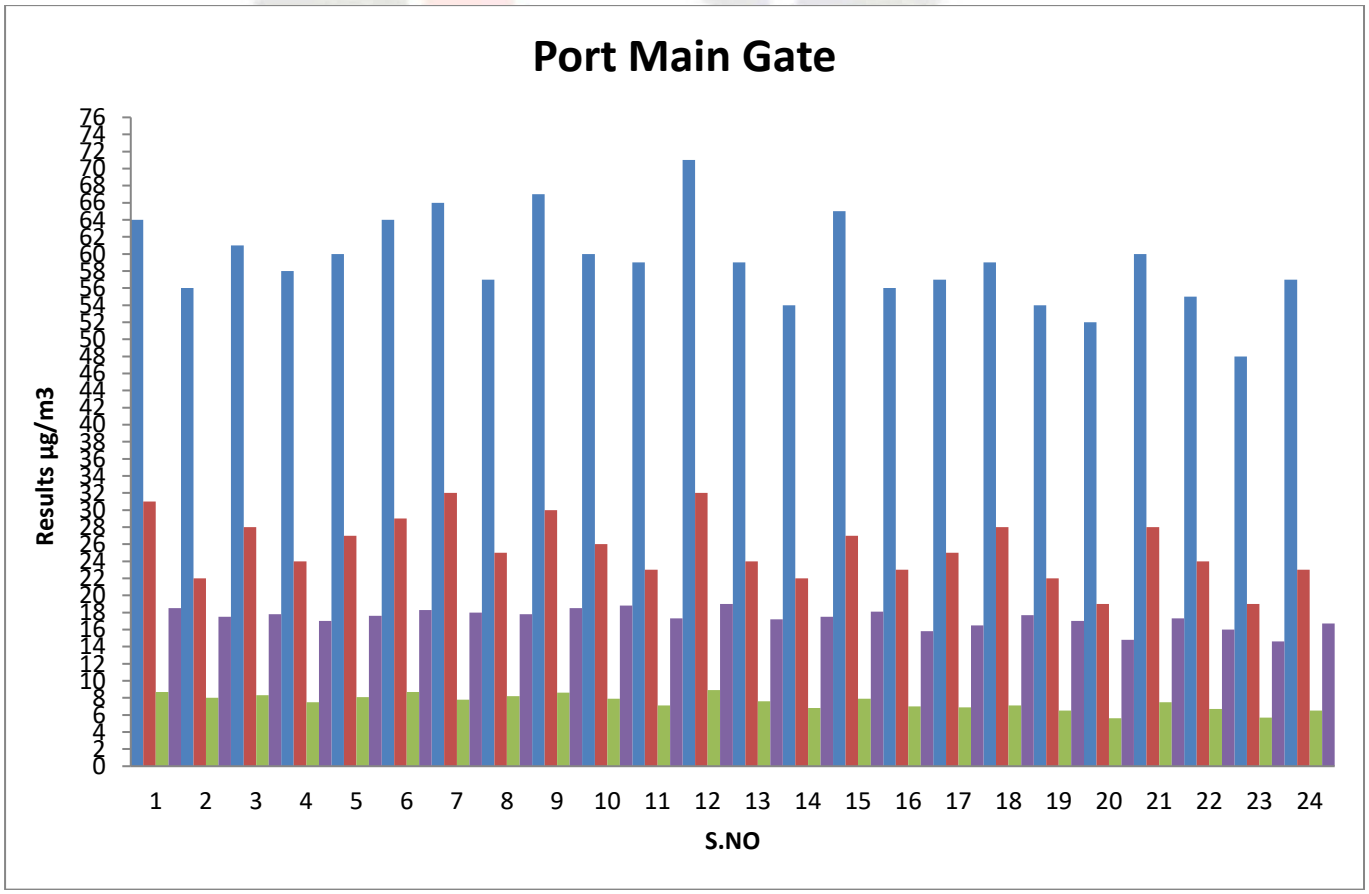
presented in the Table and the detailed analytical results are shown in Annexure - 2. These are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Industrial, Rural, Residential and other areas"

ANNEXURE - 2 RESULTS OF AMBIENTAIRQUALITYMONITORING DATA

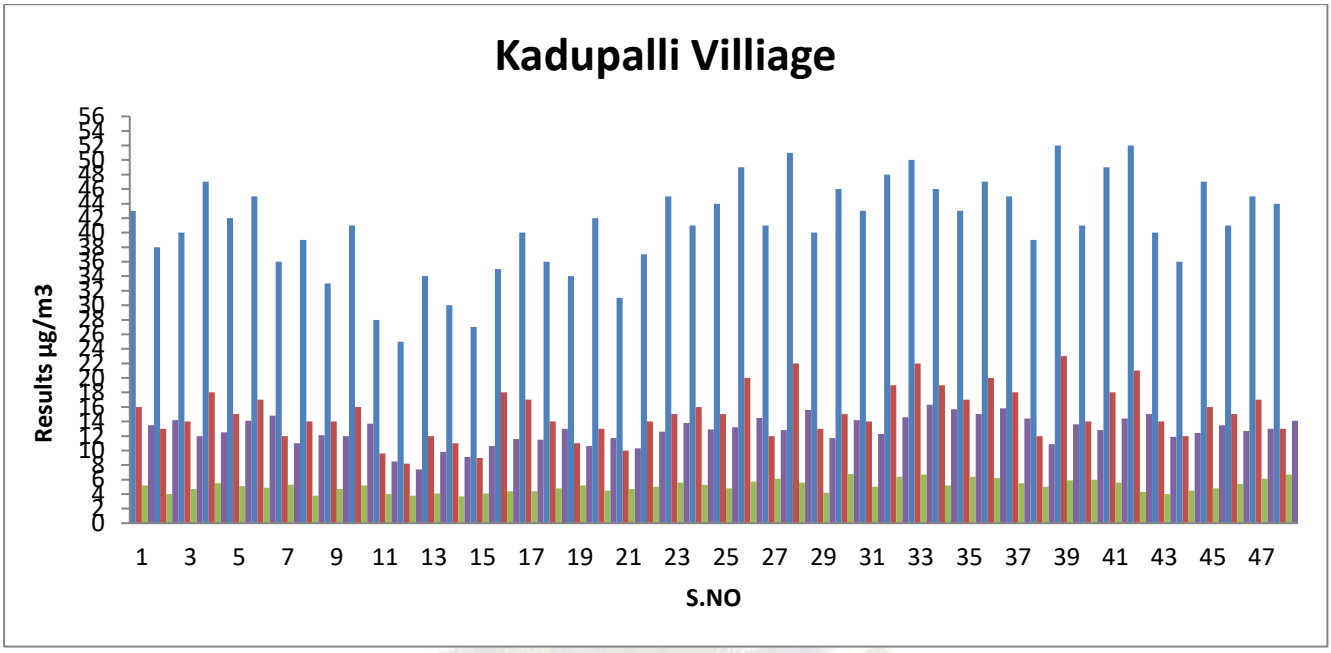
MARINE CONTROL TOWER (AAQ1)														
Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	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	05.04.2022	GCS/LAB/S/1292/22-23	59	26	7.1	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	09.04.2022	GCS/LAB/S/1292/22-23	57	23	7.8	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	19.04.2022	GCS/LAB/S/1292/22-23	52	21	6.9	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	23.04.2022	GCS/LAB/S/1292/22-23	63	29	7.3	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	10.05.2022	GCS/LAB/S/1349/22-23	56	24	6.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	14.05.2022	GCS/LAB/S/1349/22-23	50	19	6.1	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.05.2022	GCS/LAB/S/1349/22-23	59	26	7.7	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	26.05.2022	GCS/LAB/S/1349/22-23	54	23	7.6	17	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	07.06.2022	GCS/LAB/S/1420/22-23	61	25	7.2	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	11.06.2022	GCS/LAB/S/1420/22-23	56	22	8	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	21.06.2022	GCS/LAB/S/1420/22-23	52	20	6.9	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	25.06.2022	GCS/LAB/S/1420/22-23	65	27	8.4	18.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	05.07.2022	GCS/LAB/S/1493/22-23	54	21	6.5	16	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	09.07.2022	GCS/LAB/S/1493/22-23	50	19	6.8	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	19.07.2022	GCS/LAB/S/1493/22-23	58	23	7.2	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.07.2022	GCS/LAB/S/1493/22-23	47	16	5.3	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	09.08.2022	GCS/LAB/S/1646/22-23	44	15	5.1	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	13.08.2022	GCS/LAB/S/1646/22-23	49	21	6.3	15	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	23.08.2022	GCS/LAB/S/1646/22-23	46	18	5.5	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	25.08.2022	GCS/LAB/S/1646/22-23	43	17	6.4	13.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	06.09.2022	GCS/LAB/S/1821/22-23	51	23	6.0	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	10.09.2022	GCS/LAB/S/1821/22-23	52	20	5.8	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	20.09.2022	GCS/LAB/S/1821/22-23	41	15	5.0	12.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	24.09.2022	GCS/LAB/S/1821/22-23	47	18	5.1	14	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1



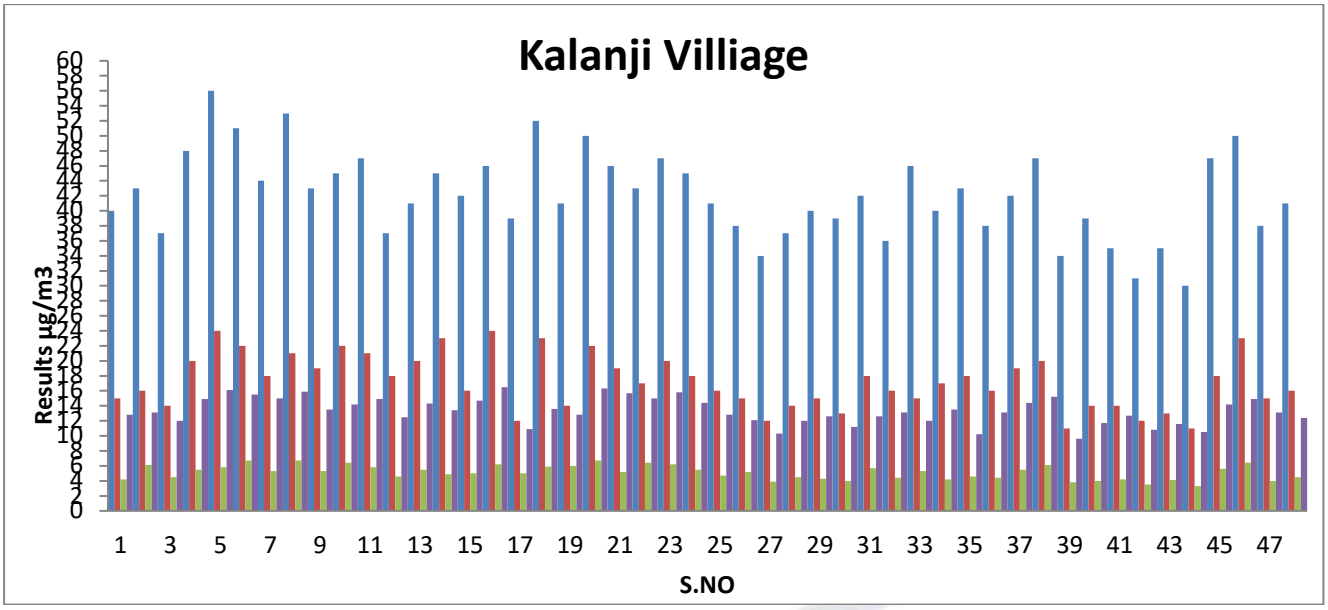
PORT MAIN GATE (AAQ2)														
Parameters			Particular matter PM10	Particular matter PM2.5	Sulphur dioxide as SO2	Nitrogen dioxide as NO2	Lead as Pb	Carbon monoxide as CO	Ozone as O3	Ammonia as NH3	Arsenic as As	Nickel as Ni	Benzene as C6H6	Benzo (a) pyrene as BaP
Unit			µg/m3	µg/m3	µg/m3	µg/m3	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	02.04.2022	GCS/LAB/S/1292/22-23	64	31	8.7	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	12.04.2022	GCS/LAB/S/1292/22-23	56	22	8	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	16.04.2022	GCS/LAB/S/1292/22-23	61	28	8.3	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	26.04.2022	GCS/LAB/S/1292/22-23	58	24	7.5	17	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	03.05.2022	GCS/LAB/S/1349/22-23	60	27	8.1	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	07.05.2022	GCS/LAB/S/1349/22-23	64	29	8.7	18.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	17.05.2022	GCS/LAB/S/1349/22-23	66	32	7.8	18	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	21.05.2022	GCS/LAB/S/1349/22-23	57	25	8.2	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	04.06.2022	GCS/LAB/S/1420/22-23	67	30	8.6	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	14.06.2022	GCS/LAB/S/1420/22-23	60	26	7.9	18.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	18.06.2022	GCS/LAB/S/1420/22-23	59	23	7.1	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	28.06.2022	GCS/LAB/S/1420/22-23	71	32	8.9	19	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	05.07.2022	GCS/LAB/S/1493/22-23	59	24	7.6	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	09.07.2022	GCS/LAB/S/1493/22-23	54	22	6.8	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	19.07.2022	GCS/LAB/S/1493/22-23	65	27	7.9	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.07.2022	GCS/LAB/S/1493/22-23	56	23	7.0	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	02.08.2022	GCS/LAB/S/1646/22-23	57	25	6.9	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	06.08.2022	GCS/LAB/S/1646/22-23	59	28	7.1	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	17.08.2022	GCS/LAB/S/1646/22-23	54	22	6.5	17	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	20.08.2022	GCS/LAB/S/1646/22-23	52	19	5.6	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	02.09.2022	GCS/LAB/S/1821/22-23	60	28	7.5	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	13.09.2022	GCS/LAB/S/1821/22-23	55	24	6.7	16	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	17.09.2022	GCS/LAB/S/1821/22-23	48	19	5.7	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	27.09.2022	GCS/LAB/S/1821/22-23	57	23	6.5	16.7	<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	02.04.2022	GCS/LAB/S/1292/22-23	34	13	4.1	11.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	05.04.2022	GCS/LAB/S/1292/22-23	40	14	4.8	12.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	09.04.2022	GCS/LAB/S/1292/22-23	39	15	4.5	11.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.04.2022	GCS/LAB/S/1292/22-23	45	18	5.6	14	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	16.04.2022	GCS/LAB/S/1292/22-23	52	21	6	15.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	19.04.2022	GCS/LAB/S/1292/22-23	48	19	6.3	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	23.04.2022	GCS/LAB/S/1292/22-23	50	20	5.4	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	26.04.2022	GCS/LAB/S/1292/22-23	43	17	5.2	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	03.05.2022	GCS/LAB/S/1349/22-23	40	14	4.2	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	07.05.2022	GCS/LAB/S/1349/22-23	46	15	6.8	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	10.05.2022	GCS/LAB/S/1349/22-23	43	16	5	12.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	14.05.2022	GCS/LAB/S/1349/22-23	48	19	6.4	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	17.05.2022	GCS/LAB/S/1349/22-23	44	15	4.8	13.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	21.05.2022	GCS/LAB/S/1349/22-23	49	20	5.7	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	24.05.2022	GCS/LAB/S/1349/22-23	41	12	6.1	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	26.05.2022	GCS/LAB/S/1349/22-23	51	22	5.6	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	04.06.2022	GCS/LAB/S/1420/22-23	42	16	4.3	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	07.06.2022	GCS/LAB/S/1420/22-23	49	20	5.8	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	11.06.2022	GCS/LAB/S/1420/22-23	40	17	5.3	10.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	14.06.2022	GCS/LAB/S/1420/22-23	38	13	5	12.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	18.06.2022	GCS/LAB/S/1420/22-23	48	19	6.6	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	21.06.2022	GCS/LAB/S/1420/22-23	53	24	5.7	14.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	25.06.2022	GCS/LAB/S/1420/22-23	50	21	6.4	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	28.06.2022	GCS/LAB/S/1420/22-23	46	18	6.1	13.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	02.07.2022	GCS/LAB/S/1493/22-23	40	14	4.7	12	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	05.07.2022	GCS/LAB/S/1493/22-23	47	18	5.5	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	09.07.2022	GCS/LAB/S/1493/22-23	42	15	5.1	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	12.07.2022	GCS/LAB/S/1493/22-23	45	17	4.9	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	16.07.2022	GCS/LAB/S/1493/22-23	36	12	5.3	11	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	19.07.2022	GCS/LAB/S/1493/22-23	39	14	3.8	12.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	23.07.2022	GCS/LAB/S/1493/22-23	43	16	5.2	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	26.07.2022	GCS/LAB/S/1493/22-23	38	13	4.0	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.08.2022	GCS/LAB/S/1646/22-23	42	13	6	12	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.08.2022	GCS/LAB/S/1646/22-23	44	16	6.5	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.08.2022	GCS/LAB/S/1646/22-23	53	24	5	11.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.08.2022	GCS/LAB/S/1646/22-23	47	19	5.5	13.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	17.08.2022	GCS/LAB/S/1646/22-23	40	11	4.4	10.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.08.2022	GCS/LAB/S/1646/22-23	43	15	4.7	11.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.08.2022	GCS/LAB/S/1646/22-23	37	12	4.1	11.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.08.2022	GCS/LAB/S/1646/22-23	41	11	3.5	10.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	02.09.2022	GCS/LAB/S/1821/22-23	37	15	4	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.09.2022	GCS/LAB/S/1821/22-23	30	13	3.6	11	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.09.2022	GCS/LAB/S/1821/22-23	34	14	4.3	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.09.2022	GCS/LAB/S/1821/22-23	32	12	3.8	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.09.2022	GCS/LAB/S/1821/22-23	52	21	6.4	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.09.2022	GCS/LAB/S/1821/22-23	48	19	5.6	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.09.2022	GCS/LAB/S/1821/22-23	41	16	4.7	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.09.2022	GCS/LAB/S/1821/22-23	45	17	5.1	13	<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	02.04.2022	GCS/LAB/S/1292/22-23	40	15	4.2	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	05.04.2022	GCS/LAB/S/1292/22-23	43	16	6.1	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	09.04.2022	GCS/LAB/S/1292/22-23	37	14	4.5	12	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.04.2022	GCS/LAB/S/1292/22-23	48	20	5.5	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	16.04.2022	GCS/LAB/S/1292/22-23	56	24	5.8	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	19.04.2022	GCS/LAB/S/1292/22-23	51	22	6.7	15.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	23.04.2022	GCS/LAB/S/1292/22-23	44	18	5.3	15	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	26.04.2022	GCS/LAB/S/1292/22-23	53	21	6.7	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	03.05.2022	GCS/LAB/S/1349/22-23	43	19	5.3	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	07.05.2022	GCS/LAB/S/1349/22-23	45	22	6.4	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	10.05.2022	GCS/LAB/S/1349/22-23	47	21	5.8	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	14.05.2022	GCS/LAB/S/1349/22-23	37	18	4.6	12.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	17.05.2022	GCS/LAB/S/1349/22-23	41	20	5.5	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	21.05.2022	GCS/LAB/S/1349/22-23	45	23	4.9	13.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	24.05.2022	GCS/LAB/S/1349/22-23	42	16	5	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	26.05.2022	GCS/LAB/S/1349/22-23	46	24	6.2	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	04.06.2022	GCS/LAB/S/1420/22-23	39	12	5	10.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	07.06.2022	GCS/LAB/S/1420/22-23	52	23	5.9	13.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	11.06.2022	GCS/LAB/S/1420/22-23	41	14	6	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	14.06.2022	GCS/LAB/S/1420/22-23	50	22	6.7	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	18.06.2022	GCS/LAB/S/1420/22-23	46	19	5.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	21.06.2022	GCS/LAB/S/1420/22-23	43	17	6.4	15	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	25.06.2022	GCS/LAB/S/1420/22-23	47	20	6.2	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	28.06.2022	GCS/LAB/S/1420/22-23	45	18	5.5	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	02.07.2022	GCS/LAB/S/1493/22-23	41	16	4.7	12.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	05.07.2022	GCS/LAB/S/1493/22-23	38	15	5.2	12.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	09.07.2022	GCS/LAB/S/1493/22-23	34	12	3.9	10.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	12.07.2022	GCS/LAB/S/1493/22-23	37	14	4.5	12	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	16.07.2022	GCS/LAB/S/1493/22-23	40	15	4.3	12.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	19.07.2022	GCS/LAB/S/1493/22-23	39	13	4	11.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	23.07.2022	GCS/LAB/S/1493/22-23	42	18	5.7	12.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	26.07.2022	GCS/LAB/S/1493/22-23	36	16	4.4	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.08.2022	GCS/LAB/S/1646/22-23	46	15	5.3	12	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.08.2022	GCS/LAB/S/1646/22-23	40	17	4.2	13.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.08.2022	GCS/LAB/S/1646/22-23	43	18	4.6	10.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.08.2022	GCS/LAB/S/1646/22-23	38	16	4.4	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	17.08.2022	GCS/LAB/S/1646/22-23	42	19	5.5	14.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.08.2022	GCS/LAB/S/1646/22-23	47	20	6.1	15.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.08.2022	GCS/LAB/S/1646/22-23	34	11	3.8	9.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.08.2022	GCS/LAB/S/1646/22-23	39	14	4	11.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	02.09.2022	GCS/LAB/S/1821/22-23	35	14	4.2	12.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.09.2022	GCS/LAB/S/1821/22-23	31	12	3.5	10.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.09.2022	GCS/LAB/S/1821/22-23	35	13	4.1	11.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.09.2022	GCS/LAB/S/1821/22-23	30	11	3.3	10.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.09.2022	GCS/LAB/S/1821/22-23	47	18	5.6	14.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.09.2022	GCS/LAB/S/1821/22-23	50	23	6.4	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.09.2022	GCS/LAB/S/1821/22-23	38	15	4.0	13.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.09.2022	GCS/LAB/S/1821/22-23	41	16	4.5	12.4	<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), µg/m³	Annual*	50	20	• Improved West and Geake • Ultraviolet fluorescence
		24 hours**	80	80	
2	Nitrogen Dioxide (NO_2), µg/m³	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/m³	Annual*	60	60	• Gravimetric • TOEM • Beta attenuation
		24 hours**	100	100	
4	Particulate Matter (size less than 2.5 microns) or $PM_{2.5}$ µg/m³	Annual*	40	40	• Gravimetric • TOEM • Beta attenuation
		24 hours**	60	60	
5	Ozone (O_3) µg/m³	8 hours **	100	100	• UV photometric • Chemiluminescence • Chemical method
		1 hour **	180	180	
6	Lead (Pb) µg/m³	Annual*	0.5	0.5	• AAS / 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/m³	8 hours**	2	2	Non Dispersive Infra RED (NDIR) Spectroscopy
		1 hour**	4	4	
8	Ammonia (NH_3) µg/m³	Annual*	100	100	• Chemiluminescence • Indophenol blue method
		24 hours**	400	400	
9	Benzene (C_6H_6) µg/m³	Annual*	5	5	• Gas chromatography based continuous analyser • Adsorption and desorption followed by GC analysis
10	Benzo (a) Pyrene (BaP) – particulate phase only ng/m³	Annual*	1	1	Solvent extraction followed by HPLC / GC analysis
11	Arsenic (As) ng/m³	Annual*	6	6	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni) ng/m³	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

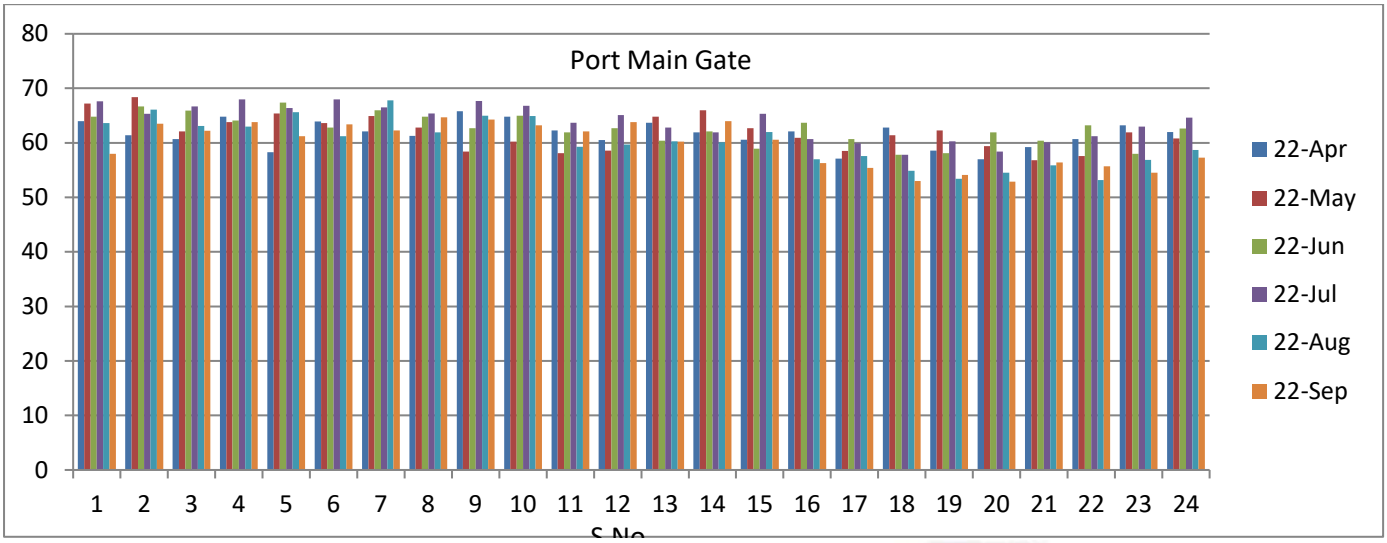
STATION CODE	LOCATIONS	Geographical Location
N1	Port main gate	N 13^0 18.856' E 080^0 19.478'
N2	Marine control tower	N 13^0 18.909' E 080^0 20.756'
N3	Kattupalli village	N 13^0 18.342' E 080^0 19.806'
N4	Kalanji village	N 13^0 20.156' E 080^0 20.023'

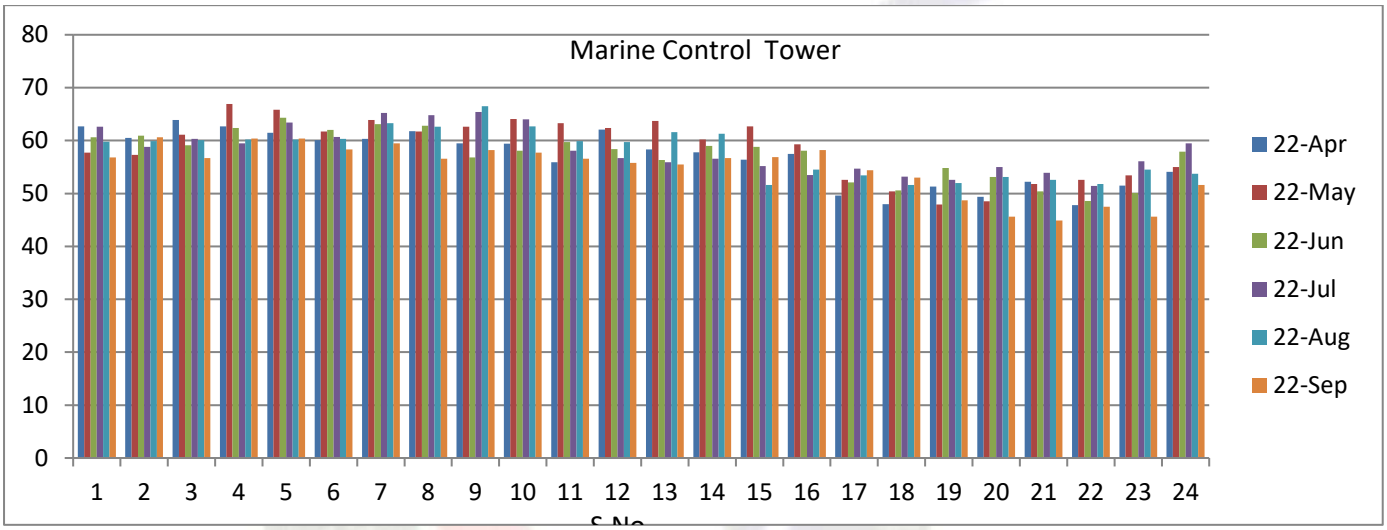
Fig - 4. Noise Level Sampling Locations

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

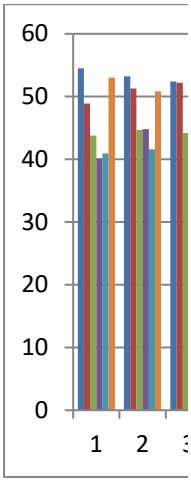
ANNEXURE - 3 RESULTS OF AMBIENT NOISE LEVEL MONITORING DATA

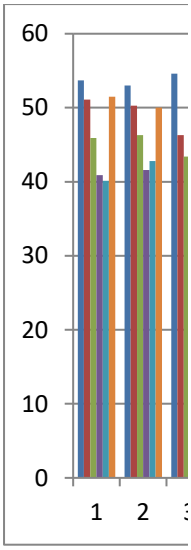
Location		PORT MAIN GATE						MARINE CONTROL TOWER					
Month & Year		Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
Parameter & Unit		Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
S.No	Time of Sampling												
1	06.00 – 07.00 (Day)	64.0	67.2	64.8	67.6	63.6	58.0	62.7	57.7	60.6	62.6	59.8	56.8
2	07.00 –08.00	61.4	68.4	66.7	65.3	66.1	63.5	60.5	57.3	60.9	58.8	59.9	60.6
3	08.00 – 09.00	60.7	62.1	65.9	66.7	63.1	62.2	63.9	61.1	59.1	60.3	60.1	56.7
4	09.00 – 10.00	64.8	63.8	64.1	68.0	63.0	63.8	62.7	66.9	62.4	59.5	60.2	60.4
5	10.00 – 11.00	58.3	65.4	67.4	66.4	65.6	61.2	61.5	65.8	64.3	63.4	60.2	60.4
6	11.00 – 12.00	63.9	63.6	62.8	68.0	61.2	63.4	60.1	61.7	62.0	60.7	60.3	58.3
7	12.00 – 13.00	62.1	64.9	66.0	66.5	67.8	62.3	60.3	63.9	63.1	65.2	63.3	59.5
8	13.00 – 14.00	61.3	62.8	64.8	65.4	61.9	64.7	61.8	61.7	62.8	64.8	62.6	56.6
9	14.00 – 15.00	65.8	58.4	62.7	67.7	65.0	64.3	59.5	62.6	56.8	65.4	66.5	58.2
10	15.00 – 16.00	64.8	60.2	65.0	66.8	64.9	63.2	59.4	64.1	58.1	64.0	62.7	57.7
11	16.00 – 17.00	62.3	58.1	61.9	63.7	59.3	62.1	55.9	63.3	59.7	58.1	59.9	56.6
12	17.00 – 18.00	60.5	58.6	62.7	65.1	59.7	63.8	62.1	62.4	58.4	56.7	59.7	55.8
13	18.00 – 19.00	63.7	64.8	60.4	62.8	60.3	60.2	58.3	63.7	56.3	55.9	61.6	55.5
14	19.00 –20.00	61.9	66.0	62.1	61.9	60.1	64.0	57.8	60.2	59.0	56.6	61.3	56.7
15	20.00 – 21.00	60.6	62.7	58.9	65.3	62.0	60.6	56.4	62.7	58.8	55.2	51.6	56.9
16	21.00 – 22.00	62.1	60.9	63.7	60.7	57.0	56.3	57.5	59.3	58.1	53.5	54.5	58.2
17	22.00 – 23.00 (Night)	57.1	58.5	60.7	59.9	57.6	55.4	49.6	52.6	52.1	54.7	53.4	54.4
18	23.00 – 00.00	62.8	61.4	57.8	57.8	54.9	53.0	48.0	50.4	50.6	53.2	51.6	53.0
19	00.00 – 01.00	58.6	62.3	58.1	60.3	53.4	54.1	51.3	47.9	54.8	52.6	52.0	48.7
20	01.00 – 02.00	57.0	59.4	61.9	58.4	54.5	52.9	49.4	48.5	53.1	55.0	53.1	45.6
21	02.00 – 03.00	59.2	56.8	60.4	60.1	55.9	56.4	52.2	51.8	50.4	53.9	52.6	44.9
22	03.00 – 04.00	60.7	57.6	63.2	61.2	53.2	55.7	47.8	52.6	48.6	51.4	51.8	47.5
23	04.00 – 05.00	63.2	61.9	58.0	63.0	56.9	54.5	51.5	53.4	50.1	56.1	54.5	45.6
24	05.00 – 06.00	62.0	60.8	62.6	64.6	58.7	57.3	54.1	55.0	57.9	59.5	53.7	51.6





Location		KATTUPALLI VILLAGE						KALANJI VILLAGE					
Month & Year		Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 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)	54.5	48.9	43.8	40.1	40.9	53.0	53.7	51.1	45.9	40.9	40.1	51.5
2	07.00 –08.00	53.2	51.3	44.7	44.8	41.6	50.8	53.0	50.3	46.3	41.6	42.8	50.0
3	08.00 – 09.00	52.4	52.2	44.2	47.5	43.5	52.9	54.6	46.3	43.4	43.5	41.5	50.8
4	09.00 – 10.00	54.4	51.6	45.6	45.7	42.8	51.5	54.2	52	47.8	44.8	40.7	51.6
5	10.00 – 11.00	52.3	51.1	48.5	49.4	40.3	49.6	52.5	51.1	49.5	45.3	43.4	51.1
6	11.00 – 12.00	53.1	50.8	44.5	47.1	42.1	50.7	53.8	51.9	47.8	46.1	41.1	50.7
7	12.00 – 13.00	51.8	51.1	47.2	49.6	41.3	52.4	51.5	51.2	46.6	48.3	40.6	48.9
8	13.00 – 14.00	50.9	51.5	48.8	49.2	43.5	51.0	52.9	50.2	48.3	47.5	42.2	50.3
9	14.00 – 15.00	53.1	51.8	46.0	46.4	42.9	52.6	51.3	52.0	50.2	42.9	40.4	51.5
10	15.00 – 16.00	52.7	52.0	51.5	43.7	40.3	50.3	54.8	51.8	51.3	46.3	43.7	52.4
11	16.00 – 17.00	53.6	48.9	50.4	47.2	42.0	52.1	54.0	50.6	43.1	45.0	41.2	50.5
12	17.00 – 18.00	54.3	50.8	44.7	43.3	42.9	52.5	54.1	49.3	42.8	42.9	43.3	49.0
13	18.00 – 19.00	54.0	51.9	46.4	45.5	43.5	50.3	53.6	50.9	44.3	43.5	40.5	51.8
14	19.00 –20.00	51.9	49.3	44.7	44.1	41.4	52.0	50.8	48.7	45.9	41.4	40.1	48.3
15	20.00 – 21.00	51.6	50.4	42.4	42.3	41.6	49.8	49.1	47.5	41.0	41.6	41.8	47.2
16	21.00 – 22.00	48.4	48.3	40.0	42.3	40.7	46.4	47.9	46.8	40.2	40.7	42.3	46.4
17	22.00 – 23.00 (Night)	44.0	41.8	36.2	39.7	37.5	39.5	43.2	40.6	38.1	37.5	39.7	38.4
18	23.00 – 00.00	43.2	37.6	36.4	40.2	39.3	38.1	41.0	40.3	37.8	39.3	40.2	37.6
19	00.00 – 01.00	41.5	39.4	37.3	38.4	38.4	36.9	38.9	38.7	38.6	38.4	38.4	36.9
20	01.00 – 02.00	40.9	40.8	37.9	39.1	38.9	39.3	40.8	39.4	39.2	38.9	39.1	38.0
21	02.00 – 03.00	39.7	37.6	38.2	37.5	37.0	40.0	40.5	38.1	37.9	37.0	37.5	39.3
22	03.00 – 04.00	42.4	38.5	36.5	40.2	37.7	40.3	42.7	39.9	38.4	37.7	40.2	38.2
23	04.00 – 05.00	43.8	41.5	39.1	38.4	39.4	40.8	43.1	38.3	40.5	39.4	38.4	39.6
24	05.00 – 06.00	42.3	42.1	40.6	39.5	38.2	39.7	41.6	41.8	41.2	38.2	39.5	40.7





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. DGSET EMISSIONS

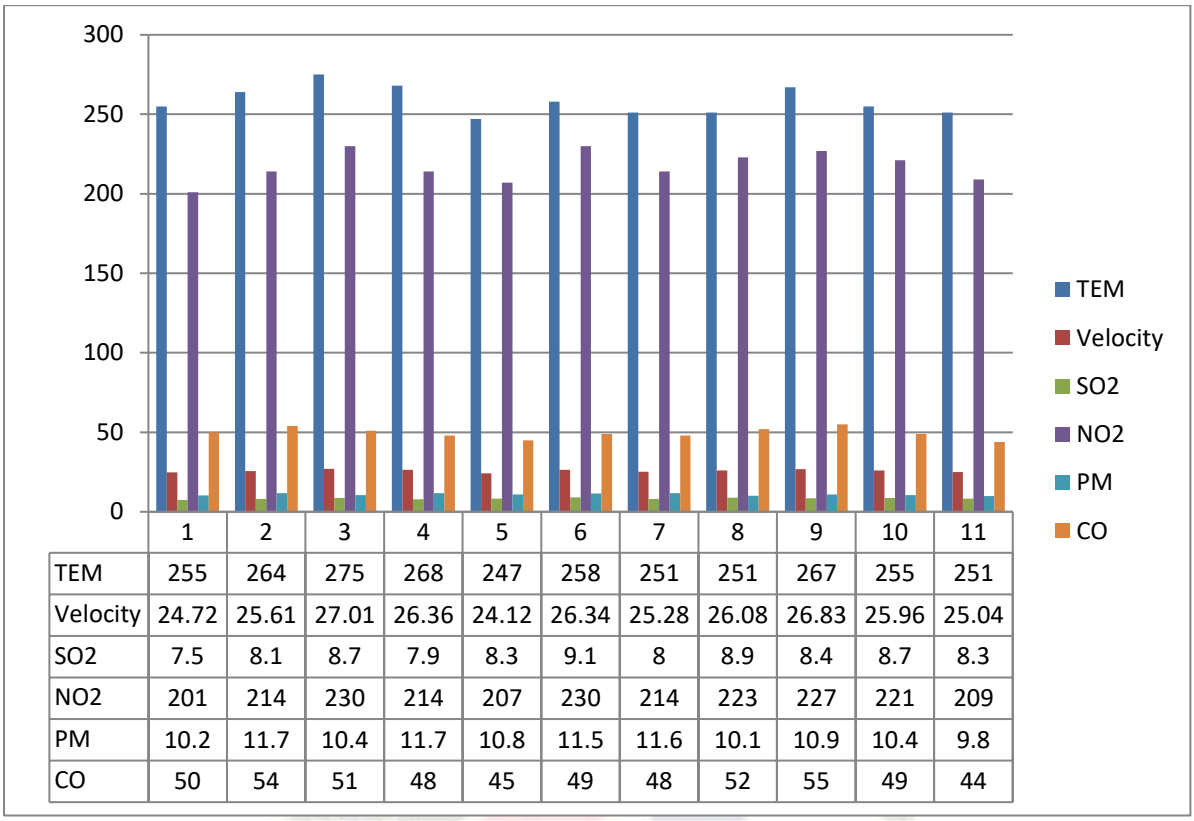
Sampling of Flue gas emission of 2000 KVA DG Set was done and its emissions were determined along with its noise intensity. The Detailed report has been is enclosed as Annexure - 4

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

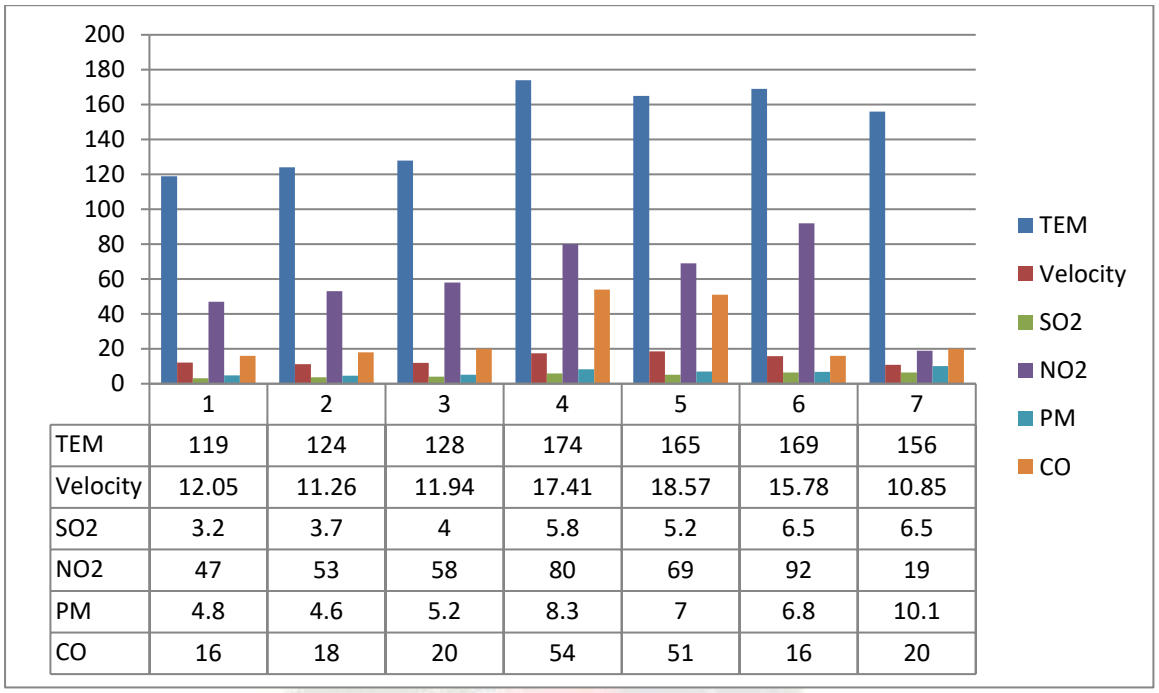
ANNEXURE - 4 RESULTS OF SOURCE EMISSION MONITORING DATA

STACK MONITORING												
Location		DG 2000KVA - 1						DG 2000KVA - 2				
Month & Year		Apr-22	May - 22	Jun -22	July - 22	Aug -22	Sep -22	Apr-22	May -22	Jun -22	Aug-22	Sep -22
S.No.	Parameters											
1	Stack Temperature, °C	255	264	275	268	247	258	251	251	267	255	251
2	Flue Gas Velocity, m/s	24.72	25.61	27.01	26.36	24.12	26.34	25.28	26.08	26.83	25.96	25.04
3	Sulphur Dioxide, mg/Nm3	7.5	8.1	8.7	7.9	8.3	9.1	8.0	8.9	8.4	8.7	8.3
4	NOX (as NO2) in ppmv	201	214	230	214	207	230	214	223	227	221	209
5	Particular matter, mg/Nm3	10.2	11.7	10.4	11.7	10.8	11.5	11.6	10.1	10.9	10.4	9.8
6	Carbon Monoxide, mg/Nm3	50	54	51	48	45	49	48	52	55	49	44
7	Gas Discharge, Nm3/hr	6299	6416	6632	6557	6241	6675	6491	6697	6685	6615	6429



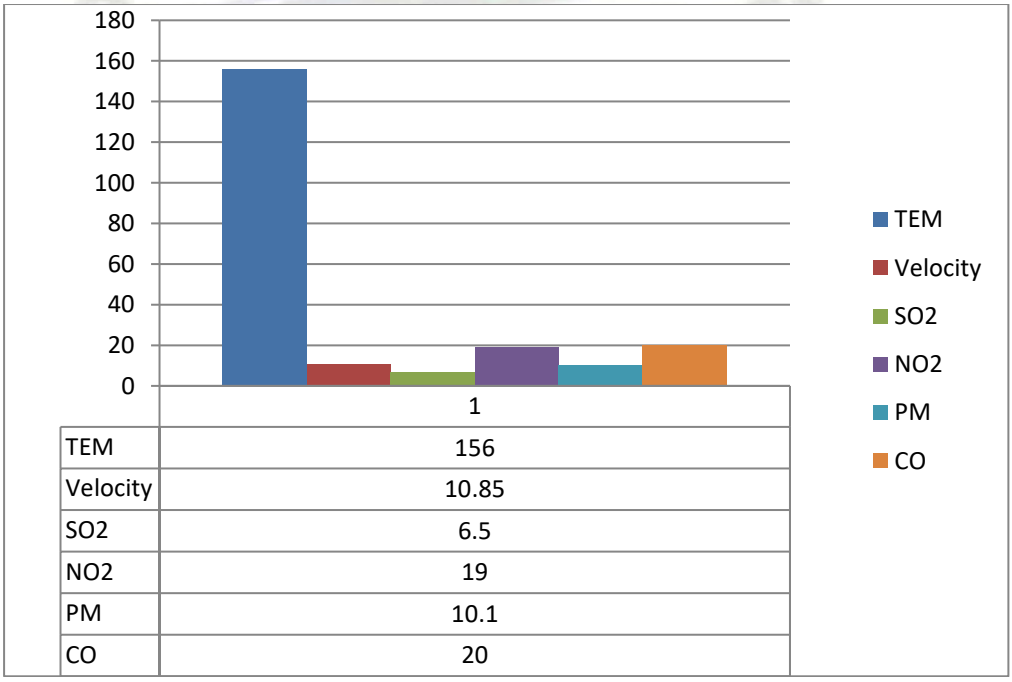
	1	2	3	4	5	6	7	8	9	10	11
TEM	255	264	275	268	247	258	251	251	267	255	251
Velocity	24.72	25.61	27.01	26.36	24.12	26.34	25.28	26.08	26.83	25.96	25.04
SO2	7.5	8.1	8.7	7.9	8.3	9.1	8	8.9	8.4	8.7	8.3
NO2	201	214	230	214	207	230	214	223	227	221	209
PM	10.2	11.7	10.4	11.7	10.8	11.5	11.6	10.1	10.9	10.4	9.8
CO	50	54	51	48	45	49	48	52	55	49	44

STACK MONITORING								
Location		DG 125 KVA				DG 500 KVA		
Month & Year		Apr - 22	May -22	Jun -22	Aug - 22	May -22	July – 22	Aug-22
S.No.	Parameters							
1	Stack Temperature, °C	126	120	124	121	160	155	163
2	Flue Gas Velocity, m/s	11.09	11.79	12.47	11.83	16.27	14.24	14.91
3	Sulphur Dioxide, mg/Nm3	4.2	4.7	5.3	4.7	7.1	6.1	6.5
4	NOX (as NO2) in ppmv	55	50	54	51	98	87	92
5	Particular matter, mg/Nm3	5.0	5.3	4.7	5.8	6.5	6.0	7.1
6	Carbon Monoxide, mg/Nm3	18	16	13	16	18	14	22
7	Gas Discharge, Nm3/hr	525	566	594	568	1672	1480	1520



	1	2	3	4	5	6	7
TEM	119	124	128	174	165	169	156
Velocity	12.05	11.26	11.94	17.41	18.57	15.78	10.85
SO2	3.2	3.7	4	5.8	5.2	6.5	6.5
NO2	47	53	58	80	69	92	19
PM	4.8	4.6	5.2	8.3	7	6.8	10.1
CO	16	18	20	54	51	16	20

STACK MONITORING		
Location		Liquid Terminal Hot Oil Generator
Month & Year		May -22
S.No.	Parameters	
1	Stack Temperature, °C	156
2	Flue Gas Velocity, m/s	10.85
3	Sulphur Dioxide, mg/Nm3	6.5
4	NOX (as NO2) in ppmv	19
5	Particular matter, mg/Nm3	10.1
6	Carbon Monoxide, mg/Nm3	20
7	Gas Discharge, Nm3/hr	38761



	1
TEM	156
Velocity	10.85
SO2	6.5
NO2	19
PM	10.1
CO	20

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		Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No	Parameters												
1	pH @ 25°C	7.33	7.95	7.50	7.72	7.61	7.46	7.68	8.06	7.74	7.74	7.96	8.10
2	Total Suspended	32	28	46	34	48	36	4.0	3.8	5.2	3.5	22	18
3	BOD at 27°C for 3	56	64	94	68	52	34	5.8	5.0	8.6	5.2	10	7.6
4	Fecal Coliform	580	510	980	310	390	330	80	90	140	70	190	110
5	COD	142	128	382	156	34	112	22	24	44	22	20	28
6	Oil & Grease	4.1	2.6	4.5	3.8	3.1	2.2	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	984	1342	1248	1190	1136	986	810	982	862	968	1109	884
8	Chlorides (as Cl)	348	476	424	247	457	390	154	208	408	252	500	412
9	Sulphates (as SO_4)	27	33	32	39	24	20	15	24	23	33	23	22

STP WATER													
Location		STP 10KLD INLET						STP 10KLD OUTLET					
Month & Year		Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No	Parameters												
1	pH @ 25°C	7.42	7.59	7.37	8.12	8.09	7.82	7.80	7.73	8.05	8.24	8.20	8.11
2	Total Suspended	78	54	48	70	64	48	13	8.4	6.0	7.6	5.2	3.6
3	BOD at 27°C for 3	90	72	86	104	116	94	11	9.6	6.1	4.8	6.1	5.2
4	Fecal Coliform	600	680	1140	350	322	308	140	110	80	52	70	59
5	COD	204	296	482	218	252	212	38	32	20	16	29	20
6	Oil & Grease	7.0	6.4	7.6	5.1	4.5	3.9	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	1436	1286	1374	1016	1147	1056	1124	862	986	988	1072	988
8	Chlorides (as Cl)	456	398	453	283	622	532	372	284	427	254	73	91
9	Sulphates (as SO_4)	36	30	28	1.5	12	17	21	18	4.5	1.0	1.8	3.5

STP WATER													
Location		STP 30KLD INLET						STP 30KLD OUTLET					
Month & Year		Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No	Parameters												
1	pH @ 25°C	7.04	6.36	7.11	6.82	6.65	7.12	7.36	7.73	7.96	7.42	7.23	7.56
2	Total Suspended	102	94	148	96	78	62	8.4	12.6	4.7	18	21	23
3	BOD at 27°C for 3	180	146	176	142	156	136	9.2	6.0	7.8	12	12	8.8
4	Fecal Coliform	1780	1200	1810	610	520	490	110	80	120	160	280	220
5	COD	384	312	674	428	118	340	28	24	36	73	46	32
6	Oil & Grease	9.0	7.2	9.2	10	7.4	4.4	BDL	BDL	BDL	BDL	BDL	BDL
7	Total Dissolved Solids	1496	1416	1584	1144	1218	1128	1082	914	918	1082	932	826
8	Chlorides (as Cl)	584	498	593	363	466	422	210	242	530	334	393	250
9	Sulphates (as SO_4)	30	28	24	43	79	67	21	25	20	10	65	48

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	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No.	Parameters							
1	pH @ 25°C	-	7.92	7.51	7.79	7.07	6.83	6.72
2	Total Hardness as CaCo3	mg/L	2.0	52	BDL(DL:1.0)	4.0	4.0	BDL(DL:1.0)
3	Chloride as Cl	mg/L	16	156	15	18	12	6.0
4	Total Dissolved Solids	mg/L	22	312	60	34	22	9.87
5	Calcium as Ca	mg/L	BDL(DL:0.4)	11	BDL(DL:0.4)	BDL(DL:0.4)	0.8	1.6
6	Sulphate as SO4	mg/L	BDL(DL:1.0)	4.8	15	1.6	BDL(DL:1.0)	BDL(DL:1.0)
7	Total Alkalinity as CaCo3	mg/L	8.0	11	25	10	12	15
8	Magnesium as Mg	mg/L	0.48	5.8	BDL(DL:0.24)	1.0	0.48	0.5
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	Apr-22	Jun-22	Aug-22
S.No.	Parameters				
1	pH @ 25°C	-	7.92	7.71	7.79
2	Total Hardness as CaCo3	mg/L	76	72	99
3	Chloride as Cl	mg/L	308	385	340
4	Total Dissolved Solids	mg/L	742	768	712
5	Calcium as Ca	mg/L	19	13	18
6	Sulphate as SO4	mg/L	28	31	44
7	Total Alkalinity as CaCo3	mg/L	46	40	50
8	Magnesium as Mg	mg/L	9.72	9.70	13
9	Color	Hazen	<1.0	<1.0	<1.0
10	Odour	-	Unobjectionable	Unobjectionable	Unobjectionable
11	Taste	-	Agreeable	Dis Agreeable	Dis Agreeable
12	Turbidity	NTU	0.5	BDL(DL 0.5)	BDL(DL 0.5)
13	Nitrate as No3	mg/L	2.05	1.98	3.56
14	Iron as Fe	mg/L	0.07	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)
16	Copper as Cu	mg/L	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)
18	Fluoride as F	mg/L	0.36	BDL(DL 0.1)	0.43
19	Phenolic compounds as C_6H_5OH	mg/L	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)
21	Cadmium as Cd	mg/L	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)
23	Arsenic as As	mg/L	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)
25	Zinc as Zn	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
26	Anionic Detergents as MBAS	mg/L	Nil	Nil	Nil
27	Total Chromium as Cr	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
28	Phenolphthalein Alkalinity as $CaCO_3$	mg/L	Nil	Nil	Nil
29	Aluminium as Al	mg/L	BDL(DL 0.05)	BDL(DL 0.05)	BDL(DL 0.05)
30	Boron as B	mg/L	0.29	BDL(DL 0.1)	BDL(DL 0.1)
31	Mineral Oil	mg/L	Nil	Nil	Nil
32	Polynuclear Aromatic Hydrocarbons as	mg/L	Nil	Nil	Nil
33	Pesticides	mg/L	Nil	Nil	Nil
34	Cyanide as CN	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)	BDL (DL : 0.01)
35	E. coli	MPN/100ml	Absence	Absence	Absence
36	Total Coliform	MPN/100ml	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											
			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	25	35	15	40	10	35	20	40	25	35	20	30
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	7.97	8.14	7.82	8.09	8.09	8.18	8.34	8.48	8.19	8.36	8.21	8.33
4	Temperature	°C	30	30	31	31	29	29	28	28	29	29	28	28
5	Turbidity	NTU	13.6	35	10	37	8.5	30	5.4	24	3.8	21	4.6	14.9
6	Total Suspended Solids	mg/L	19	24	16	26	10	20	8.6	17	9.1	28	8.0	20
7	BOD at 27 oC for 3	mg/L	4.8	4.1	4.5	4.4	4.4	4.6	4.6	4.4	4.2	4.7	4.0	4.4
8	COD	mg/L	120	130	128	137	120	130	128	136	110	129	128	140
9	Dissolved oxygen	mg/L	2.9	2.6	2.7	2.5	2.8	2.7	2.7	2.6	2.9	2.7	2.7	2.5
10	Salinity at 25 °C	ppt	40.6	41.0	39.2	39.1	40.1	40.9	38.9	40.1	37.4	40.5	36.8	41.2
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	6.12	8.12	6.96	9.14	6.75	8.62	5.12	7.14	7.23	9.02	5.46	7.54
13	Nitrite as No2	mg/L	2.73	3.46	2.05	3.60	2.41	4.23	2.70	3.78	3.17	4.17	2.66	2.90
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	4.05	7.41	5.61	7.67	4.27	6.56	3.59	5.61	4.05	6.78	3.61	5.38
17	Silica as SiO2	mg/L	6.32	8.47	5.27	8.12	5.05	9.55	6.13	10	7.91	12	5.87	10.3
18	Particulate Organic Carbon	µgC/L	11	15	15	19	14	21	17	25	14	19	11	15
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	0.56	0.74	0.53	0.74	0.50	0.70	0.57	0.69	0.62	0.72	0.71	0.82
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			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	9.43	9.12	8.86	10.21	8.91	10.37	8.21	9.84	9.23	10.02	7.28	9.61
39	Chlorophyll a	mg /m3	6.86	7.90	5.74	5.82	6.00	7.34	6.87	7.59	7.55	8.10	5.31	7.18
40	Phaeopigment	mg /m3	3.50	3.05	2.86	3.91	2.73	3.51	2.50	2.97	2.84	2.69	2.50	2.24
41	Total Biomass	ml /100 m3	1.75	1.93	1.69	1.45	1.95	2.08	1.84	2.25	2.10	2.19	1.98	2.08
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	11	14	12	13	11	15	14	19	17	12	13	16
43	Bacteriastrum varians	nos/ml	13	10	13	8	7	10	9	7	11	9	9	11
44	Chaetoceros didymus	nos/ml	10	16	8	19	15	17	5	10	14	15	16	18
45	Chaetoceros decipiens	nos/ml	15	18	9	12	8	6	13	16	8	20	11	14
46	Biddulphia mobiliensis	nos/ml	8	11	17	18	9	12	17	19	10	14	15	10
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	14	12	5	9	10	13	12	8	16	10	10	8
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	12	15	7	16	14	18	8	11	12	17	7	13
51	Coscinodiscus granii	nos/ml	16	18	14	18	12	15	16	20	19	23	14	20
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	9	7	11	17	22	19	15	13	7	10	12	15
54	Laudaria annulata	nos/ml	13	15	15	11	13	7	10	14	5	8	8	12
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	22	19	23	13	9	12	11	7	13	15	17	19
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	7	14	10	15	20	24	24	27	20	22	22	24
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	23	27	22	25	12	16	18	21	22	24	19	16
62	Thalassionema nitzschioides	nos/ml	18	20	10	16	8	5	11	9	18	11	13	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	12	17	16	13	11	14	8	10	11	13	14	10
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	11	14	14	17	10	8	16	14	14	17	12	15
71	Eutintinus sps	nos/ml	10	12	11	10	5	9	7	6	5	9	7	12
72	Centropages furcatus	nos/ml	13	15	8	12	16	20	13	17	18	21	10	16
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	15	18	10	8	14	17	11	13	15	10	17	14
75	Euterpina acutifrons	nos/ml	12	16	21	19	13	21	15	18	10	14	13	9
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	10	8	19	20	10	7	6	5	9	7	12	11
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	14	16	17	14	18	21	14	16	17	11	8	10
80	Gastropod veliger	nos/ml	16	19	22	25	9	15	12	19	8	6	11	15

S.NO	PARAMETER	UNITS	CB - 2											
			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	20	30	15	45	10	30	15	40	25	30	25	35
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	8.01	8.19	7.90	8.06	7.98	8.23	8.41	8.53	8.31	8.37	8.24	8.34
4	Temperature	°C	30	30	31	31	29	29	28	28	29	29	28	28
5	Turbidity	NTU	11.5	32	9.2	44	11	27	5.2	22	4.7	18	5.1	16.4
6	Total Suspended Solids	mg/L	17	20	14	31	15	18	8.0	15	8.6	24	8.3	22
7	BOD at 27 oC for 3	mg/L	4.5	4.0	4.6	4.5	4.4	4.8	4.8	4.6	4.5	4.9	4.2	4.1
8	COD	mg/L	126	124	132	144	117	141	124	145	114	132	110	152
9	Dissolved oxygen	mg/L	2.8	2.7	2.9	2.6	3.0	2.8	2.9	2.7	2.8	2.4	2.9	2.2
10	Salinity at 25 °C	ppt	40.2	41.2	39.6	40.7	40.4	40.2	39.3	39.9	38.1	40.2	37.2	41.7
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	5.82	8.12	7.05	9.60	7.28	10.14	6.59	8.96	6.94	8.05	6.17	6.91
13	Nitrite as No2	mg/L	2.56	3.46	2.78	4.27	2.96	3.86	2.31	3.03	3.01	3.79	2.98	3.30
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	4.21	7.41	4.97	7.96	3.86	7.14	3.07	6.39	3.86	5.82	4.10	6.26
17	Silica as SiO2	mg/L	5.87	8.47	5.01	7.44	4.25	8.10	5.35	9.42	5.98	10.5	6.90	12.5
18	Particulate Organic Carbon	µgC/L	14	15	17	17	15	23	19	20	17	23	15	20
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	0.62	0.74	0.50	0.68	0.68	0.82	0.61	0.74	0.65	0.80	0.75	0.86
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			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	8.98	10.05	9.05	10.12	8.48	10.52	7.97	10.52	8.37	9.82	7.93	10.12
39	Chlorophyll a	mg /m3	6.44	7.17	6.58	7.21	6.15	6.86	6.54	8.06	7.78	8.31	5.69	7.60
40	Phaeopigment	mg /m3	3.26	3.14	3.13	3.75	2.47	3.28	2.73	3.88	2.39	3.08	2.50	2.68
41	Total Biomass	ml /100 m3	1.81	1.86	2.37	2.06	1.63	1.80	1.99	2.13	2.24	1.97	2.12	2.25
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	8	11	10	14	13	17	10	13	15	18	11	15
43	Bacteriastrum varians	nos/ml	11	14	6	12	9	15	12	10	8	14	6	10
44	Chaetoceros didymus	nos/ml	12	17	21	10	18	19	14	16	11	10	14	17
45	Chaetoceros decipiens	nos/ml	7	13	14	16	11	8	9	11	14	17	10	13
46	Biddulphia mobiliensis	nos/ml	9	12	10	21	7	13	5	8	17	13	13	9
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	16	18	11	11	12	15	15	18	20	11	16	14
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	13	16	19	9	17	20	8	12	16	19	11	8
51	Coscinodiscus granii	nos/ml	11	10	22	17	8	11	18	23	21	20	18	16
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	6	9	18	20	16	23	11	16	8	6	17	12
54	Laudaria annulata	nos/ml	14	19	7	8	5	11	7	14	12	9	10	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	21	25	12	19	14	16	10	12	15	10	13	14
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	10	14	16	13	19	21	22	25	24	20	20	23
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	20	18	23	25	14	18	17	22	20	18	15	12
62	Thalassionema nitzschioides	nos/ml	16	14	17	12	9	6	13	15	15	10	11	13
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	10	14	19	23	7	9	12	14	10	16	12	14
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	12	10	16	17	13	16	10	12	15	18	10	11
71	Eutintinus sps	nos/ml	15	17	13	14	10	6	5	8	7	10	9	8
72	Centropages furcatus	nos/ml	11	13	9	11	12	17	14	10	11	15	14	13
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	14	19	16	11	15	12	9	7	13	11	16	15
75	Euterpina acutifrons	nos/ml	10	14	12	8	18	15	12	19	16	14	19	21
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	17	13	15	10	9	13	11	12	14	10	17	9
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	11	13	16	11	14	18	17	21	10	16	7	11
80	Gastropod veliger	nos/ml	20	25	18	27	11	14	14	23	9	13	13	14

S.NO	PARAMETER	UNITS	BERTH - 3											
			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
Physicochemical Parameters			Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
1	Colour	Hazan	25	40	20	35	10	30	20	45	15	30	20	25
2	Odour	-	Unobjectionable											
3	pH @ 25°C	-	8.14	8.32	8.09	8.28	8.06	8.17	8.28	8.40	8.04	8.29	8.10	8.33
4	Temperature	°C	29	29	31	31	29	29	28	28	29	29	28	28
5	Turbidity	NTU	7.5	20	9.1	26	7.5	18	8.4	23	7.3	18	5.3	15.7
6	Total Suspended Solids	mg/L	10	26	12	34	9.2	26	11	16	10	22	11.2	20
7	BOD at 27 oC for 3	mg/L	4.7	4.3	4.5	4.1	4.7	4.4	4.9	4.6	4.5	4.9	3.9	3.7
8	COD	mg/L	119	134	106	128	113	136	122	144	108	130	119	138
9	Dissolved oxygen	mg/L	2.8	2.6	2.5	2.7	2.6	2.8	2.5	2.7	2.7	2.5	2.5	2.9
10	Salinity at 25 °C	ppt	38.9	39.7	39.8	41.5	40.3	41.9	41.4	42.2	40.9	41.0	41.4	41.1
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	5.47	6.98	6.02	7.41	6.86	7.52	6.07	7.95	6.98	8.04	5.18	7.56
13	Nitrite as No2	mg/L	2.63	3.41	2.05	2.89	1.91	2.75	2.33	3.01	2.71	3.77	2.92	3.90
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	4.56	5.94	3.74	5.12	3.17	4.29	3.95	5.01	4.63	5.54	5.10	6.12
17	Silica as SiO2	mg/L	9.16	8.86	8.27	9.06	7.83	9.12	6.41	8.75	7.20	9.10	6.78	8.10
18	Particulate Organic Carbon	µgC/L	18	20	14	18	11	17	13	19	15	21	11	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	0.64	0.70	0.61	0.67	0.49	0.56	0.61	0.77	0.66	0.80	0.72	0.77
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			Apr - 22		May - 22		Jun - 22		July - 22		Aug - 22		Sep - 22	
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	8.36	9.87	8.57	9.74	7.65	9.17	6.91	8.26	6.14	8.91	7.60	9.32
39	Chlorophyll a	mg /m3	5.70	6.94	6.42	7.56	7.09	7.95	7.42	8.32	7.98	8.78	5.93	7.68
40	Phaeopigment	mg /m3	3.12	4.28	3.78	4.31	2.46	3.29	2.83	3.47	3.05	3.60	2.27	2.72
41	Total Biomass	ml /100 m3	1.94	2.05	2.05	2.49	2.57	3.01	2.07	3.54	2.63	3.00	2.25	2.50
PHYTOPLANKTON														
42	Bacteriastrum hyalinum	nos/ml	13	16	15	18	10	13	8	10	13	15	10	13
43	Bacteriastrum varians	nos/ml	8	10	12	14	7	11	11	14	8	10	12	15
44	Chaetoceros didymus	nos/ml	11	17	16	19	9	15	7	9	5	7	9	11
45	Chaetoceros decipiens	nos/ml	14	20	10	13	15	17	13	15	16	20	13	17
46	Biddulphia mobiliensis	nos/ml	16	19	8	15	12	18	10	17	14	12	17	14
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	13	16	11	14	14	10	16	13	18	22	20	23
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	12	14	17	10	11	9	6	10	9	13	11	10
51	Coscinodiscus granii	nos/ml	9	11	7	9	13	12	17	18	11	11	14	15
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	19	13	13	7	19	16	21	17	15	10	19	12
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	15	14	19	10	17	14	20	10	14	8	9
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	14	16	17	20	18	24	16	21	21	19	23	25
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	23	27	21	24	19	20	13	17	17	13	15	16
62	Thalassionema nitzschioides	nos/ml	15	20	12	18	8	13	11	19	6	9	10	11
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	10	14	14	17	10	13	7	10	11	14	8	11
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	13	15	18	13	15	16	19	14	16
71	Eutintinus sps	nos/ml	14	17	8	11	11	15	9	11	11	7	10	12
72	Centropages furcatus	nos/ml	16	20	7	14	16	19	14	17	17	10	15	17
73	Corycaeus dana	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
74	Oithona brevicornis	nos/ml	7	9	13	16	7	10	9	13	6	9	9	13
75	Euterpina acutifrons	nos/ml	15	19	9	12	13	8	15	12	10	15	16	18
76	Metacalanus aurivilli	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
77	Copipod nauplii	nos/ml	16	18	17	22	10	16	14	18	8	11	13	15
78	Cirripede nauplii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
79	Bivalve veliger	nos/ml	17	20	19	24	14	21	19	23	20	25	22	24
80	Gastropod veliger	nos/ml	5	8	15	17	9	14	12	17	16	20	19	22

ANNEXURE - 9 RESULTS OF MARINE SEDIMENT QUALITY DATA

SEA SEDIMENT								
Location			CB – 1					
Month & Year		Unit	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No.	Parameters							
1	Total organic matter	%	0.70	0.64	0.83	0.89	0.81	0.78
2	% Sand	%	14	17	12	14	16	17
3	%silt	%	34	32	36	37	32	29
4	%Clay	%	52	51	52	49	52	54
5	Iron (as Fe)	mg/kg	19.1	17.5	20.4	24.5	27.0	25.6
6	Aluminium (as Al)	mg/kg	9012	9161	9217	9860	9008	9110
7	Chromium (as cr)	mg/kg	38	42	33	31	37	22
8	Copper (as cu)	mg/kg	56	63	49	59	51	57
9	Manganese (as Mn)	mg/kg	74	91	102	94	85	62
10	Nickel (as Ni)	mg/kg	16	19	17	12	10	14
11	Lead (as Pb)	mg/kg	29	22	20	23	28	20
12	Zinc (as Zn)	mg/kg	222	268	279	245	236	193
13	Mercury(as Hg)	mg/kg	0.21	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
14	Total phosphorus as P	mg/kg	150	162	130	1121	133	122
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	0.68	0.73	0.68	0.73	0.80	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	14	17	9	11	14	12
29	Tricomasp	nos/m^2	17	12	15	17	10	15
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	12	11	13	15	13	18
31	Quinqulinasp	nos/m^2	5	18	12	14	17	11
32	Discorbinellasp.,	nos/m^2	14	9	21	19	11	14
33	Bolivinaspathulata	nos/m^2	19	17	18	13	18	20
34	Elphidiumsp	nos/m^2	15	13	11	10	21	23
35	Noniondepressula	nos/m^2	20	22	25	22	16	19
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	26	24	27	25	20	17
37	Anadoraveligers	nos/m^2	22	16	21	18	23	19
	Total No. of individuals	nos/m^2	164	159	172	164	163	168
	Shanon Weaver Diversity Index		2.24	2.26	2.24	2.26	2.27	2.28

Location		CB – 2						
Month & Year		Unit	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No.	Parameters							
1	Total organic matter	%	0.68	0.71	0.85	0.87	0.85	0.80
2	% Sand	%	15	18	12	15	18	21
3	%silt	%	33	31	35	38	35	30
4	%Clay	%	52	51	53	47	47	49
5	Iron (as Fe)	mg/kg	18.5	17.0	22.6	28.0	28.6	27.3
6	Aluminium (as Al)	mg/kg	8681	9456	9474	9914	9562	9073
7	Chromium (as cr)	mg/kg	30	34	39	35	32	27
8	Copper (as cu)	mg/kg	47	55	46	53	49	51
9	Manganese (as Mn)	mg/kg	53	78	92	98	81	71
10	Nickel (as Ni)	mg/kg	12	16	19	15	17	12
11	Lead (as Pb)	mg/kg	35	30	25	20	24	27
12	Zinc (as Zn)	mg/kg	240	257	236	228	215	208
13	Mercury(as Hg)	mg/kg	0.26	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
14	Total phosphorus as P	mg/kg	134	148	140	133	127	120
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	0.71	0.75	0.71	0.69	0.73	0.69
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	13	15	13	10	15
29	Tricomasp	nos/m^2	15	11	10	8	16	10
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	17	19	12	18	14	16
31	Quinqulinasp	nos/m^2	14	14	17	10	12	9
32	Discorbinellasp.,	nos/m^2	16	18	20	22	9	12
33	Bolivinaspathulata	nos/m^2	20	22	23	17	23	18
34	Elphidiumsp	nos/m^2	18	16	14	19	22	20
35	Noniondepressula	nos/m^2	7	12	20	24	18	21
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	23	20	21	23	25	14
37	Anadoraveligers	nos/m^2	17	19	16	20	21	23
	Total No. of individuals	nos/m^2	157	164	168	174	170	158
	Shanon Weaver Diversity Index		2.26	2.28	2.27	2.25	2.25	2.26

Location		BERTH – 3						
Month & Year		Unit	Apr - 22	May - 22	Jun - 22	July - 22	Aug - 22	Sep - 22
S.No.	Parameters							
1	Total organic matter	%	0.60	0.73	0.80	0.84	0.79	0.83
2	% Sand	%	17	16	11	13	17	21
3	%silt	%	33	35	34	36	31	31
4	%Clay	%	50	49	55	51	52	48
5	Iron (as Fe)	mg/kg	17.9	18.1	24.8	26.7	27.4	25.0
6	Aluminium (as Al)	mg/kg	9785	9324	9042	9359	9466	9519
7	Chromium (as cr)	mg/kg	37	31	37	33	28	25
8	Copper (as cu)	mg/kg	54	58	55	48	53	59
9	Manganese (as Mn)	mg/kg	62	70	86	92	87	68
10	Nickel (as Ni)	mg/kg	13	14	16	14	11	16
11	Lead (as Pb)	mg/kg	31	27	19	22	18	23
12	Zinc (as Zn)	mg/kg	274	242	236	219	205	186
13	Mercury(as Hg)	mg/kg	0.23	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)	BDL(DL 0.1)
14	Total phosphorus as P	mg/kg	139	151	1124	120	131	120
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	0.69	0.65	0.75	0.82	0.69
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	13	14	8	10	11	13
29	Tricomasp	nos/m^2	11	8	17	14	9	11
II. Foraminifera								
30	Ammoniabeccarii	nos/m^2	16	15	10	16	15	10
31	Quinqulinasp	nos/m^2	12	21	15	13	18	12
32	Discorbinellasp.,	nos/m^2	18	16	19	17	8	15
33	Bolivinaspathulata	nos/m^2	14	18	13	15	20	16
34	Elphidiumsp	nos/m^2	13	19	18	12	17	10
35	Noniondepressula	nos/m^2	15	17	20	19	21	22
III. Molluscs-Bivalvia								
36	Meretrixveligers	nos/m^2	20	21	24	26	23	16
37	Anadoraveligers	nos/m^2	15	23	18	22	19	22
	Total No. of individuals	nos/m^2	147	175	162	164	161	147
	Shanon Weaver Diversity Index		2.29	2.27	2.26	2.26	2.25	2.26

ANNEXURE – 4

(TNCZMA COMPLIANCE)

adani Ports and Logistics	**Marine Infrastructure Developer Pvt Ltd**	**From : April 2022** **To : September 2022**
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	**Complied.** MIDPL has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study and the report is under preparation for the year 2022. However, Report for the year 2020 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	Chemical waste generated and the sewage generated, if any should not be discharged into the sea and shall be properly handled	**Complied**. No chemical waste is generated. MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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.

		All the parameters are well within the prescribed norms.
iv	The wastewater generated shall be collected, treated and reused properly	**Complied.** MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. Average quantity of Sewage water and ETP water treated during the compliance period is as furnished below. **Location** / **STP/ETP Capacity** / **Avg. Quantity of Sewage Water Treated (Apr'22 to Sep'22)** **Near IWMS** / **STP 30 KLD** / **11.5 KLD** **Near CFS** / **STP 5 KLD** / **3.1 KLD** **Near Liquid Terminal** / **STP 10 KLD** / **2.8 KLD** **Near Liquid Terminal** / **ETP 50 KLD** / **0.09 KLD** The monitoring results for the period April 2022 to September 2022 is enclosed as **Annexure - III**. Summary of STP & ETP 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>7.23</td><td>7.96</td><td>6.5 to 9</td></tr><tr><td>TSS</td><td>mg/l</td><td>8.4</td><td>23</td><td>30</td></tr><tr><td>BOD</td><td>mg/l</td><td>6</td><td>12</td><td>20</td></tr><tr><td>COD</td><td>mg/l</td><td>24</td><td>73</td><td>100</td></tr><tr><td>Faecal Coliform</td><td>MPN/100ml</td><td>80</td><td>280</td><td><1000</td></tr></table> <table><tr><th colspan="5">ETP TREATED WATER ANALYSIS REPORT(AVG)</th></tr><tr><th>Parameter</th><th>Unit</th><th>RO-1</th><th>RO-2</th><th>TNPCB Limit</th></tr><tr><td>pH</td><td>-</td><td>8.64</td><td>8.92</td><td>6.5 to 9</td></tr><tr><td>TSS</td><td>mg/l</td><td>4.8</td><td>2.2</td><td>200</td></tr><tr><td>TDS</td><td>mg/l</td><td>2056</td><td>1384</td><td>2100</td></tr><tr><td>BOD</td><td>mg/l</td><td>12</td><td>7.4</td><td>100</td></tr><tr><td>Oil & Grease</td><td>mg/l</td><td>BDL</td><td>BDL</td><td>10</td></tr></table> All the parameters are well within the prescribed norms.
v	The proponent shall implement oil spill mitigation measures without fail	**Complied.** Oil Spill contingency Plan (OSCP) is in place and MIDPL is maintaining oil spill equipment as per Coast Guard guidelines and conducting oil spill mock drills at regular intervals. OSCP along with list of Oil spill control equipment already submitted vide our Letter No. MIDPL/TNPCB/GMP/EC-HYC dated 14.05.2018.
vi	Disaster management plan shall be implemented and mock drills shall be carried out properly and periodically.	**Complied.** MIDPL is having Emergency Response & Disaster Management Plan to handle any Natural calamities or and incidents at Port. Regular Mock Drills are conducted as per the Disaster Management Plan. The details of drills conducted for the period April 2022 to September 2022 is enclosed as **Annexure- 5.**

ANNEXURE – 5

(MIDPL MOCK DRILLS)

Annexure - 5

MOCK DRILL DETAILS

Marine Mock Drills – Apr-2022 to Sep-2022				
Sl. No	**Date**	**Time**	**Scenario**	**Participants**
1	07.04.2022	1600 Hrs.	PATROL PARTY NOT RIPORTING BACK FOR LAST 2 HOURS.	10
2	12.04.2022	1215 Hrs.	GATHERING OF LOCAL VILLAGERS INFRONT OF MAIN GATE	28
3	14.05.2022	1415 Hrs.	ENTRY ON EXPIRED EP THROUGH ACCESS CONTROL LANE.	12
4	16.05.2022	1605 Hrs.	AN EMPTY VEHICLE MADE FORCED ENTRY AND DISAPPEARED INSIDE THE PORT PERMISES.	14
5	22.06.2022	1600 Hrs.	SUSPECTED EXPLOSIVE DEVICE FOUND AT QUAY.	16
6	25.06.2022	1530 Hrs.	INTRUDER / INTRUDERS ATTEMPTING TO PENETRATE THE OUTER PERIMETER BARRIER.	18
7	16.07.2022	1100 Hrs.	CRIMINAL TERRORIST ATTACK / HOSTAGE / WAR ALERTS.	15
8	22.07.2022	1640 Hrs.	MAJOR PUBLIC DISTURBANCE / RIOT / INDUSTRIAL UNREST.	20
9	07.08.2022	1615 Hrs.	MOORED VESSEL UNDER ATTACK REQUEST ASSISTANCE.	18
10	17.08.2022	1615 Hrs.	NUCLEAR, BIOLOGICAL AND CHEMICAL ATTACK.	18
11	02.09.2022	1707 Hrs.	ATTEMPT TO INTRUSION THROUGH BOUNDARY WALL SIDE.	17
12	21.09.2022	1500	BOMB THREAT CALL RECIVED BY THE TELEPHONE.	27
13	23.09.2022	1515	TAMPERING WITH CARGO, ESSENTIAL SHIP EQUIPMENT OR SYSTEM OR SHIP STORES.	26


20


adani


MOBILE ICU
ADVANCE LIFE SUPPORT
AMBULANCE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Marine Infrastructure Developer Pvt. Ltd (MIDPL)

Mock Drills - April 2022 to September 2022

S.No.	Date	Time	Scenario	Participants
1	20/05/2022	12:30 hrs	Electrocution	10
2	24/07/2022	09:50 hrs	Minor fire in E-ITV battery	13
3	26/07/2022	11:25 hrs	Chest pain for the operator	16
4	24/08/2022	14:57 hrs	Hand Injury while handling Granite block due to torn of wire rope.	26
5	27/09/2022	15:00 hrs	One person Unconscious because of Oxygen deficiency in Confined Space (T-01)	50

ANNEXURE – 6

(EMP COMPLIANCE)

Annexure – VI

Environment Management Plan (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. 28,017 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	**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

			• Management Guideline as issued by Ministry of Shipping – India Shall be adhered.	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.** • No maintenance dredging activity carried out during the compliance period April 2022 to September 2022. • 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 Apr'22 to Sep'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.** MIDPL is operating ETP of 50 KLD capacity to treat the effluent generated from Liquid Tank Washings and 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. The monitoring results for the period Apr'22 to Sep'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	**Complied.** • No Hazardous cargo is handled at MIDPL.

			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.	• 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 2021-22 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	**Complied.** • Kattupalli port follows Safe navigation routes which are earmarked for safe movement of fishing vessels and the port cargo ships. Our activities are confined to approved Port Limits and there is no hindrance to fishing activity.

			• Regular Interactions will be carried out with the fishing community • Conflicts if any with fishing community will be amicably resolved in all cases	• Regular interactions are being carried out with the fishing community in order to make fishermen aware of the on-going activities and importance of channel marker buoys and other navigational aids.
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:** 430 Students benefited during compliance period. • Conducting evening education centres in 14 places for the students, through which 430 students benefits from this program. • Conducted meeting for Tutors on 16th April 2022 – totally 8 tutors participated in the meeting to have a common understanding and review the progress. • Celebrated Teachers' Day and World Ozone Day where 250 students were participated • We have provided 355 (168 Girls and 187 Boys) bicycles for government school students of 10th Standard which will help them to reach the school and motivate them to study better.  2.

2. Community Health:

- Medical care for the community through MHCU- 9477 persons were benefited, majority of them women and elderly population.
- **SuPoshan:** Through our SuPoshan program we have reached 3495 through family counselling, FGDs and Anthropometric Measurement, Community events, Kitchen gardening & Cooking Demo.
- World Breastfeeding Week(1st to 7th August 22) was followed and created awareness on the importance among mothers and women.
- Poshan Maah- One full month-long programs on healthy- nutrition food and its importance in the community.

				• Employee engagement – Blood Donation Camp held on 24th June 2022 and costal cleaning volunteering activity took place. • RO plant In KR Palayam completed and hand overed to panchayat. It will be maintained by panchayat. This RO plant will be benefitting 450 families at the rate of Rs.5 for 20Litre     **3. Sustainable Livelihood Development:** • 20 Hand Mobile Pull Cart Provided • 300 Organic Famers identified for Organic farming projects. • 11 women groups identified for potential income generation projects. • Skill Development: 93 women are getting their skilling in Tailoring(43 person) and Beautician(50 persons)

				   adani Foundation Gram Bharati 2022 Tamil Nadu adani Foundation Kattupalli adani Kattupalli

				4. **Community Infrastructure Development:** • 5 high mast lights were installed in Kattupalli, Koraikuppamm Thirumalli Nagar, Kottaikuppam and Pulicat. • Kattupalli Pond Desiltation work got completed where 450 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	**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

			rehabilitation activities to ensure least damage to life and property.	the period April'22 to September'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 2021-22)

Subramanian A

From: Sathish Kumar R
Sent: Thursday, September 22, 2022 4:42 PM
To: eccompliance-tn@gov.in; DEE GMP TNPCB
Cc: Ramde Karangiya; Subramanian A
Subject: Submission of Environmental Statement (Form V) for the financial year ending 31st March, 2022 of Marine Infrastructure Developer Private Limited, Kattupalli Port, Chennai
Attachments: MIDPL_ Form- V (2021-22).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 2022.

Submitted for your kind information and records.

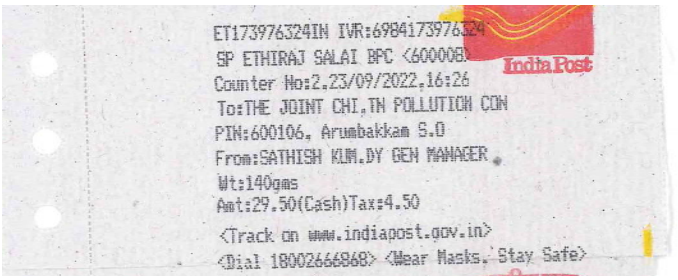
Thanks and Regards

R. Sathish Kumar
Deputy General Manager - Environment | Adani Ports and SEZ Limited |
Mob +91 91760 00959 | Direct: +91 44 2796 8177 | Extn. 69177 |
sathish.r@adani.com | www.adaniports.com |

adani
Ports and Logistics

KATTUPALLI PORT
CHENNAI's NEW GATEWAY

MIDPL/TNPCB/2021-22/179 Date: 22.09.2022



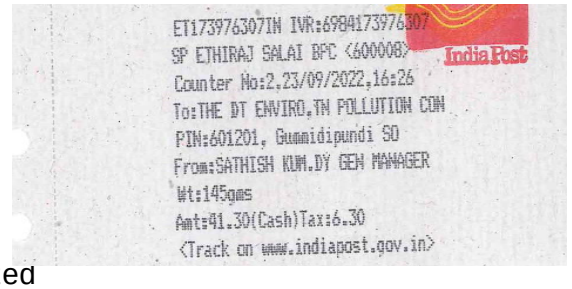
To,
The Member Secretary,
Tamil Nadu Pollution Control Board,
76, Mount Salai,
Guindy,
Chennai - 600 032

Dear Sir,

Sub: Submission of Environmental Statement (Form V) for the financial year ending 31st March, 2022 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 2022.



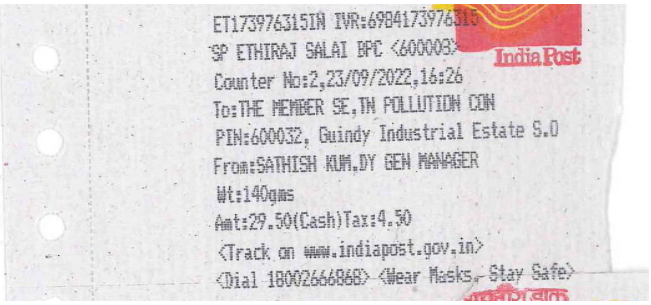
Submitted for your kind information and records.

Thanking you,

For, M/s. Marine Infrastructure Developer Private Limited

R. Sathish Kumar
Head - Environment

Marine Infrastructure Developer Pvt. Ltd. Chennai 600 120



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
(Kattupalli Port)
Kattupalli Village, Ponneri Taluk,
Tirivalluvar District 600 120,
Tamil Nadu, India

Tel +91 44 2824 3062

CIN: U74999TN2016PTC103769

Form-V

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

Environmental Statement for the financial year ending 31st March 2022

PART – A

i) **Name and Address of the owner/occupier of the industry operation or process**	:	**Mr. G.J. Rao** **Chief Executive Officer** 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**

S.No.	Description	Quantity in MMTPA
1.	Containers	21.60
2.	Ro-Ro (Automobiles)	0.07
3.	Project cargo	0.44
4.	Break Bulk / General Cargo (Barytes/ Gypsum/ Limestone/ Granite/ Steel Cargo/ Rock Phosphate/ Bauxite/ Dolomite Cargo)	1.82
5.	Edible oil, CBFS, Base Oil, Lube Oil and Non-Hazardous Liquid Cargo	0.72

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/2021-22/119 dated 23.09.2021.

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 (2020-2021)	During the Current Financial year (2021-2022)
1.	Process	NIL	NIL
2.	Cooling	NIL	NIL
3.	Domestic	124.66	111.46

The unit does not undergo any manufacturing process. The water consumed is mainly for Firefighting, dust suppression on roads, Greenbelt development and maintenance, etc.

(ii) Raw Material Consumption

S. No	Name of the Raw Material	Name of the Product	Consumption during the financial year 2020-21.	Consumption during the financial year 2021-22.
1	Not Applicable	Not Applicable	NIL	NIL
The unit does not undergo any manufacturing process. Hence, there is no raw material consumption.				

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>7.3</td><td>7.7</td><td>7.4</td><td>-Nil-</td></tr>
<tr><td>Total Suspended Solids (mg/l)</td><td>30</td><td>18.2</td><td>14.4</td><td>7.6</td><td>-Nil-</td></tr>
<tr><td>BOD (3 days at 27°C) (mg/l)</td><td>20</td><td>11.9</td><td>13.0</td><td>8.1</td><td>-Nil-</td></tr>
<tr><td>Fecal Coliform (MPN/100ml)</td><td>1000</td><td>195</td><td>174.7</td><td>135.8</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 DG Sets are retrofitted to reduce the Particulate Matter emission level. Efficiency of the retrofitting equipment is observed above 90% against the TNPCB requirement of >70%.

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>

PART-D

HAZARDOUS WASTES

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

Hazardous Wastes	Total Quantity (Kg)	
	During the current financial Year (2020-21)	During the current financial Year (2021-22)
(a) From Process	• 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)- 6.0 KL	• Used/Waste/ Spent Oil (5.1)- 2.31 KL
(b) From Pollution control facilities	NA	NA

PART-E

SOLID WASTES

TOTAL QUANTITY GENERATED			
Solid Waste		During the previous Financial Year (2020-21)	During the current Financial Year (2021-22)
a)	From process	NIL	NIL
b)	From pollution control facilities- STP	168 kgs	278 kgs
c)	1. Quantity recycled or reutilized within the Unit 2. Sold 3. Disposed	168 kgs NIL NIL	278 kgs NIL NIL

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 (Reduce, 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 recyclers 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)

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

PART-G

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

- Roof Top Solar Plant with the solar power generation capacity of 1000 kW were installed at MIDPL. Around 12,60,000 Units per Annum being generated from Solar Plant. MIDPL has invested nearly Rs.4 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.45 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 2021-22 is Rs. 17.34 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 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" and achieved energy saving of around 22.1MWH per year.
- Streetlight and High mast lighting controlled by light intensity sensor. Energy savings achieved around 29,000 units per year amounting to Rs. 2.15 Lakhs/Annum.
- 10,292 trees & 19,880 Shrubs planted as part of Greenbelt development program in the year 2021-22. Drip Line and Sprinkler System is provided at MIDPL for irrigation in Greenbelt and landscape areas.

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	28.96
2	AAQ/NL/SM Survey & STP Treated Water Quality Analysis	0.55
3	Environment Studies	36.86
4	Retrofitting of DG Sets	56.57
5	Integrated Waste Management & Pollution Under Check Facility	2.17
6	O&M of STP's	17.34
7	Housekeeping	73.69
8	Greenbelt Maintenance	107.57
	Total	**322.98**

PART-I

ANY OTHER PARTICULARS IN RESPECT TO ENVIRONMENT

- Handling of all types of wastes in line with 5R (Reduce, Reuse, Recycle, Recover and Reprocess) 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, 45001:2018 and 50001:2018) certified Port.
- obtained "5S" Certification at MIDPL
- MIDPL is bestowed with the top honors and the details of accolades received during the year 2021-22 are mentioned here under;
    - EKDKN's **"Platinum Award"** under 10th Exceed Environment Award 2021 for **Energy Conservation** Category.
    - **"Golden Peacock Environment Management Award - 2021"** for Transportation (Ports) Sector, under 'Environment Management' Category.
- **Community Development:**

  Kattupalli Port has been propagating the community development through a broad based Corporate Social Responsibility (CSR) program in the project area through Adani Foundation since 2018 to ensure inclusive growth and catering to the developmental needs of the community at the grassroots level. The *project area encompasses 11 panchayats covering about 46 villages within 10 Km radius of the Kattupalli Port*. The key interventions introduced in the project area are as under:

  - Education
  - Community Health
  - community Infrastructure facility
  - Sustainable Livelihood development

- Tree Plantation & Bio-Diversity development program
- Special Focus Groups
- COVID / Cyclone relief measures

Date: 22.09.2022

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

Name : **G.J. Rao**

Designation: **Chief Executive Officer**

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

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

MARINE INFRASTRUCTURE DEVELOPER PVT. LTD. CHENNAI

Annexure - 1

MIDPL- STACK MONITORING REPORT (April'2021 to March'2022)

Location		DG 2000KVA - 1											
Month & Year		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
S.No.	Parameters	21.04.21	20.05.21	18.06.21	20.07.21	18.08.21	15.09.21	21.10.21	15.11.21	24.12.21	25.01.21	16.02.22	23.03.22
1	Stack Temperature, °C	281	287	-	291	-	265	245	257	-	262	-	250
2	Flue Gas Velocity, m/s	26.08	26.91	-	28.92	-	25.48	24.72	26.29	-	26.01	-	25.83
3	Gas Discharge, Nm3/hr	6334	6465	-	6899	-	6372	6420	6674	-	6543	-	6645
4	Sulphur Dioxide, mg/Nm3	10.7	11.2	-	10.9	-	9	7.1	7.9	-	8.1	-	7.9
5	NOX (as NO2) in ppmv	248	255	-	257	-	249	228	236	-	224	-	218
6	Particular matter, mg/Nm3	37.3	35	-	35.1	-	37.4	12	14.3	-	12	-	11.3
7	Carbon Monoxide, mg/Nm3	98	94	-	93	-	95	69	75	-	56	-	52

Location		DG 2000KVA - 2											
Month & Year		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
S.No.	Parameters	21.04.21	20.05.21	18.06.21	20.07.21	18.08.21	15.09.21	21.10.21	15.11.21	24.12.21	25.01.21	16.02.22	23.03.22
1	Stack Temperature, °C	-	-	298	-	258	-	247	-	242	-	254	263
2	Flue Gas Velocity, m/s	-	-	27.56	-	26.75	-	25.46	-	24.68	-	24.98	26.12
3	Gas Discharge, Nm3/hr	-	-	6494	-	6778	-	6587	-	6447	-	6376	6557
4	Sulphur Dioxide, mg/Nm3	-	-	12.7	-	9.7	-	6.9	-	7.3	-	7.7	8.9
5	NOX (as NO2) in ppmv	-	-	261	-	242	-	220	-	214	-	212	225
6	Particular matter, mg/Nm3	-	-	37.3	-	33	-	15	-	13.1	-	10.8	12.1
7	Carbon Monoxide, mg/Nm3	-	-	99	-	87	-	75	-	70	-	47	54

Location		DG 500 KVA											
Month & Year		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
S.No.	Parameters	21.04.21	20.05.21	18.06.21	20.07.21	18.08.21	15.09.21	21.10.21	15.11.21	24.12.21	25.01.21	16.02.22	23.03.22
1	Stack Temperature, °C	-	185	-	180	-	171	174	165	-	169	-	-
2	Flue Gas Velocity, m/s	-	16.88	-	18.12	-	16.87	17.41	18.57	-	15.78	-	-
3	Gas Discharge, Nm3/hr	-	1639	-	1780	-	1690	1732	1886	-	1588	-	-
4	Sulphur Dioxide, mg/Nm3	-	7.9	-	7.1	-	6.3	5.8	5.2	-	6.5	-	-
5	NOX (as NO2) in ppmv	-	91	-	103	-	94	80	69	-	92	-	-
6	Particular matter, mg/Nm3	-	27.8	-	24.6	-	22.6	8.3	7	-	6.8	-	-
7	Carbon Monoxide, mg/Nm3	-	69	-	64	-	68	54	51	-	16	-	-

Location		DG 125 KVA											
Month & Year		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
S.No.	Parameters	21.04.21	20.05.21	18.06.21	20.07.21	18.08.21	15.09.21	21.10.21	15.11.21	24.12.21	25.01.21	16.02.22	23.03.22
1	Stack Temperature, °C	127	-	134	-	116	-	119	-	124	-	-	128
2	Flue Gas Velocity, m/s	12.93	-	12.01	-	11.48	-	12.05	-	11.26	-	-	11.94
3	Gas Discharge, Nm3/hr	611	-	558	-	559	-	581	-	535	-	-	563
4	Sulphur Dioxide, mg/Nm3	5.6	-	5.9	-	4.4	-	3.2	-	3.7	-	-	4
5	NOX (as NO2) in ppmv	69	-	74	-	57	-	47	-	53	-	-	58
6	Particular matter, mg/Nm3	16.4	-	14.8	-	17.1	-	4.8	-	4.6	-	-	5.2
7	Carbon Monoxide, mg/Nm3	26	-	30	-	22	-	16	-	18	-	-	20

Location		LIQUID TERMINAL HOT OIL GENERATOR											
Month & Year		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
S.No.	Parameters	21.04.21	20.05.21	18.06.21	20.07.21	18.08.21	15.09.21	21.10.21	15.11.21	24.12.21	25.01.21	16.02.22	23.03.22
1	Stack Temperature, °C	151	-	-	452	-	159	-	-	-	-	152	-
2	Flue Gas Velocity, m/s	10.03	-	-	10.21	-	10.75	-	-	-	-	11.47	-
3	Gas Discharge, Nm3/hr	36254	-	-	36818	-	38137	-	-	-	-	41362	-
4	Sulphur Dioxide, mg/Nm3	6.8	-	-	7.9	-	7	-	-	-	-	7.9	-
5	NOX (as NO2) in ppmv	20.3	-	-	25.1	-	27.4	-	-	-	-	21	-
6	Particular matter, mg/Nm3	11.2	-	-	12.3	-	14.2	-	-	-	-	11.4	-
7	Carbon Monoxide, mg/Nm3	24	-	-	30	-	35	-	-	-	-	22	-

Annexure - 2

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

Accolades

Annexure - 3

EKDKN's Platinum Award – 2021

Golden Peacock Environment Management Award 2021

ANNEXURE – 8

(CONSENT ORDERS UNDER AIR & WATER ACTS)

TAMILNADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2105236876761 DATED: 13/09/2021.

PROCEEDINGS NO.T6/TNPCB/F.0491GMP/RL/GMP/A/2021 DATED: 13/09/2021

SUB: Tamil Nadu Pollution Control Board –CONSENT TO OPERATE –DIRECT -M/s. MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED , S.F.No. Survey Numbers : 14/18B, 15, 168/1, 168/2, 169, 170/1, 170/2, 171/1, 171/2, 172/1, 172/2, 173/1, 173/2, 174, 175, 176, 177, 178/1, 178/2, 178/3, 178/4, 179/1, 179/2, 179/3, 179/4, 180, 181, 182, 183, 184/1, 184/2, 184/3, 186, 187, 188/1, 188/2A, 188/2B, 188/2C, 189, 190, 191, 192/1, 192/2, 193/1, 193/2, 193/3, 193/4, 194, 195, 196, 197/1, 197/2, 197/3, 199, 200/1, 200/2, 202/1, 202/2, 203, 206/1, 206/2A, 206/2B, 206/3, 206/4A, 206/4B, 207/2B, 208/2, 209/1, 209/2, 209/3, 210/1, 210/2, 211/1, 211/2, 211/3, 211/4, 211/5, 211/6, 211/7, 212, 213, 214/1, 214/2, 214/3, 214/4, 215/1, 215/2, 216, 217, 218/1, 218/2, 218/3, 218/4, 218/5, 219/1, 219/2, 220, 223/1, 223/2, 224/1, 224/2, 224/3, 224/4, 224/5, 225, 226, 227, 228/1, 228/2, 228/3, 228/4, 228/5, 229, 230, 231/1, 231/2, 231/3, 231/4, 231/5, 232, 233/1, 233/2, 233/3, 233/4, 234/1, 234/2, 234/3, 234/4, 235/1B, 235/2, 235/3B, 236/3B, 236/4, 242/1, 242/2, 243/2B, 244/2, 247/1, 248/1, 248/2, 249/1A2, 249/2B, 198/1, 205/1A, 205/1B, 205/2, 205/5, 1/4A1, 1/4A2, 1/4B, 1/5, 16/1, 16/2, 17/1, 17/2, 17/3A, 17/3B, 143, 151/1, 151/2, 151/3, 151/4, 152, 153, 154/1, 154/2, 166, 167/1, 167/2, 204/1, 204/2, 204/3, 221, 221/1, 222/2, 330/1, 330/2, 330/3, 330/4, 12, 16/3, 198/2, 201, 205/3, 205/4., KATTUPALLI villagePonneri Taluk and Tiruvallur District - Consent for operation of the plant and discharge of emissions under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) –Issued- Reg.

Ref: 1. Units application for CTO direct dt. 15.02.2021
2. IR.No : F.0491GMP/RL/DEE/GMP/2021 dated 30/06/2021
3. Board's (Consent Clearance Committee) Resolution No.281-12 dt: 13.08.2021

CONSENT TO OPERATE is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Chief Executive Officer,
M/s . MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED
S.F No.Survey Numbers : 14/18B, 15, 168/1, 168/2, 169, 170/1, 170/2, 171/1, 171/2, 172/1, 172/2, 173/1, 173/2, 174, 175, 176, 177, 178/1, 178/2, 178/3, 178/4, 179/1, 179/2, 179/3, 179/4, 180, 181, 182, 183, 184/1, 184/2, 184/3, 186, 187, 188/1, 188/2A, 188/2B, 188/2C, 189, 190, 191, 192/1, 192/2, 193/1, 193/2, 193/3, 193/4, 194, 195, 196, 197/1, 197/2, 197/3, 199, 200/1, 200/2, 202/1, 202/2, 203, 206/1, 206/2A, 206/2B, 206/3, 206/4A, 206/4B, 207/2B, 208/2, 209/1, 209/2, 209/3, 210/1, 210/2, 211/1, 211/2, 211/3, 211/4, 211/5, 211/6, 211/7, 212, 213, 214/1, 214/2, 214/3, 214/4, 215/1, 215/2, 216, 217, 218/1, 218/2, 218/3, 218/4, 218/5, 219/1, 219/2, 220, 223/1, 223/2, 224/1, 224/2, 224/3, 224/4, 224/5, 225, 226, 227, 228/1, 228/2, 228/3, 228/4, 228/5, 229, 230, 231/1, 231/2, 231/3, 231/4, 231/5, 232, 233/1, 233/2, 233/3, 233/4, 234/1, 234/2, 234/3, 234/4, 235/1B, 235/2, 235/3B, 236/3B, 236/4, 242/1, 242/2, 243/2B, 244/2, 247/1, 248/1, 248/2, 249/1A2, 249/2B, 198/1, 205/1A, 205/1B, 205/2, 205/5, 1/4A1, 1/4A2, 1/4B, 1/5, 16/1, 16/2, 17/1, 17/2, 17/3A, 17/3B, 143, 151/1, 151/2, 151/3, 151/4, 152, 153, 154/1, 154/2, 166, 167/1, 167/2, 204/1, 204/2, 204/3, 221, 221/1, 222/2, 330/1, 330/2, 330/3, 330/4, 12, 16/3, 198/2, 201, 205/3, 205/4.,
KATTUPALLI Village,
Ponneri Taluk,
Tiruvallur District.

Authorizing the occupier to operate the industrial plant in the Air Pollution Control Area as notified by the Government and to make discharge of emission from the stacks/chimneys.

TAMILNADU POLLUTION CONTROL BOARD

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2026

JOSEPHINESAHAYARANI Digitally signed by JOSEPHINESAHAYARA
Date: 2021.09.14 07:44:46 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
The Chief Executive Officer,
M/s.MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED,
Ramcons Fortuna Towers, 4th Floor, No:1/2 Kodambakkam High Road, Nungambakam,
Chennai - 600034,
Pin: 600034

Copy to:

1.The Commissioner, MEENJUR-Panchayat Union, Ponneri Taluk, Tiruvallur District .
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, GUMMIDIPOONDI.
3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, Chennai.
4. File

TAMILNADU POLLUTION CONTROL BOARD

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Containers	21.60	MMTPA
2.	Ro-Ro – Automobiles	0.07	MMTPA
3.	Project Cargo	0.44	MMTPA
4.	Break Bulk/general cargo (Barytes / Gypsum / Limestone / Granite / Steel Cargo / Rock Phosphate / Bauxite / Dolomite cargoes)	1.82	MMTPA
5.	Edible oil, CBFS, Base Oil, Lube and Non-Hazardous Liquid Cargo	0.72	MMTPA

2. This consent to operate is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height has to be brought to the notice of the Board and fresh consent/Amendment has to be obtained.

I	**Point source emission with stack :**			
Stack No.	**Point Emission Source**	**Air pollution Control measures**	**Stack height from Ground Level in m**	**Gaseous Discharge in Nm3/hr**
1	DG Set - 2000 KVA - I	Acoustic enclosures with stack	30	8000
2	DG Set - 2000 KVA - II	Acoustic enclosures with stack	30	8000
3	DG Set - 500 KVA - I	Acoustic enclosures with stack	20	5000
4	DG Set - 500 KVA - II	Acoustic enclosures with stack	20	5000
5	DG Set - 125 KVA	Acoustic enclosures with stack	4	1000
6	Hot Water System (CBFS / Veg Oil Facility)	Wet scrubber with stack	31	50000
7	Hot Oil Generator (Bitumen Facility)	Wet scrubber with stack	31	50000
8	Fire DG Pump Stack - 1	Stack	2.5	
9	Fire DG Pump Stack - 2	Stack	2.5	
10	ETP Boiler Stack	Stack	12	
II	**Fugitive/Noise emission :**			
Sl. No.	**Fugitive or Noise Emission sources**	**Type of emission**	**Control measures**	
1.	DG Set	Noise	Acoustic Enclosures	

3(a). The emission shall not contain constituents in excess of the tolerance limits as laid down hereunder :

Sl.	Parameter	Unit	Tolerance limits	Stacks

Annexure enclosed if applicable. :-

3.(b) The Ambient Air in the industrial plant area shall not contain constituents in excess of the tolerance limits prescribed below.

Sl. No.	Pollutant	Time Weighted Average	Unit	Tolerance Limits	
				Industrial, Residential, Rural and other area	Ecologically Sensitive Area (notified by Central Govt.)
1.	Sulphur Dioxide (SO2)	Annual 24 hours	microgram/m3 microgram/m3	50 80	20 80
2.	Nitrogen Dioxide (NO2)	Annual 24 hours	microgram/m3 microgram/m3	40 80	30 80
3.	Particulate Matter (Size Less than 10 micro M) or PM10	Annual 24 hours	microgram/m3 microgram/m3	60 100	60 100
4.	Particulate Matter (Size Less than 2.5 micro M) or PM2.5	Annual 24 hours	microgram/m3 microgram/m3	40 60	40 60
5.	Ozone (O3)	Annual 24 hours	8 Hours 1 Hour	100 180	100 180
Sl. No.	**Pollutant**	**Time Weighted Average**	**Unit**	**Tolerance Limits**	
				Industrial, Residential, Rural and other area	**Ecologically Sensitive Area (notified by Central Govt.)**
6.	Lead (Pb)	Annual 24 hours	microgram/m3 microgram/m3	0.5 1.0	0.5 1.0
7.	Carbon Monoxide (CO)	8 Hours 1 Hour	miligram/m3 miligram/m3	02 04	02 04
8.	Ammonia (NH3)	Annual 24 hours	microgram/m3 microgram/m3	100 400	100 400
9.	Benzene (C6H6)	Annual	microgram/m3	5	5
10.	Benzo(O) Pyrene (BaP) –particulate phase only	Annual	nanogram/m3	01	01
11.	Arsenic (As)	Annual	nanogram/m3	06	06
12.	Nickel (Ni)	Annual	nanogram/m3	20	20

3(c) The Ambient Noise Level in the industrial plant area shall not exceed the limits prescribed below:

Limits in L.eq.-dB(A)	Day Time	Night Time
IndustrialArea	**75**	**70**

4. All units of the Air pollution control measures shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl. No.3 above.

5. The occupier shall not change or alter quality or quantity or the rate of emission or replace or alter the air pollution control equipment or change the raw material or manufacturing process resulting in change in quality and/or quantity of emissions without the previous written permission of the Board.
6. The occupier shall maintain log book regarding the stack monitoring system or operation of the plant or any other particulars for each of the unit operations of air pollution control systems to reflect the working condition which shall be furnished for verification of the Board officials during inspection.
7. The occupier shall at his own cost get the samples of emission/air/noise levels collected and analyzed by the TNPC Board Laboratory once in every 6 months/once in a year/periodically for the parameters as prescribed.
8. Any upset condition in any of the plants of the factory which is likely to result in increased emissions and result in violation of the standards mentioned in Sl.No.3 shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.
9. The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.

Special Additional Conditions:

The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.

Additional Conditions:

1. The unit shall operate and maintain the APC measures efficiently and continuously so as to satisfy the Ambient Air Quality / emission standards prescribed by the Board.
2. The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.
3. The unit shall conduct AAQ/ANL/SM emission survey periodically and furnish the ROA to the Board.
4. The unit shall maintain Continuous Ambient Air Quality Monitoring station provided for the parameters PM10, PM2.5 and VOC and shall transfer data to the care Air Centre, TNPCB, Guindy without any interruption.
5. The unit shall utilize the Power obtained from the DG Sets for captive use only and shall not supply Power to Grid.
6. The unit shall maintain adequate dust suppression system and take all measures to ensure that the cargo is handled by taking necessary precautions to avoid spread of fugitive dust while transporting cargo through lorries and containers.
7. The unit shall ensure that the vehicles shall not fit or use any multi toned horn giving a harsh, shrill, loud or alarming noise.
8. The unit shall provide water sprinklers to the internal roads so as to avoid dust emissions due to the vehicular movements inside the premises within a month as committed.
9. The unit shall comply with the conditions imposed in the environmental clearance accorded to the unit from the MoEF, GOI vide Lr.No. 10-130/2007-IAIII dated 09.02.2018.
10. In case of any deviation in the Gross Fixed Assets furnished in future, the unit shall remit the difference in amount to the Board without fail.
11. The unit shall continue to develop adequate green belt by planting tree saplings of native species in and around the unit premises so as to comply with the Board norms.
12. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.
13. The unit shall comply with the conditions imposed in the "No increase in Pollution Load" letter issued to the unit by the Board vide Lr. No: T1/TNPCB/ F.022882/RL/GMP/NIPL/2021 Dated:12.01.2021.

JOSEPHINESAHAYARANI

Digitally signed by JOSEPHINESAHAYARANI
Date: 2021.09.14 07:45:41 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

TAMILNADU POLLUTION CONTROL BOARD

GENERAL CONDITIONS

1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in production quantity and emission.
2. This Consent is given by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished, in the application will also be ground for review/variation/revocation of the Consent Order under Section 21 of the Act.
3. The conditions imposed shall continue in force until revoked under Section 21 of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Air (Prevention and Control of Pollution) Act, 1981 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Air Pollution Control measures sufficient to ensure continuous operation of all pollution control equipments to ensure compliance.
7. The occupier shall provide all facilities to the Board officials for collection of samples in and around the factory at any time.
8. The applicant shall display the flow diagram of the sources of emission and pollution control systems provided at the site.
9. The liquid effluent arising out of the operation of the air pollution control equipment shall also be treated in a manner and to the satisfaction of standards prescribed by the Board in accordance with the provisions of Water (Prevention and Control of Pollution) Act, 1974 as amended.
10. The air pollution control equipments, location of inspection chambers and sampling port holes shall be made easily accessible at all time.
11. In case of any episodal discharge of emission, the industry shall take immediate action to bring down the emission within the limits prescribed by the Board.
12. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1991 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
13. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poromboke lands.
14. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.
15. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.
16. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.
17. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Air (Prevention and Control of Pollution) Act, 1981, as amended in Form-I alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.
18. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.

19. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

JOSEPHINESAHAYARANI Digitally signed by JOSEPHINESAHAY/
Date: 2021.09.14 07:46:18 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

TAMILNADU POLLUTION CONTROL BOARD

Category of the Industry :

RED

CONSENT ORDER NO. 2105136876761 DATED: 13/09/2021.

PROCEEDINGS NO.T6/TNPCB/F.0491GMP/RL/GMP/W/2021 DATED: 13/09/2021

SUB: Tamil Nadu Pollution Control Board –CONSENT TO OPERATE – DIRECT -M/s. MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED , S.F.No. Survey Numbers : 14/18B, 15, 168/1, 168/2, 169, 170/1, 170/2, 171/1, 171/2, 172/1, 172/2, 173/1, 173/2, 174, 175, 176, 177, 178/1, 178/2, 178/3, 178/4, 179/1, 179/2, 179/3, 179/4, 180, 181, 182, 183, 184/1, 184/2, 184/3, 186, 187, 188/1, 188/2A, 188/2B, 188/2C, 189, 190, 191, 192/1, 192/2, 193/1, 193/2, 193/3, 193/4, 194, 195, 196, 197/1, 197/2, 197/3, 199, 200/1, 200/2, 202/1, 202/2, 203, 206/1, 206/2A, 206/2B, 206/3, 206/4A, 206/4B, 207/2B, 208/2, 209/1, 209/2, 209/3, 210/1, 210/2, 211/1, 211/2, 211/3, 211/4, 211/5, 211/6, 211/7, 212, 213, 214/1, 214/2, 214/3, 214/4, 215/1, 215/2, 216, 217, 218/1, 218/2, 218/3, 218/4, 218/5, 219/1, 219/2, 220, 223/1, 223/2, 224/1, 224/2, 224/3, 224/4, 224/5, 225, 226, 227, 228/1, 228/2, 228/3, 228/4, 228/5, 229, 230, 231/1, 231/2, 231/3, 231/4, 231/5, 232, 233/1, 233/2, 233/3, 233/4, 234/1, 234/2, 234/3, 234/4, 235/1B, 235/2, 235/3B, 236/3B, 236/4, 242/1, 242/2, 243/2B, 244/2, 247/1, 248/1, 248/2, 249/1A2, 249/2B, 198/1, 205/1A, 205/1B, 205/2, 205/5, 1/4A1, 1/4A2, 1/4B, 1/5, 16/1, 16/2, 17/1, 17/2, 17/3A, 17/3B, 143, 151/1, 151/2, 151/3, 151/4, 152, 153, 154/1, 154/2, 166, 167/1, 167/2, 204/1, 204/2, 204/3, 221, 221/1, 222/2, 330/1, 330/2, 330/3, 330/4, 12, 16/3, 198/2, 201, 205/3, 205/4., KATTUPALLI villagePonneri Taluk and Tiruvallur District - Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

Ref: 1. Units application for CTO direct dt. 15.02.2021
2. IR.No : F.0491GMP/RL/DEE/GMP/2021 dated 30/06/2021
3. Board's (Consent Clearance Committee) Resolution No.281-12 dt: 13.08.2021

CONSENT TO OPERATE is hereby granted under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act, 6 of 1974) (hereinafter referred to as "The Act") and the rules and orders made there under to

The Chief Executive Officer,

M/s . MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED

S.F No.Survey Numbers : 14/18B, 15, 168/1, 168/2, 169, 170/1, 170/2, 171/1, 171/2, 172/1, 172/2, 173/1, 173/2, 174, 175, 176, 177, 178/1, 178/2, 178/3, 178/4, 179/1, 179/2, 179/3, 179/4, 180, 181, 182, 183, 184/1, 184/2, 184/3, 186, 187, 188/1, 188/2A, 188/2B, 188/2C, 189, 190, 191, 192/1, 192/2, 193/1, 193/2, 193/3, 193/4, 194, 195, 196, 197/1, 197/2, 197/3, 199, 200/1, 200/2, 202/1, 202/2, 203, 206/1, 206/2A, 206/2B, 206/3, 206/4A, 206/4B, 207/2B, 208/2, 209/1, 209/2, 209/3, 210/1, 210/2, 211/1, 211/2, 211/3, 211/4, 211/5, 211/6, 211/7, 212, 213, 214/1, 214/2, 214/3, 214/4, 215/1, 215/2, 216, 217, 218/1, 218/2, 218/3, 218/4, 218/5, 219/1, 219/2, 220, 223/1, 223/2, 224/1, 224/2, 224/3, 224/4, 224/5, 225, 226, 227, 228/1, 228/2, 228/3, 228/4, 228/5, 229, 230, 231/1, 231/2, 231/3, 231/4, 231/5, 232, 233/1, 233/2, 233/3, 233/4, 234/1, 234/2, 234/3, 234/4, 235/1B, 235/2, 235/3B, 236/3B, 236/4, 242/1, 242/2, 243/2B, 244/2, 247/1, 248/1, 248/2, 249/1A2, 249/2B, 198/1, 205/1A, 205/1B, 205/2, 205/5, 1/4A1, 1/4A2, 1/4B, 1/5, 16/1, 16/2, 17/1, 17/2, 17/3A, 17/3B, 143, 151/1, 151/2, 151/3, 151/4, 152, 153, 154/1, 154/2, 166, 167/1, 167/2, 204/1, 204/2, 204/3, 221, 221/1, 222/2, 330/1, 330/2, 330/3, 330/4, 12, 16/3, 198/2, 201, 205/3, 205/4.,

KATTUPALLI Village,

Ponneri Taluk,

Tiruvallur District.

Authorising the occupier to make discharge of sewage and /or trade effluent.

TAMILNADU POLLUTION CONTROL BOARD

This is subject to the provisions of the Act, the rules and the orders made there under and the terms and conditions incorporated under the Special and General conditions stipulated in the Consent Order issued earlier and subject to the special conditions annexed.

This CONSENT is valid for the period ending March 31, 2026

JOSEPHINESAHAYARANI Digitally signed by JOSEPHINESAHAYARANI
Date: 2021.09.14 07:47:28 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

To
The Chief Executive Officer,
M/s.MARINE INFRASTRUCTURE DEVELOPER PRIVATE LIMITED,
Ramcons Fortuna Towers, 4th Floor, No:1/2 Kodambakkam High Road, Nungambakam,
Chennai - 600034,
Pin: 600034

Copy to:

1.The Commissioner, MEENJUR-Panchayat Union, Ponneri Taluk, Tiruvallur District .
2. The District Environmental Engineer, Tamil Nadu Pollution Control Board, GUMMIDIPOONDI.
3. The JCEE-Monitoring, Tamil Nadu Pollution Control Board, Chennai.
4. File

TAMILNADU POLLUTION CONTROL BOARD

SPECIAL CONDITIONS

1. This consent to operate is valid for operating the facility for the manufacture of products (Col. 2) at the rate (Col. 3) mentioned below. Any change in the products and its quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Sl. No.	Description	Quantity	Unit
	Product Details		
1.	Containers	21.60	MMTPA
2.	Ro-Ro – Automobiles	0.07	MMTPA
3.	Project Cargo	0.44	MMTPA
4.	Break Bulk/general cargo (Barytes / Gypsum / Limestone / Granite / Steel Cargo / Rock Phosphate / Bauxite / Dolomite cargoes)	1.82	MMTPA
5.	Edible oil, CBFS, Base Oil, Lube and Non-Hazardous Liquid Cargo	0.72	MMTPA

2. This consent to operate is valid for operating the facility with the below mentioned permitted outlets for the discharge of sewage/trade effluent. Any change in the outlets and the quantity has to be brought to the notice of the Board and fresh consent has to be obtained.

Outlet No.	Description of Outlet	Maximum daily discharge in KLD	Point of disposal
Effluent Type : Sewage			
1.	Treated Sewage Effluent - 1 (30 KLD)	30.0	On land for gardening
2.	Treated Sewage Effluent - 2 (10 KLD)	10.0	On land for gardening
3.	Treated Sewage Effluent - 3 (5 KLD)	5.0	On land for gardening
Effluent Type : Trade Effluent			
1.	Trade Effluent - 1 (RO Permeate)	41.0	On land for gardening
2.	Trade Effluent - 2 (RO Reject)	9.0	Evaporated in ATFD System

3. The effluent discharge shall not contain constituents in excess of the tolerance Limits as laid down hereunder.

TAMILNADU POLLUTION CONTROL BOARD

Sl. No.	Parameters	Unit	TOLERANCE LIMITS - OUTLETS -Nos				
			Sewage		Trade Effluent		
			1	2,3	1	2	
1.	pH		5.5 to 9	5.5 to 9	5.5 to 9	5.5 to 9	
2.	Temperature	oC	-	-	-	shall not exceed 5°C above the receiving water temperature	
3.	Particle size of Suspended solids	-	-	-	-	shall pass 850 micron IS sieve	
4.	Total Suspended Solids	mg/l	30	30	200	100	
5.	Total Dissolved solids (inorganic)	mg/l	-	-	2100	2100	
6.	Oil & Grease	mg/l	-	-	10	10	
7.	Biochemical Oxygen Demand (3 days at 27oC)	mg/l	20	20	100	30	
8.	Chemical Oxygen Demand	mg/l	-	-	-	250	
9.	Chloride (as Cl)	mg/l	-	-	600	1000	
10.	Sulphates (as SO4)	mg/l	-	-	1000	1000	
11.	Total Residual Chlorine	mg/l	-	-	-	1	
12.	Ammonical Nitrogen (as N)	mg/l	-	-	50	50	
13.	Total Kjeldahl Nitrogen (as N)	mg/l	-	-	-	100	
14.	Free Ammonia (as NH3)	mg/l	-	-	-	5	
15.	Arsenic (as As)	mg/l	-	-	0.2	0.2	
16.	Mercury (as Hg)	mg/l	-	-	0.01	0.01	
17.	Lead (as Pb)	mg/l	-	-	1	0.1	
18.	Cadmium(as Cd)	mg/l	-	-	1	2	
19.	Hexavalent Chromium (as Cr+6)	mg/l	-	-	1	0.1	
20.	Total Chromium (as Cr)	mg/l	-	-	2	2	
21.	Copper (as Cu)	mg/l	-	-	3	3	
22.	Zinc (as Zn)	mg/l	-	-	1.5	1	
23.	Selenium (as Se)	mg/l	-	-	0.05	0.05	
24.	Nickel (as Ni)	mg/l	-	-	3	3	
25.	Boron (as B)	mg/l	-	-	2	2	
26.	Percent Sodium	%	-	-	60	-	
27.	Residual Sodium Carbonate	mg/l	-	-	5	-	
28.	Cyanide (as CN)	mg/l	-	-	0.2	0.2	
29.	Fluoride (as F)	mg/l	-	-	2	2	
30.	Dissolved Phosphates(as P)	mg/l	-	-	-	5	
31.	Sulphide (as S)	mg/l	-	-	2	2	
32.	Pesticides	mg/l	-	-			
33.	Phenolic Compounds (as C6H5OH)	mg/l	-	-	5	1	
34.	Radioactive materials a) Alpha emitters	micro curie/ml	-	-	10-8	10-7	

35.	Radioactive materials b). Beta emitters	micro curie/ml	-	-	10-6	10-6	
36.	Fecal Coliform	MPN/100ml	-	-	-	-	

4. All units of the sewage and Trade effluent treatment plants shall be operated efficiently and continuously so as to achieve the standards prescribed in Sl No.3 above or to achieve the zero liquid discharge of effluent as applicable.

5. The occupier shall maintain the Electro Magnetic Flow Meters/water Meters installed at the inlet of the water supply connection for each of the purposes mentioned below for assessing the quantity of water used and ensuring that such meters are easily accessible for inspection and maintenance and for other purposes of the Act.
   a. Industrial Cooling, Spraying in mine pits or boiler feed.
   b. Domestic purpose.
   c. Process.

6. The occupier shall maintain the Electro Magnetic Flow Meters with computer recording arrangement for measuring the quantity of effluent generated and treated for the monitoring purposes of the Act.

7. Log book for each of the unit operations of ETP have to be maintained to reflect the working condition of ETP along with the readings of the Electro Magnetic Flow Meters installed to assess effluent quantity and the same shall be furnished for verification of the Board officials during inspection.

8. The occupier shall at his own cost get the samples of effluent/surface water/ground water collected in and around the unit by Board officials and analyzed by the TNPC Board Laboratory periodically.

9. Any upset condition in any of the plants of the factory which is, likely to result in increased effluent discharge and result in violation of the standards mentioned in Sl. No.3 above shall be reported to the Member Secretary / Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.

10. The occupier shall always comply and carryout the order/directions issued by the Board in this Consent Order and from time to time without any negligence. The occupier shall be liable for action as per provisions of the Act in case of non compliance of any order/directions issued.

11. The occupier shall develop adequate width of green belt at the rate of 400 numbers of trees per Hectare.

12. The occupier shall provide and maintain rain water harvesting facilities.

13. The occupier shall ensure that there shall not be any discharge of effluent either treated or untreated into storm water drain at any point of time.

14. In the case of zero liquid discharge of effluent units, the occupier shall adhere the following conditions as laid under.

    i). The occupier shall ensure zero liquid discharge of effluent, thereby no discharge of untreated / treated effluent on land or into any water bodies either inside or outside the premises at any point of time.

    ii) The occupier shall operate and maintain the Zero liquid discharge treatment components comprising of Primary, Secondary and tertiary treatment systems at all times and ensure that the RO permeate/Evaporator condensate shall be recycled in the process and the final RO reject shall be disposed off with the reject management system ensuring zero liquid discharge of effluents in the premises.

    iii) The occupier shall operate and maintain the reject management system effectively and recover the salt from the system which shall be reused in the process if reusable or shall be disposed off as ETP sludge.

    iv) In case of failure to achieve zero discharge of effluents for any reason, the occupier shall stop its production and operations forthwith and shall be reported to the Member Secretary/Joint Chief Environmental Engineer-Monitoring and the concerned District/Assistant Environmental Engineer of the Board by e-mail immediately and subsequently by Post with full details of such upset condition.

    v) The occupier shall restart the production only after ascertaining that the Zero discharge treatment system can perform effectively for achieving zero discharge of effluents.

Additional Conditions:

1. The unit shall operate and maintain the existing STPs efficiently and continuously so as to satisfy the standards prescribed by the Board.
2. The unit shall utilize the treated sewage on its own land for gardening purposes.
3. The unit shall operate and maintain the existing ETP, RO systems, MEE and ATFD for the treatment of trade effluent generated from the unit and the RO permeate shall be utilized for gardening purpose after satisfying the standards prescribed by the Board.
4. The unit shall ensure that operation of the Port activity does not create any impact on the livelihood of the fishermen.
5. The unit shall ensure that the operation of port activity shall not create any adverse effect on the marine eco system or marine water quality of the sea water intake point of M/s. Chennai Water Desalination Plant.
6. The unit shall ensure that the operation activity of the unit shall not create any hindrances to the Kattupalli village under any circumstances.
7. The unit shall comply with the conditions imposed in the environmental clearance accorded to the unit from the MoEF, GOI vide Lr.No. 10-130/2007-IAIII dated 09.02.2018.
8. The unit shall ensure that no oil spill shall occur in the marine coastal areas due to the operation activities.
9. The Port shall ensure that the dredged material arising from dredging operations shall not be dumped in the areas attracting CRZ Notification and the material shall be used for further beneficial use.
10. The Port shall have containment Boom facility with skimmer to contain and recover the spillages of Liquid Cargo in to the sea if any.
11. The unit shall maintain the water quality of Marine Sea so as to meet the Marine Water quality prescribed for Harbour Sea Water and ensure that the marine water quality is monitored at regular intervals by engaging competent agencies.
12. The unit shall furnish carry out impact assessment study once in a year with respect to marine and land environment and the report shall be furnished to Board.
13. The Port shall ensure that adequate oil spill response equipment shall be made available as per the Appendix B of the Tamil Nadu State Oil Spill Disaster Contingency Plan, September 2016.
14. The Port shall ensure participation in the oil spill combating training along with the State Agencies such as Tamil Nadu Maritime Board organised by the Indian Coast Guard time to time.
15. The port shall ensure the formation and regular functioning of dedicated Environment Cell and Oil Spill Contingency Response Cell in order to have timely response to incidents of oil spill and any other contingency in the Port area.
16. In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.
17. The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.
18. The unit shall not undertake any activity in its premises in violation of the CRZ Rules notified by the MoEF & CC, GoI.
19. The unit shall maintain the dedicated reception facilities provided for receiving hazardous waste as per the orders of the Hon'ble NGT (PB) in OA No.804/2017.
20. The unit shall adhere to the International Convention for the prevention of pollution from Ships (MARPOL guidelines) covering the following regulations,
(i) Regulations for the prevention of pollution by oil
(ii) Regulations for the control of pollution by Noxious liquid substances in bulk
(iii) Prevention of pollution by sewage from ships
(iv) Prevention of pollution by garbage from ships
(v) Prevention of Air pollution from ships
21. The unit shall comply with the conditions imposed in the "No increase in Pollution Load" letter issued to the unit by the Board vide Lr. No: T1/TNPCB/ F.022882/RL/GMP/NIPL/2021 Dated:12.01.2021.
22. In case of any deviation in the Gross Fixed Assets furnished in future, the unit shall remit the difference in amount to the Board without fail.
23. The unit shall not commence its expansion activity before obtaining CTE/CTO expansion from the Board.

JOSEPHINESAHAYARANI Digitally signed by JOSEPHINESAHAYARANI
Date: 2021.09.14 07:48:13 +05'30'

TAMILNADU POLLUTION CONTROL BOARD

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

TAMILNADU POLLUTION CONTROL BOARD

GENERAL CONDITIONS

1. The occupier shall make an application along with the prescribed consent fee for grant of renewal of consent at least 60 days before the date of expiry of this Consent Order along with all the required particulars ensuring that there is no change in Production quantity and change in sewage/Trade effluent.
2. This Consent is issued by the Board in consideration of the particulars given in the application. Any change or alteration or deviation made in actual practice from the particulars furnished in the application will also be ground for review/variation/revocation of the Consent Order under Section 27 of the Act and to make such variation as deemed fit for the purpose of the Act.
3. The consent conditions imposed in this order shall continue in force until revoked under Section 27(2) of the Act.
4. After the issue of this order, all the 'Consent to Operate' orders issued previously under Water (Prevention and Control of Pollution) Act, 1974 as amended stands defunct.
5. The occupier shall maintain an Inspection Register in the factory so that the inspecting officer shall record the details of the observations and instructions issued to the unit at the time of inspection for adherence.
6. The occupier shall provide and maintain an alternate power supply along with separate energy meter for the Effluent Treatment Plant sufficient to ensure continuous operation of all pollution control equipments to maintain compliance.
7. The occupier shall provide all facilities to the Board officials for inspection and collection of samples in and around the factory at any time.
8. The occupier shall display the flow diagram of the sources of effluent generation and pollution control systems provided at the ETP site.
9. The solid waste such as sweepings, wastage, package, empty containers, residues, sludge including that from air pollution control equipments collected within the premises of the industrial plant shall be collected in an earmarked area and shall be disposed off properly.
10. The occupier shall collect, treat the solid wastes like food waste, green waste generated from the canteen and convert into organic compost.
11. The occupier shall segregate the Hazardous waste from other solid wastes and comply in accordance with Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
12. The occupier shall maintain good house-keeping within the factory premises.
13. All pipes, valves, sewers and drains shall be leak proof. Floor washings shall be admitted into the trade effluent collection system only and shall not be allowed to find their way in storm drains or open areas.
14. The occupier shall ensure that there shall not be any diversion or by-pass of trade effluent on land or into any water sources.
15. The occupier shall ensure that solar Evaporation pans shall be constructed in such a way that the bottom of the solar pan is at least 1 m above the Ground level (if applicable).
16. The occupier shall furnish the following returns in the prescribed formats to the concerned District office regularly.
    a) Monthly water consumption returns of each of the purposes with water meter readings in Form-I on or before 5th of every month.
    b) Yearly return on Hazardous wastes generated and accumulated for the period from 1st April to 31st March in Form–4 before the end of the subsequent 30th June of every year (if applicable).
    c) Yearly Environmental Statement for the period from 1st April to 31st March in Form –V before the end of the subsequent 30th September of every year(if applicable).
17. If applicable, the occupier has to comply with the provisions of Public Liability Insurance Act, 1991 to provide immediate relief in the event of any hazard to human beings, other living creatures/plants and properties while handling and storage of hazardous substances.
18. The issuance of this consent does not authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any natural watercourse or in Government Poromboke lands.
19. The issuance of this Consent does not convey any property right in either real personal property or any exclusive privileges, nor does it authorize any injury to private property or Government property or any invasion of personal rights nor any infringement of Central, State laws or regulation.

20. The occupier shall forth with keep the Board informed of any accident of unforeseen act or event of any poisonous, noxious or polluting matter or emissions are being discharged into stream or well or air as a result of such discharge, water or air is being polluted.

21. If due to any technological improvements or otherwise the Board is of opinion that all or any of the conditions referred to above requires variation (including the change of any treatment system, either in whole or in part) the Board shall, after giving the applicant an opportunity of being heard, vary all or any of such conditions and thereupon the applicant shall be bound to comply with the conditions as so varied.

22. In case there is any change in the constitution of the management, the occupier of the new management shall file fresh application under Water (Prevention and Control of Pollution) Act, 1974, as amended in Form-II alongwith relevant documents of change of management immediately and get the necessary amendment with renewal of consent order.

23. In case there is any change in the name of the company alone, the occupier shall inform the same with relevant documents immediately and get the necessary amendments for the change of name from the Board.

24. The occupier shall display this consent order granted to him in a prominent place for perusal of the inspecting Officers of this Board.

JOSEPHINESAHAYARANI Digitally signed by JOSEPHINESAHAYA
Date: 2021.09.14 07:48:57 +05'30'

For Member Secretary,
Tamil Nadu Pollution Control Board,
Chennai

ANNEXURE – 9

(CERTIFIED COPY OF THE COMPLIANCE REPORT)

भारतसरकार
GOVERNMENT OF INDIA
पर्यावरण ,वनएवंजलवायुपरिवर्तनमंत्रालय
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
Integrated Regional Office (South Eastern Zone),
1st& 2nd floor, HEPC Building, No.34, Cathedral Garden Road,
Nungambakkam, Chennai - 600034

E.P./12.1/2017-18/35/TN/564

Dated: 30.05.2022
31

To

Shri. Jai Singh Khurana,
Managing Director,
Marine Infrastructure Developer Private Limited,
Ramcon Fortuna Towers,
4th Floor, No1/2, Kodambakkam High Road, Nungambakkam,
Chennai-600 034

Subject: **CRZ & 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 Pvt. Limited (MIDPL) - bifurcation of Environmental & CRZ Clearance reg.**

Reference: EC letter No. F. No 10-130/2007 – IA.III Dated 9th February 2018
Your letter No. MIDPL/EC-HYC/2022/153 dated 17.05.2022

Sir,

With reference to the above mentioned subject, please find enclosed herewith a Certified Copy of the Compliance Report. This has been approved by the DDGF(C) vide diary No.359.. dated.31.05.2022

Yours faithfully,

C. Palpandi
31.5.2022

(Dr. C. Palpandi)
Scientist 'D'
Dr. C. Palpandi,
Scientist "D"
Government of India
Min. of Environment Forest and Climate Change
Integrated Regional Office
1st Floor, Additional Office Block for GPOA,
Shastri Bhawan, Haddows Road
Nungambakkam, Chennai - 600 006.

Encl: As above.

CERTIFIED COPY OF THE COMPLIANCE REPORT

Subject: **CRZ & 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 Pvt. Limited (MIDPL) - bifurcation of Environmental & CRZ Clearance reg.**

Reference: EC letter No. F. No 10-130/2007 – IA.III Dated 9th February 2018

Present status of the project:

Tamil Nadu Industrial Development Corporation Limited (TIDCO), a Government of Tamil Nadu Enterprise, is the nodal agency to identify and promote establishment of large and medium scale industries within State of Tamil Nadu. Considering the potential for ship building industry in the country, TIDCO had identified the leading technology, engineering and construction conglomerate, Larsen & Toubro Limited (L&T), for developing the Ship yard cum Port Complex on a Joint Venture (JV) basis. Subsequently, L&T Shipbuilding Limited (LTSB), a JV of L&T and TIDCO, was formed in 2008 to develop the Shipyard-cum-Port Complex at Kattupalli. Expert Appraisal Committee (EAC) on "Infrastructure Development, CRZ & Miscellaneous Projects", Ministry of Environment, Forest and Climate Change, New Delhi (MoEF&CC)) accorded CRZ/Environmental Clearance (EC) for development of Kattupalli Shipyard cum Port Complex vide Letter No. 10-130/2007 IA.III dated July 03, 2009.

Tamil Nadu Pollution Control Board (TNPCB) has accorded Consent for Establish (CFE) vide letter dated August 18, 2009 (CFE-Air 4983 and CFE-Water 5042). LTSB commenced the construction of Shipyard cum Port Complex at Kattupalli, Thiruvallur District, Tamil Nadu in October, 2009. After obtaining Consent for Operation (CFO), Kattupalli Shipyard cum Port has commissioned its operations on January 30, 2013.

Considering the divergent nature of business of LTSB and to harness the potential for growth with clear focus on port business, LTSB had approached the Hon'ble National Company Law Tribunal (NCLT), Chennai with a Scheme of arrangement for demerger of port business of LTSB into a separate company Viz., M/s Marine Infrastructure Developer Private Limited (MIDPL). The Hon'ble NCLT after careful examination of the scheme had accorded its approval on March 20, 2017. Pursuant to the said NCLT Order, the Port business in Kattupalli Shipyard cum Port Complex on a going concern basis together with the identified port assets, powers, sanctions, approvals, registrations etc., stands transferred and vested with MIDPL. Accordingly, LTSB had approached MoEF&CC to bifurcate the existing Environmental and CRZ Clearance in the name of L&T Shipbuilding for Shipyard and MFF related activities and MIDPL for Port and common infrastructure related activities. MoEF&CC granted the bifurcated EC vide letter No. F. No.10-130/2007-IA.III dated February 9, 2018.

Adani Ports and Special Economic Zone Ltd. (APSEZ), India's largest port developer and part of the Adani Group, has executed Share Purchase Agreement between Larsen and Toubro Limited, Marine Infrastructure Developer Private Limited, L&T Ship building Limited and Adani Kattupalli Port Private Limited and acquired 97% shares of Marine Infrastructure Developer Private Limited (MIDPL). MIDPL is the developer and operator of Kattupalli Port.

MIDPL is having valid Consent for Operation Orders from Tamil Nadu Pollution Control Board vide Order No.2105136876761 dated 13.09.2021 under Water Act and Consent Order No. 2105236876761 dated 13.09.2021 under Air Act (Valid Till 31.03.2026). MIDPL is also having valid Hazardous Waste Authorisation vide Order No. 19HFC20312718 dated 30.04.2019 (Valid till 29.04.2024) and also having Bio Medical Waste Authorisation (One Time) vide Order No. 19BAC15866575 dated 25.04.2019 for Non-Bedded Facility.

MIDPL has obtained "No increase in Pollution Load Certificate" from TNPCB on 12.01.2021 for the proposed change in cargo Mix (additional handling of Rock Phosphate, Dolomite, Bauxite cargos and increase the non-hazardous liquid cargo capacity from 0.57

MMTPA to 0.72 MMTPA by optimally deploying the port infrastructure being developed without change in the overall handling capacity approved in the EC & CRZ by MoEF & CC).

Based on the above mentioned Environmental/CRZ clearances, CFE and CFOs, the following activities and cargo handling have been permitted at the Kattupalli Port and details are presented in below Table.

Cargo Handling Capacity

S. No.	Description	Capacity
1	Containers	21.60 MMTPA
2	Ro-Ro – Automobiles	0.07 MMTPA
3	Project Cargo	0.44 MTPA
4	Break Bulk/general cargo (Barytes / Gypsum / Limestone / Granite / Steel Cargo / Rock Phosphate / Bauxite / Dolomite cargoes)	1.82 MTPA
5	Edible oil, CBFS, Base Oil, Lube and Non Hazardous Liquid Cargo	0.72 MTPA
	Total Handling capacity at Port	**24.65 MTPA**

Environmental Management measures: The Project Authorities are regularly undertaking necessary environmental monitoring for ambient air, noise, DG stack emissions, marine water ecology & sediments, marine water turbidity, etc., through NABL accredited third party laboratory. The periodical monitoring reports are being regularly submitted to Integrated Regional Office (IRO), MoEF&CC, Chennai. The results of monitoring provided during the visit shows that they are complying with the norms. Commissioned and operating One Continuous Ambient Air Quality Monitoring equipment and same is linked to TNPCB CARE AIR CENTER.

For maintaining the Ambient Air Quality: Major air pollution generated by port activities includes vehicle movements, dry cargos operations and other port activities. The following is practiced for controlling of air pollutions **(Annexure – 1)** 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.
- Tarpaulin cover over the dry cargo materials at open yard
- Using the closed warehouse for fine dry cargos materials.
- Trucks covered with Tarpaulin for dry cargo vehicle movements

MIDPL is having Emergency Preparedness and Response Plan, procured fire tender, firefighting system & equipment's and deployed trained personnel.

For maintaining the Water Quality: Developed 45 KLD STP's & 50 KLD ETP **(Annexure-2)** and the treated effluent is reused for green belt. Rainwater harvesting system

C. Palnandy.

has been provided in all port buildings. Surface rainwater is collected through rainwater drainage system and is stored in the rain water collection pond **(Annexure – 3)** of 3600 m^3 capacity located inside Port premises and the collected rain water is used for gardening purpose. Developed Oil Spill Contingency (OSC) Plan for Tier-2 spills, procured necessary OSC equipment **(Annexure – 4)** and chemicals and deployed trained personnel and Monitoring of Marine water quality and Marine sediment quality at regular intervals through NABL accredited laboratory **(Annexure – 5)**.

For Solid Waste Management: The Solid wastes (Non- hazardous and hazardous) generated from the port activities are being collected, segregated and stored in the Integrated Waste Management Shed (IWMS)**(Annexure – 6)** and are handled as per 5R (Reduce, Reuse, Recycle, Reprocess and Recover) principle. The Biodegradable wastes are composted & used as manure. The Used Oils and other Hazardous wastes are sold to the TNPCB approved vendors and used batteries are disposed to the manufacturers on buy back basis.

Green Belt: Kattupalli Port is continuously developing and maintaining green belt in the port premises. Adequate greenbelt covering in an area of around 25.06 Ha which includes a green belt (Inside Port premises) of 9.81 Ha and Outside Port area (Palm Tree plantation along Buckingham canal) of 15.25Ha. is developed and are being well maintained. Port has planted around 27,407 Trees, 33,699 Sq.M shrub plants and 14,898 Sq.M lawn areas and further Green belt development is also in progress. They have developed and maintaining adequate nursery for greenbelt development with local species **(Annexure-7)**.

Under the CSR activities, MIDPL have been implementing several CSR activities in the neighboring villages to improve overall living standards catering to area like housing, education, health & medical aid, vocational skills, provision of Ice Boxes to the fishermen, schemes for women empowerment and community infrastructure development, desilting of Village water ponds, drinking water RO Units supply, etc. **(Annexure-8)**. Project Authority have informed that CSR expenditure for the FY 2019-20 is around Rs.82.71 Lakhs, FY 2020-21 is around 126.50 Lakhs and FY 2021-22 is around Rs. 240.71 Lakhs. The key CSR activities carried out by Project Authorities includes;

- A total of 514 bicycles were distributed to GHS, Kattupalli, GHSS, Thiruvellavoyal, GHSS, Kattur, MPUMS, KoraiKuppam, Ornambedu and Karungkali
- Distributed Television to the Minjur Panchayat Union Primary schools in Karungkali and Mouthambedu which lacked TV for screening lessons through electronic media.
- Around 60 students on every day are benefitted from Shuttle service transport arrangement made to Athipattu railway station and prime focus is given to students above SSLC, teachers of Govt. High school, Kattupalli and Minjur Panchayat union, Kaalanji. The same vehicle is then used by primary and middle grade students of Kaalanji and Kattur. This transportation facility is available both in the mornings and evenings.
- Made arrangements with Multispecialty hospital and Eye care hospital for expert consultation. Team of professionals (Obstetrician and Gynecology, Dermatology, Orthopedic, Ophthalmology) from multispecialty hospitals visited villages for diagnosing and prescribing treatment.
    - Total 6 Multispecialty camps conducted covering 10 villages and around 661 peoples got benefited.
    - Total 11 Eye camps conducted covering 18 villages and around 1234 peoples got benefited. Around 715 peoples are provided with spectacles.

- Natural Terafil water filter – 50 Nos. distributed at Senghazhanirmedu colony village
- Fortune SuPoshan project aims to utilize a community-based approach to address malnutrition and anemia issues in about 22 villages in Minjur block.
- A training session on organic farming was organized which was handled by an expert recognized by Tamil Nadu Agricultural University. Around 40 farmers benefited from the session and received bio fertilizers for experimenting in half an acre.
- Around 8 Nos. of Veterinary treatments cum awareness camps were organized during 2019-20 in collaboration with Madras Vet. College-MVC (Tamil Nadu Veterinary and Animal Sciences University). Around 2916 animals got treated and around 328 families got benefited.
- About 5.2 tons of concentrated cattle feed were distributed in four Panchayats – Kattur, Thiruvellavoyal, Voyalur and Kadapakkam which benefited 245 livestock owners by increasing their milch animals milk yield by 15% which consequently resulted in improvement of their monthly income.
- Around 30,000 Palm seeds planted along the Buckingham canal covering 10 Km length.
- Around 5,000 nos. of Palm seeds have planted on the bunds of water bodies in collaboration with Pasumai Bhoomi Trust.
- Adani foundation, Kattupalli arranged 1168 & 5170 sets of food materials including rice 5 kg and Dhoor Dhall 1 kg, and Cooking Oil 1 lt. at the cost of Rs. 22 Lakhs to the poor fisherman (90%) and agricultural coolies (10%) families living in 25 hamlets spread in 6 of our intervention Panchyats in respective phase 1 & 2. Have also distributed PPE & Infrared thermometer to Govt. Hospital located in Pulicat and Kattur for screening patients in OP.
- Adani Skill Development Centre in Kattur have inaugurated with Tailoring and Beautician courses with National Skill Development Corporation guidelines. 30 students in each trade getting trained in well-established training centre.
- Adani Foundation have carried out restoring water bodies at the cost of around Rs.20 Lakhs in K.R. Palayam of Neidhayvoyal Panchayat and Throwpathy Amman Koil Pond in Ornambedu village of Voyalur Panchayat
- Distribution of Insulated ice boxes worth of Rs. 8.50 Lakhs to the deep sea fishing groups in and around Pulicat. Around 240 groups got benefited.
- Distributed Tarpaulin covers to 500 deprived families for covering thatched huts in 4 panchayats to protect from Rain.
- Distributed 6 numbers of Refrigerators for storing covid testing Kits RT – Polymerase Chain reaction, Viral Transport Medium (VTM), Ante Snake Venom, Anti Rabies Vaccine. 2 Computers with Printer for documenting Covid 19 treatments and 10 Numbers "3 seat chair" for patients in the waiting hall.
- Food distributed to 350 economically backward individuals in the flood hit coastal areas, who are in the Relief Camps have three meals a day during NIVAR Cyclone.
- Distributed around 200 Sweaters to the people above 60 years of age in cyclone affected areas.
- Distributed around 800 fishing nets to those lost the net due to cyclone.

Considering the future business potential/ market potential and keen interest shown by the major Suppliers and Major Importers, MIDPL is proposing for Change in Product Mix as per the following table to cater to needs of port users without change in the overall handling capacity of 24.65 MMTPA as approved in the EC by MoEF & CC.

C. Balnandh.

S. No.	Name of the cargo	Existing Cargo (MTPA) (Consented Quantity)	Proposed Change in Product Mix (MTPA)
1	Containers (MTPA)	21.6	16.64
2	Ro-Ro (MTPA)	0.07	0.07
3	Project Cargo (MTPA)	0.44	0.44
4	Break Bulk/general cargo (Barytes/Gypsum/Limestone/Granite/Steel Cargo/Rock Phosphate/Dolomite/ Bauxite)(MTPA)	1.82	5.00*
5	Edible oil, CBFS, Base Oil, Lube Oil and Non- Hazardous Liquid Cargo (MTPA)	0.72	2.50**
	Total	24.65	24.65

*General Cargo includes Agri Products, Fertilizers, Scrap, Silica Sand, Clinker, Soda Ash, Bentonite, Feldspar Cargos, Iron products, aluminum ingots, pig iron, Food grains including pulses, Sugar and other clean cargo.

**Liquid Cargo includes Glycerine, Groundnut oil, Crude Palm Oil, Fatty acid, Crude Mineral Oil, Heavy white Oil, Tall Oil Fatty acids, 2-Propyl Heptanol (2-PH), Di octyl Phthalate, Di-Iso Nonyl Phthalates, Bio-Diesel, Castor Oil, Molasses, Alpha Olefin C24-28, Oleic acid, splitter grade crude Glycerine, Distilled top Palm Kernel Fatty acid, Split RBD Palm Stearin Fatty Acid, Crude Palmolein, Expeller Groundnut oil, RBD Palm Olein, Split Palm Kernel fatty acid, Alpha Olifin C-14, Alpha Plus C-16, Linear Alpha Olefin C14 - C18, Octane – 1, Rubber Process Oil, Hydrogenated Veg Oil, etc.,

To process their Change in Product Mix proposal, the Project Authorities have requested the Integrated Regional Office of the Ministry, Chennai for providing Certified Copy of the Compliance Report vide letter No. MIDPL/EC-HYC/2022/153 dated 17.05.2022.

This monitoring report is filed on the basis of the field visit and as per the information provided by the project authority. Detailed point wise compliance status is given below in part III.

Date of site visit: 24.05.2022

C. Dalmandy.

PART-III

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.	**Refer below.** The Project Authority has Complied all the conditions stipulated in the letter No. R.C.No. P1/2004/2008, dated 21.10.2008 of the Department of Environment, Chennai **(Annexure – 9)**.
(ii)	The proponent shall comply all the commitment made vide his letter No. D/Shipyard/00/07 dated 20.03.2009.	**Refer below.** This Environmental Clearance (EC) is just a bifurcation of original EC of LTSB in the name of MIDPL & LTSB.
(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.** It was informed by the PA that the required infrastructure facilities such as housing, drinking water, mobile toilets, medical health care and canteen were provided during the construction time. It was in the form of temporary structure and removed after completion of the work.
(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, specific prior permission from the concerned State /Central Groundwater board shall be obtained in this regard.	**Complied**. The source of water is from M/s. Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), Chennai. At present, the water requirement is 300 KLD as informed. During the site visit, the PA informed that no groundwater is withdrawal from Coastal Regulation Zone area.
(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.** No dumping of dredging material was observed during site visit. Dredge material dumping location has already been identified by LTSB through modelling studies.

C. Pandey

(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.** The Project Authority has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study and the report is under preparation for the year 2021. However, PA has submitted the report for the year 2020. Cover page of the Report is attached as **Annexure – 10.**
(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.** The PA informed that all works were completed and the port is in operation phase. No impact envisaged as informed.
(viii)	At least a distance of 100 meter shall be provided between intake of Chennai Water Desalination Ltd. (CWDL) and north edge of the northern breakwater as agreed in the meeting between the proponent and CWDL	**Complied.** During the site visit, it was observed that distance is maintained between intake of Chennai Water Desalination Ltd. (CWDL) and North edge of the Northern breakwater as agreed in the meeting between the proponent and CWDL. Image showing the distance between Northern Breakwater and Intake of CWDL is attached as **Annexure – 13.**
(ix)	Independent port connectivity shall be developed.	**Complied.** During the site visit, it was observed that the PA has developed independent port connectivity. Photos of the independent Port connectivity attached as **Annexure - 14.**
(x)	Rehabilitation if any shall be carried out as per law / State Government.	**Refer below.** The PA informed that the 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.** The PA has established dedicated fire station with fire tender, Firefighting system, Fire extinguishers, Fire deduction system and also having dedicated fire crew Photos are at **Annexure – 15**.

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(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.** The PA has obtained Hazardous waste authorization from Tamil Nadu Pollution Control Board (TNPCB) vide letter No. HWMA No: 19HFC20312718 dated 30.04.2019 which is valid till **29.04.2024.** All the Hazardous wastes generated are properly collected and handled inline to Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended. As informed, details of the same are submitted to TNPCB as a part of Hazardous waste annual return - Form 4 on regular basis **(Annexure – 16).**
(xiii)	The wastewater generated from the activity shall be collected, treated and reused properly.	**Complied.** The PA have installed 45 KLD Sewage Treatment Plant (STP) and 50 KLD Effluent Treatment Plant (ETP). All the domestic effluents are being treated in the STP. The treated water is being used for the plantation purpose as per the CTO accorded by the TNPCB. Monitoring of STP inlet & outlet water, DM water is being carried out on monthly basis through NABL accredited third party laboratory. The monitored data shows that the values are within the limits STP and Monitoring data is at **Annexure – 2 & 12.** Process Effluent generated from Liquid Tank washings is treated in ETP. However, at present the ETP is not in operation due to no generation of Liquid Effluent. PA informed that trail run of ETP is done through Raw water on monthly basis.
(xiv)	Sewage Treatment Facility should be provided in accordance with the CRZ Notification.	**Complied.** The PA has provided 45 KLD Sewage Treatment Plant (STP) in accordance

C. Parmandy

		with the CRZ Notification.
(xv)	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.	**Complied.** During the visit, it was observed that no solid waste is being disposed off in the CRZ area. All the solid waste generated is properly collected, source segregation of all types of Solid Waste is practiced and are disposed as per the provision of Solid Waste Management Rules 2016, as amended. Integrated Waste Management system is in place and all wastes are being handled inline to 5R principle - Reduce, Reuse, Reprocess, Recycle & Recover. Photo is at **Annexure – 6.**
(xvi)	Installation and operation of DG set if any shall comply with the guidelines of CPCB.	**Complied** Five numbers (2000 KVA – 2 Nos, 500 KVA – 2 Nos. and 125 KVA – 1 No) of Diesel Generating Sets are installed in line to CPCB guidelines. Flue gas analysis report of the DG Set stack for the period October 2021 to March 2022 is enclosed as **Annexure-12**.
(xvii)	Air quality including the VOC shall be monitored regularly as per the guidelines of CPCB and reported.	**Complied.** Monitoring of ambient air quality is being carried out at four locations on weekly basis through MoEF&CC recognized third party laboratory. The monitored data shows that the values are within the limits. Air Quality Monitoring Reports for the period October 2021 to March 2022 is enclosed as **Annexure-12**. The PA has installed one Online Continuous Monitoring station in consultation with State Pollution Control Board, Tamil Nadu to monitor SO_2, NOx, CO, PM_{10}, $PM_{2.5}$, including BTX analyser to monitor VOC. The real time online monitored data is being transmitted to TNPCB's server. All the parameters are well with the prescribed standards

		Photo is at **Annexure – 17.**
(xviii)	The project proponent shall undertake green belt development all along the periphery of the project area and also alongside the road.	**Complied.** The PA has developed greenbelt covering in an area of around 25.06 ha. which includes a green belt (Inside Port premises) of 9.81 ha and Outside Port area (Palm Tree plantation along Buckingham canal) of 15.25 ha. is developed and are being well maintained. Port has planted around 27,407 Trees, 33,699 Sq.M shrub plants and 14,898 Sq.M lawn area and further Green belt development is also in progress. They have developed and maintaining adequate nursery for greenbelt development with local species. Green belt development photo is at **Annexure-7**.
(xix)	All necessary clearances from the concerned agencies shall be obtained before initiating the project.	**Complied.** The project is in operation phase. As informed, the PA has obtained all the necessary statutory clearances from the concerned agencies.
(xx)	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.	**Refer below.** It was informed that Oil Spill Contingency Response Plan is in place. In pursuance, the PA provided the following facilities. (i) Spill response equipment and chemicals to handle Tier-1 Oil Spills (ii) Shoreline cleaning equipment (iii) A team of well-trained professionals to handle Oil Spill Contingencies / emergencies with the coordination of Indian Coast Guard. The PA has provided adequate Oil spill equipments **(Annexure – 4)**.
(xxi)	No hazardous chemicals shall be stored in the Coastal Regulation Zone area.	**Refer below**.

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		During the visit, it was observed that no hazardous chemical is stored in the 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.** The PA has obtained requisite permission for Water Supply and Electricity from Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) and Tamil Nadu Electricity Board respectively before commissioning the project.
(xxiii)	Specific arrangements for rainwater harvesting shall be made in the project design and the rain water so harvested shall be optimally utilized.	**Complied.** Rainwater harvesting pit of 3600 m^3 capacity is constructed for harvesting rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water. The collected rain water from the reservoir is utilized for greenbelt requirements. Photo is at **Annexure-3.**
(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 water front 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 & Environmental Clearance & CRZ 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 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.	**Complied.** The Project is in operation phase. All construction activity has been done in line to the existing Central/local rules including CRZ Notification, 2011 and EC & CRZ clearance obtained. The PA informed that they have obtained approvals from the concerned State Government Departments / Agencies for the construction designs / drawings relating to the construction activities.

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(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.** It was informed by the PA that the required infrastructure facilities such as housing, drinking water, mobile toilets, medical health care and canteen were provided during the construction time. It was in the form of temporary structure and removed after completion of the work.
(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**. During the visit, it was observed that no solid waste is being disposed off in the CRZ area. All the solid waste generated is properly collected, source segregation of all types of Solid Waste is practiced and are disposed as per the provision of Solid Waste Management Rules 2016, as amended. Integrated waste Management system is in place and all wastes are being handled inline to 5R principle - Reduce, Reuse, Reprocess, Recycle & Recover. **(Annexure – 6)** The PA have installed 45 KLD Sewage Treatment Plant (STP) and 50 KLD Effluent Treatment Plant (ETP). All the domestic effluents are being treated in the STP. The treated water is being used for the plantation purpose as per the CTO accorded by the TNPCB. Monitoring of STP inlet & outlet water, DM water is being carried out on monthly basis through NABL accredited third party laboratory. The monitored data shows that the values are within the limits. **(Annexure – 2 & 12)** Process Effluent generated from Liquid Tank washings is treated in ETP. However, at present the ETP is not in operation due to no generation of Liquid Effluent. The PA informed that trail run

C. Dalpandi.

		of ETP is done through Raw water on monthly basis.
(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 dated 13.09.2021 under Water Act and Consent Order No. 2105236876761 dated 13.09.2021 under Air Act (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**. A Separate Environment Management Cell has been established with the following composition: (i) Deputy General Manager-Environment (ii) One Assistant Manager and One Environment Engineer and (iii) Supporting Staffs Environmental monitoring is being carried out by a third party (NABL accredited laboratory) on weekly basis.
(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.** The PA has installed 45 KLD Sewage Treatment Plant (STP) and 50 KLD Effluent Treatment Plant (ETP). All the domestic effluents are being treated in the STP. The treated water is being used for the plantation purpose as per the CFO accorded by the TNPCB. Monitoring of STP inlet & outlet water is being carried out on monthly basis

C. Parmanda

<table>
<tr><td></td><td></td><td>through MoEF&CC recognized third party laboratory. The monitored data shows that the values are within the limits.

Process Effluent generated is treated in ETP. However, at present the ETP is not in operation (Annexure – 2).

The PA has made available all Records during the visit.</td></tr>
<tr><td>(vii)</td><td>The sand dunes and mangroves, if any, on the site shall not be disturbed in any way.</td><td>Complied.

During the site visit, it was observed that there is no Sand dune and mangroves are present within the premises.</td></tr>
<tr><td>(viii)</td><td>A copy of the clearance letter will be marked to the concerned Panchayat / local NGO, if any, from whom any suggestion / representation has been received while processing the proposal.</td><td>Reportedly complied.

Copy of the EC was submitted to Local Panchayat as informed.</td></tr>
<tr><td>(ix)</td><td>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.</td><td>Refer below.

The condition does not pertain to project proponent</td></tr>
<tr><td>(x)</td><td>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</td><td>Complied.

The Project Authorities have informed that 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;
<table>
<tr><th>S. No.</th><th>Description of Work</th><th>Cost (Rs.) in Lakhs</th></tr>
<tr><td>1</td><td>Comprehensive Environmental Monitoring</td><td>37.89</td></tr>
<tr><td>2</td><td>Retrofitting of DG sets</td><td>56.57</td></tr>
<tr><td>3</td><td>Integrated Waste Management &</td><td>0.2</td></tr>
</table>
</td></tr>
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			Pollution Under Check Facility	
		4	O&M of STP's& ETP	0.7
		5	Housekeeping	4.2
		6	Greenbelt Maintenance	36.8
		7	EMC	31.96
(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.	**Agreed upon.** Extended full co-operation during the visit.		
(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.	**Agreed to comply.** It was submitted that this condition is noted and assured to abide by this condition.		
(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.	**Agreed to comply.** It was submitted that this condition is noted and assured to abide by this condition.		
(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.	**Noted for compliance.** The PA has agreed to intimate the date of financial closure, final approval of the project and the date of start of land development work to IRO, MoEF&CC Chennai in future.		
EC & CRZ 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	**Refer below.** M/s LTSB has already carried out detailed modeling study to understand		

	shall be carried out for a period of one year.	impact of post dumping and report was submitted to the 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. The Project Authority has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study and the report is under preparation for the year 2021. However, PA has submitted the report for the year 2020. Cover page of the Report is attached as **Annexure – 10.**
(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 Ports and shall be submitted to the Ministry,	**Refer below.** As informed by the PA that a comparison between model study and actual dumping was made to examine the impacts and report was submitted to the Ministry by the LTSB. 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. The Project Authority has engaged Institute of Ocean Management, Anna University, Chennai for shoreline Change study and the report is under preparation for the year 2021. However, PA has submitted the report for the year 2020. Cover page of the Report is attached as **Annexure – 10.**
(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

C. Dharmaraj.

		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	**Complied**. The project authority is handing Containers, Ro-Ro, Project Cargo, Break bulk / General Cargo, Edible Oil, CBFS, Base oil and Lube Oil & Other Non-Hazardous liquid cargo only.
(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.	**Refer below.** 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 – 18.**
(iii)	No additional land should be utilized for the proposed development.	**Complied.** As informed, no additional land utilized for the port development.
(iv)	As committed, the local traffic should not be disturbed.	**Complied.** Separate road network is available for Port and there is no disturbance to Local Traffic. Adequate Lay Bays, Parking yards are also provided in the Port **(Annexure – 14)**
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 Coastal Regulation Zone Notification, 2011 and its subsequent amendments made there under from time to time.	**Refer below.** They have obtained CFO and is valid up to 31.03.2026.
6	All other statutory clearances such as the	**Complied.**

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	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.	The PA has obtained all the statutory approvals from the concerned authorities.
7	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 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.	**Complied.** They had given advertisement both in English and Tamil (Hindu) on 28.2.2018 in two local newspapers and provided a copy of the same during the visit. They have forwarded copies of the newspaper advertisements to IRO, MoEF&CC, Chennai **(Annexure – 20).**
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.	**Complied** The PA informed that no such appeals are made against this Environmental Clearance.
9	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	**Complied**. The PA has uploaded the status of compliance of the stipulated environment clearance conditions, inter-alia including results of monitored data (Stack/AAQ/noise) on their company website regularly (https://www.adaniports.com/ports-downloads). The PA has submitted 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 has also provided during the visit. The PA has submitted Form V to the IRO, MoEF&CC, Chennai by e-mail on 23.09.2021. Copy of the same is

		attached as **Annexure 21.** They have uploaded Form V on the company's website.
10	This Environmental and CRZ Clearance is valid till 2" July, 2019.	**Noted for compliance.** It was submitted that this condition is noted and assured to abide by this conditions.

This has the approval of the competent authority vide diary No. 359 dated 31.05.2022

C. Palpandi
(Dr. C. Palpandi)
Scientist 'D'

Dr. C. Palpandi,
Scientist "D"
Government of India
Min. of Environment Forest and Climate Change
Integrated Regional Office
1st Floor, Additional Office Block for GPOA,
Shastri Bhawan, Haddows Road
[illegible], Chennai - 600 006.