

KPL/MS/Env/MoEF&CC/2022

Date: 05.09.2022

To

Dr. M.R.G. REDDY, IFS,

Addl. Principal Chief Conservator of Forests (C), Ministry of Env., Forest and Climate Change Regional Office (SEZ), 1st and 11nd Floor, Handloom Export Promotion Council,

Subject: Submission of Half-yearly compliance report on the conditions stipulated vide Environmental Clearance letters issued to various projects of Kamarajar Port – January to June 2022 – reg.

Sir/Madam,

Please find enclosed herewith the compliance reports for the period of January to June 2022, on the conditions put forth by Ministry of Environment & Forests and Climate change, in the environmental clearances issued for the following projects:

- Construction of new Satellite Port at Ennore, near Madras. Ministry's letter Ref: J-16011/9/87-IA, III dated 28.9.1992.
- Development of Terminals for marine liquids, coal, iron and containers in second phase and associated capital dredging at Ennore port. Ministry's letter F. No. 10– 28/2005-1A-III dated 19th May, 2006.
- Development of Terminals for marine liquids, coal, iron and containers in second phase and associated capital dredging at Ennore port. Ministry's letter F. No. 10-28/2005-1A-III dated 10th September, 2007.
- CRZ and Environmental clearance for the construction of General Cargo Berth at Ennore port cargo terminal project. MoEF Letter F.No.11-21/2009-IA-III dated 23.7.2009.
- Expansion and modernization of existing handling of Multicargo container terminal at Kamarajar Port by M/s. Kamarajar Port Limited - Environmental and CRZ clearance (Development of Multicargo berth (270m) and container-terminal (730m). MoEF's letter F.No. 10-28/2005-IA-III dated 24.12.2014.

Corporate cum Registered Office : 2" Floor (North Wing) & 3" Floor, Jawahar Building, No.17, Rajaji Salai, Chennai - 600 001. Phone : 044 - 2525 1666 - 70 Fax : 044 - 2525 1665 CIN : U45203TN1999PLC043322 निगम सह पंजीकृत कार्यालय : पूसरी मंजिल (उत्तर विंग) & तीसरी मंजिल जवाहर बिल्डिंग, न.17, राजाजी साले, चेन्ने - 600 001, फोन : 044 25251666 - 70 फेक्स : 044 - 2525 1665 Port Office : Vallur Post, Chennai - 600 1/20 Phone : 044 - 27950030 - 40 Fax : 044 - 27950002

पोर्ट कार्यालय : बल्दूर पोस्ट, पेली - 600 120 कोन : 044 - 27950030 - 40 जेवल : 044 - 27950002 टोल जी चंचल / TOLL FREE NUMBER : 1800 - 425 - 1203

website : www.kamarajarport.in

- Development of additional coal berths (CB3 and CB4) at Kamarajar Port, Tamil Nadu by M/s. KPL Environmental and CRZ clearance –MoEF's Letter F.No. 11– 51/2012–IA-III dated 12.03.2015.
- Development of facilities envisaged in the Port Master Plan (Phase-III) by M/s Kamarajar Port Limited – MoEF's letter F. No. 11-51/2012-IA-III dated 30.10.2018.

While the modification of iron ore terminal to handle coal by M/s SICAL Iron Ore Terminal Ltd, was in progress after grant of Environmental Clearance from Ministry, the Lender to the project M/s YES Bank Ltd, has given notice for 'Event of financial default on M/s SICAL Iron Ore Terminal Ltd., to KPL on 07.11.2020. Accordingly, in line with the License agreement, KPL has served "Notice of Intent to Terminate" to M/s SICAL Iron Ore Terminal Ltd on 20.12.2020. Subsequent to that, the License Agreement No. 20 of 2016 dated 11.7.2016 executed between KPL and M/s SIOTL stands terminated with effect from 19.6.2021 consequent to issuance of Termination Notice dated 22.3.2021 by KPL.

Consequent to that, the project 'Modification of Iron Ore Terminal to handle Coal' is presently in a stalled condition due to the above said reasons; hence the halfyearly compliance report for the said project is not included in the above list.

This is for kind information and records please.

Yours faithfully,

Chief Manager(HSE

Encl: As above.



KPL/MS/Env/MoEF&CC/2022

Date: 05.09.2022

To Regional Director, Scientist-E, Central Pollution Control Board, Regional Office, Chennai, Email:vlaxmi@cpcb.nic.in

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(A company of Chennai Port Authority) (Ministry of Ports, Shipping and Waterways - Government of India)

KPL/MS/Env/MoEF&CC/2022

Date: 05.09.2022

To The District Environmental Engineer, 38/A, SIPCOT Industrial Area, Jummidipoondi, Thiruvallur District, Familnadu – 601201. Email:deegummidipoondi@gmail.com

Subject: Submission of Half-yearly compliance report on the conditions stipulated vide Environmental Clearance letters issued to various projects of Kamarajar Port – January to June 2022 - reg.

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गिगम सह पंजीकृत कार्यालय : पुरासे गणिल (उत्तर विंग) & तीसरी गणिल जवाहर बिल्डिंग, ग.17, राजाजी साले, चेन्ने - 600 001. फोग : 044 25251666 - 70 फेक्स : 044 - 2525 1665 Port Office : Vollur Post, Chennol - 600 120 Phone : 044 - 27950030 - 40 Fox : 044 - 27950002

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Chief Manager

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KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

"CONSTRUCTION OF NEW SATELLITE PORT AT ENNORE"

<u>CONDITIONS COMPLIED AS PER THE GUIDELINES OF THE MINISTRY OF</u> <u>ENVIRONMENT AND FOREST ISSUED VIDE LETTER DATED 28/9/1992</u>

Ref: J-16011/9/87-IA, III dated 28.9.1992

Ennore Port has been planned and developed for receiving coal exclusively for Thermal Power stations of Tamil Nadu Electricity Board (TANGEDCO). Ennore Port was declared as major port on March 23, 1999. Ennore Port is the first Major Port incorporated as a company under the Companies Act, 1956 on October 11, 1999. Ennore Port has been renamed as Kamarajar Port in the year 2017.

S.No	MoEF Guidelines	Compliance report
(i)	The total land area of the Project should be limited to 400 Ha as proposed	As per Environment clearance letter issued by Ministry of Environment & Forests for the "Construction of new satellite port at Ennore near Madras in Tamilnadu" vide letter dated 28.9.1992, the total land area accorded was 400 ha. Subsequently port has developed new projects under Phase-II and port has developed various new projects phase wise.
		Port has acquired 950 Acres of land from TIDCO during the year 2002 and was shown for obtaing Environment & CRZ clearance for the development of second phase project at KPL. The stock yard for the coal, iron ore, tank farm for Marine Liquid Terminal were developed in these lands. Ministry of Environment & Forests had accorded Environment and CRZ clearances vide No. 10-28/2005–IA-III dated 19th May 2006.
		For subsequent developments, Port has acquired 679 Acres of land from Salt Department during the year 2010 & 2014. The lands were meant for the development of stackyard for additional Coal berths (CB3&4). Ministry of Environment & Forests had accorded Environment and CRZ clearances vide letter No. F.No.11- 51/2012-IA.III dated 12th March 2015.

The commercial operation of Port was started on June 22, 2001.

		The total land area of port is 2787.29
		Acres. The remaing portion of the land is
		shown in the Development of facilities
		envisaged in the Port master plan project,
		for which Environment & CRZ clearance is
		sought. At present, the total Port area is
		1128.45 Ha. The details of land procured
		by KPL is tabulated enclosed as
		Annexure-I.
(ii)	Hill features of Karikkal and Bodiparai	No quarrying operation was carried out in
	hills should not be destroyed for the	Bodaparai hill. After completion of
	construction of breakwater since this	construction of the breakwaters, the quarry
	will drastically change the landscape.	was handed over to District Collector,
		Vellore District by the Chennai Port vide its
		letter No.11/6828/96/E dated 07.01.2002,
		along with abandonment certificate for
		closure of Karikkal quarry issued by
		Directorate of Mines, Safety Oorgaum.
(iii)	Quarrying operations must be carried	Complied with.
``'		-
	out with utmost care giving	
	out with utmost care giving consideration to the topography,	The Chennai Port trust authorities have
	out with utmost care giving consideration to the topography, vegetation and drainage system in	The Chennai Port trust authorities have informed that rehabilitation of the quarry
	out with utmost care giving consideration to the topography, vegetation and drainage system in consultation with expert institutions	The Chennai Port trust authorities have informed that rehabilitation of the quarry site was taken up and restored. Director of
	out with utmost care giving consideration to the topography, vegetation and drainage system in consultation with expert institutions like Centre for Mining Environment,	The Chennai Port trust authorities have informed that rehabilitation of the quarry site was taken up and restored. Director of Mines safety, Oorgaum has issued
	out with utmost care giving consideration to the topography, vegetation and drainage system in consultation with expert institutions like Centre for Mining Environment, Indian School of Mines, Dhanbad.	The Chennai Port trust authorities have informed that rehabilitation of the quarry site was taken up and restored. Director of Mines safety, Oorgaum has issued Abandonment Certificate for closure of
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(v)	Alternate sources of water supply other than tapping of ground water through bore wells must be explored to avoid intrusion of salt water since fresh water is scare in the island. A specific study should be undertaken on the ground water potential, recharge capacity, present drawl and future plans in an integrated manner. State/central ground Water Board should be fully involved in this study. The report should be submitted within one year.	Complied with. The water for construction, drinking, etc., is brought in the trucks and no deep bore wells are constructed in the project area.
(vi)	Dredging operations must be undertaken in stages in consultation with some expert institution like CWPRS, in such a way as to ensure that these operations do not deteriorate the surface water quality which must be maintained within the prescribed standards. Water parameters should be measured on regular intervals to monitor water quality. Dredging material should not be used for filling up any water body;	Complied with.
(vii)	Large scale dumping of waste shall not be undertaken by the Project Authorities without clearance from the environment angle. This is to ensure that marine ecology of the area is not affected by dumping in the marshy lagoon/low level areas;	Complied with.

(viii)	A green belt of appropriate width (say	Complied.
	200 meters) must be provided along	In 1992 the port was conceived as a
	the water area. Adequate provision	satellite port to handle coal through two
	for the initial cost for greening and	coal berths. Environment clearance was
	maintenance has to be made in the	issued to develop green belt in an area of
	project cost and subsequent annual	15 Hectares. However, the port diversified
	budget for the port;	into a multi-cargo port and subsequently a land use plan was developed which includes a green belt of 414 Acres i.e. 167.25 Hectares.
		Port is continuously developing green belt area. The expenditure incurred for the development of green belt are as below.
		2015-16 = Rs.28,50,917 2016-17= Rs.64,63,687 2017-18= Rs. 8,43,365 2018-19= Rs.2,61,535 2019-20= Rs. 83,32,257 2020-21= Rs. 53,23,979 2021-22= Till 31.07.2021 Rs. 8,80,472
		At present port is having a green belt area of 636.1 acres which includes a green belt (planted) 210.74 acres, green cover (natural) 349.26 and mangroves in an area of 76.14 acres.
		Port has planned for the development of green belt of 68.66 acres inside the custom bound area and 621.91 Acres outside the custom bound area. The total green belt area of the port will be 690.77Acres.
(ix)	Green belt development of 50 ha of land instead of 25 ha proposed inside the port should be developed. This may spread in different pockets in vacant areas and need not be concentrated on one area. Apart from	Port has acquired additional land from various Government authorities only like TIDCO, TNEB, salt Department, except 31.97 Acres of land which was transferred from private party (patta land). At present total Port area is 1128.45 Ha.
	million sq m available in the island should be sustained by providing	At present port is having a green belt area of 636.1 acres which includes a green belt

	proper maintenance. Appropriate fund allocation towards initial cost for greening and maintenance of 50 ha of land and 5.00 million sq m available in the island has to be provided in the project cost and in the subsequent annual budget of the port;	 (planted) 210.74 acres, green cover (natural) 349.26 and mangroves in an area of 76.14 acres. Port has planned for the development of green belt of 68.66 acres inside the custom bound area and 621.91 Acres outside the custom bound area. The total green belt area of the port will be 690.77Acres. 	
(x)	Suitable low lying areas should be identified for mangrove plantation and provision of the required amount must be made for this purpose in the project cost by the project authorities;	Complied with. Port in association with Tamilnadu Forest Department had identified and planted mangroves along the coast line between Ennore and Pulicat. Tamilnadu Forest Department vide letter no. D2/6240/99 dated 05.09.2003 has informaed about to dig channels and plantoing of mangrove species at Thangal Perungalam (7.75ha) and at Kalanchi (7.5ha)respectively. The same are complied with.	
(xi)	The project authorities must ensure that no cutting of trees take up place in the project area.	No cutting of trees was done.	
(xii)	With the operation of Ennore Port as a measure of decongestion of Madras port the traffic in Madras port must be gradually reduced. Ministry of Surface Transport, Madras Port Trust and Ennore Port Trust must ensure that adequate measures in this regard are taken.	Complied with. Handling of Thermal coal for TNEB is completely shifted from Chennai port to Kamarajar Port (Ennore port).	
(xiii)	 To control dust pollution from coal, following measures must be adopted. (a) Totally enclosed continuous loaders / un-loaders and conveyor system should be adopted (b) Dust extraction system should be 	Complied with. The following measures are taken to control the dust. Dust pollution preventive measures have been taken up by TNEB, the operators of	

	minimize dust generation during stacking, loading, transferring operations as well as to minimize wind blown dust from the stack yard, proper water spraying should be done.	 through shore based gantry cranes with grab un-loaders and fed to the conveyor system to the thermal power plant. No coal is stored inside the port. In addition to the covered conveyor system, water sprinklers have been provided in the hoppers for suppression of coal dust emanating while discharging coal from the vessels. Cleaning up of the operational area/jetty after every unloading operation to prevent pilling up of material is being done. The coal is stored inside North Chennai Thermal Power Station.
(xiv)	Air pollution monitoring stations at strategic locations must be set up in the port area and in the neighborhood for monitoring dust/particulate matter at regular intervals. Adequate funds must be allocated towards this in the project cost.	Complied with. Kamarajar Port is continuously monitoring the environmental air pollution. KPL has engaged M/s. Hubert Enviro care Systems Pvt. Ltd. Chennai (MoEF & CC and NABL accredited laboratory) to carry out the periodical monitoring, testing and analysis of Ambient air quality, Marine water quality, creek water quality, Noise levels in the port area. Adequate funds are allocated in this project.
(xv)	To contain noise levels within the prescribed standards roofed conveyor belts should be deployed. Noise pollution in the port area should be reduced by putting up sound barriers at suitable locations. To protect the workers from high noise levels ear muffs/plugs should be provided.	Complied with. The coal is unloaded from the ships and transferred to the thermal power station through elevated closed conveyor system. There is no generation of noise pollution during the operations. Noise levels at the work zones were monitored regularly. However workers working in the berth area are also provided PPE like hard hat, ear muffs/plugs etc.

(xvi)	Water pollution monitoring stations at strategic points must be set up in the project area to monitor water quality and marine pollution at regular intervals.	Complied with. Kamarajar Port is continuously monitoring the environment. KPL has engaged M/s. Hubert Enviro Care Systems Pvt. Ltd. Chennai (MoEF & CC/NABL certified) to carry out the periodical monitoring, testing and analysis of Marine water quality, creek surface water quality in the port area.
(xvii)	To contain accidental spillage of oil, the project authorities should deploy oil booms, multipurpose anti pollution craft, oil recovery cum reception craft, chemical dispersant and other equipment such as shovels, swabs, waste collection bags, etc.	Complied with. KPL falls under category B. Port is having oil spill contingency plan prepared in line with NOS-DCP. Necessary chemicals, booms, dispersants, etc. are readily available for containment of any accidental spill of Tier-I category.
(xviii)	An environment division must be set up in Ennore port headed by Environment Manager with appropriate strength of Environment Engineers, Forest officers, forest guards and other laboratory staff. An environmental laboratory for Air Water and solid waste monitoring must be set up with adequate equipment and qualified staff. Adequate fund for establishment of laboratory must be provided in the project cost. The annual recurring cost for the laboratory and Environmental Division must be provided for in the annual budget of the port.	Complied with. Port is equipped with HSE division which is a part of the Marine Services department headed by General Manager (MS). The HSE division is exclusively headed by an officer in the rank of Chief Manager(HSE). At present, the Environmental Cell comprises of the following officers. (i) Chief Manager(HSE), (ii) Sr. Manager(HSE) and (iii) Executive. to take care of the environmental requirements of the port. Port has engaged M/s. Hubert Enviro Care Systems Pvt. Ltd. Chennai (MoEF & CC/ NABL certified) to carry out the regular sampling and testing of various environmental parameters. Tamilnadu Pollution Control Board also monitors the Ambient Air Quality and Noise levels inside the port. The air quality level are found well within the limits. A copy of the report is enclosed herewith.

		 The details of expenditure incurred towards Environmental management for the period of July to December 2021 by KPL is furnished herewith as below: 1. Environmental Monitoring = Rs. 9,56,840/- (excluding GST). 2. Solid Waste Management = Rs. 4,53,758/- (excluding GST). 	
(xix)	The Ennore Port Trust authorities must draw up a Disaster Management Plan and get it approved by the nodal department of the state Government and forwards it to the Ministry for approval.	Complied with. Port is having a Crisis Management Plan and Disaster management Plan. However, with the subsequent development of various new projects phase wise, Port has updated the Disaster Management Plan in line with National Disaster Management Authority Guidelines 2019 and forwarded it to Indian Register of Shipping for vetting.	
(xx)	Adequate measure must be taken to protect the Pulicat Lake, a bird sanctuary for several species of resident and migratory water birds and having potential for fishing as an important economic activity of the area.	Complied with. The Pulicat lake is situated about 20KM away from the location of the Kamarajar port.	
(xxi)	A Monitoring Committee will be set up by the project authorities to review the implementation of the above conditions with representatives from MoEF, State forest Department, Sate pollution Control Board and representative of Port Authority.	Complied with. A monitoring committee with representatives from MoEF, State Forest department, State Pollution Control Board, Tamilnadu Electricity Board and Port officials was constituted then. They conducted ten Environmental Monitoring committee meetings and reviewed the implementation of MoEF conditions.	
(xxii)	The quality of treated effluents, solid wastes, emissions and noise levels, etc., must confirm to the standards laid down by the competent authorities including Central/State	Complied with. KPL has engaged M/s. Hubert Enviro care Systems Pvt. Ltd. Chennai (MoEF & CC/ NABL certified) to carry out the periodical monitoring, testing and analysis of Marine	

	Pollution Control Board and under the Environment (Protection) Act 1986 whichever area more stringent.	 water quality, creek water quality in the port area. The environmental parameters are found to be well within the standards prescribed by Central / State Pollution Control Boards. Tamilnadu Pollution Control Board is also monitoring the Ambient Air Quality and Noise levels inside the port. All the parameters are found to be well within the limits. A copy of the report is enclosed herewith.
(xxiii)	The project authorities must ensure that project out sees if any must be adequately compensated and rehabilitated.	Complied with . The Project outsees were properly compensated and rehabilitated at the time of land acquisition by the TNEB, Govt of Tamilnadu.
3.	Adequate financial provision must be made in the Project estimates and the annual budget to meet the financial requirement for the implementation of aforesaid safeguards. The funds so provided item wise should not be diverted for any other purpose.	 Complied with. The details of expenditure incurred towards Environmental management for the period of July to December 2021 by KPL is furnished herewith as below: 1. Environmental Monitoring = Rs. 9,56,840/- (excluding GST). 2. Solid Waste Management = Rs. 4,53,758/- (excluding GST).
4.	In case of any deviations/alterations in the project proposal from those submitted to this Ministry for clearance and on the basis of EIA findings these stipulations may be modified and/or new ones imposed for ensuring environmental protection.	The deviations / alterations in the approved Project proposal have been ratified by the MoEF. A report was sent to MoEF on 17.02.2001.The deviation was ratified by MoEF & CC vide letter no. J-16001/9/87- IA-III, date d 03.01.2001.

Annexure-I

KAMARAJAR PORT LIMITED

(A company of Chennai Port Trust)

Details of Land Owned by Kamarajar Port Limited

S.No	Descriptions	Extent	Handed over
			on
1.	Land transferred from Tamil Nadu	995.05 Acres	28.10.1994
	Electricity Board		
2.	Poramboke land (Govt. of Tamilnadu) TNEB	97.15 Acres	28.10.1994
3.	Poramboke land (Govt. of Tamilnadu) TIDCO	2.36 Acres	29.05.2002
4.	Land transferred from TIDCO	947.65 Acres	29.05.2002
5.	Land transferred from Private Party (Patta land) Vallur village	31.97 Acres	08.03.2005
6(i).	Land transferred from Salt Department	29.76 Acres	07.09.1996
6(ii).	Land transferred from Salt Department	35.00 Acres	31.05.2010
6(iii).	Land transferred from Salt Department	647.66 Acres	28.02.2014
7.	Land transferred railway siding	0.69 Acres	21.10.2014
	(Athipattu Village)		
	Total	2787.29 Acres (1128.45 Ha)	

KAMARAJAR PORT LIMITED – COAL BERTHS CB1 & CB2 ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31ST MARCH-2021

S. No	Description	Remarks		
1.	Name and address	Kamarajar Port Limited,		
		Vallur Post, Near NCTPS, Chennai-120.		
2.	Type of Cargo handled	Coal for Thermal Power Plants of		
		TANGEDCO		
3.	Industry category Primary (STC Code)	Major port under the administrative		
	Secondary (SIC Code)	control of Ministry of shipping, GOI.		
4.	Cargo handling capacity as per CTO	16 Million Metric Tons Per Annum		
5.	Date of start of commercial operation	22.06.2001		

PART – A

PART – B

(1) Water and Raw Material Consumption

Water consumption m3/d: 7KL per Day for this terminal.

Process/sprinkling: Water sprinklers are put in place to suppress the dust rises if any. The cargo unloaded from the ships is directly transferred to the stackyards of NCTPS (TANGEDCO units) through closed elevated conveyors. No process is takes place inside the port.

Cooling: Nil.

Domestic: Nil

Any other: Nil

Name of Cargo handled	Process water consumption per unit of product output.(per		
	Annum)		
	During the previous	During the Current financial	
	financial year (2019-20)	year (2020-21)	
Thermal Coal	Coal is handled at the terminal for the exclusive use of		
	Thermal Power Plants of TANGEDCO		

、 /		-	· · · · · ·	
*Name of r	aw	Name of	Consumption of raw materia	l per unit of output
materials		Products	During the financial year	During the financial Year
			2019-20	2020-21
Coal		Coal	14.11 MTPA	9.69 MTPA

(2) Raw Material Consumption (if applicable)

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

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

Pollutants	Quantity of pollutants discharged (mass/day)	Concentrations of pollutants in discharges (mass/volume)	Percentageofvariationfromprescribed standardswith reasons
Water	No wastes are discharg monitoring the surface Enviro Care Systems laboratory) on quarter well within the prescu submitted to Tamilnad	ged into the marine/surface and marine water quality Pvt. Ltd. Chennai (MoEF a ly basis. The results of an ribed standards by the C u Pollution Control Board.	e water bodies. Port is through M/s. Hubert & CC/ NABL certified alysis are found to be PCB. The reports are
Air	No stacks are there is directly transferred to through closed elevate put in place to control	n port. The cargo unload the stackyards of NCTP d conveyors. All dust supp dust emissions if any.	ed from the ships is S (TANGEDCO units) pression measures are
	KPL is monitoring the Hubert Enviro Care S certified labaoratory). different locations insid to be well within the p monitoring reports are	various environmental par bystems Pvt. Ltd. Chennai The ambient air quality the the port area. The results prescribed standards by th submitted to Tamilnadu Po	ameters through M/s. (MoEF & CC/ NABL is monitored at eight s of analysis are found e CPCB. The monthly ollution Control Board.
	Tamil Nadu Pollution Quality and Noise Qu results of analysis are by the CPCB.	Control Board is also mor ality standards in the te found to be well within the	itors the Ambient Air rminal annually. The prescribed standards

PART – D Hazardous Wastes

(As specified under Hazardous and other wastes Transboundary Rules, 2016)

Hazardous Wastes	Total Quantity (Kg.)				
	During the previous	During the Financial year			
	Financial Year 2020-21	2020-21			
Source of Hazardous waste generation	No hazardous wastes are	generated.			
Disposal procedure	Not Applicable.				
Quantity disposed	Not Applicable.				
Any other details	The cargo unloaded from transferred to the (TANGEDCO units) to conveyors. Water spring suppress the dust rises in	om the ships is directly stackyards of NCTPS hrough closed elevated klers are put in place to f any.			

Solid Wastes	Total Quantity (M ³)				
	During the Financial Year period Apr'19 to Mar'20	During the Financial Year Apr'20 to Mar'21			
Quantity collection	The total collected quantity from terminal and ships calling at the terminal is about 250 Cu.M (Apr'19 to Mar'20).	The collected total quantity from terminal and ships calling at the terminal is about is 236 Cu.M (Apr'20 to Mar'21).			
a) Source of solid waste generation	Solid waste generated in the port is of domestic wastes likes, paper, packing material, water bottles, etc. Ship generated wastes include paper, plastic cans, metal drums, e-wastes, food waste, ropes, wooden packing material, etc.				
Disposal procedure	As per MARPOL regulations reception facility for the disp Accordingly port has engaged of wastes from the ships segregated into different s recyclers for further beneficial	s, every port has to provide osal of ship generated wastes. a contractor for the collection . The collected wastes are pecies and sent to various l use.			
Quantity disposed	The disposed quantity from port and ships is 250 Cu.M (Apr'19 to Mar'20).	The disposed quantity from port and ships is 236 Cu.M (Apr'20 to Mar'21).			
Any other details	NIL	·			

PART – E Solid Wastes

$\mathbf{PART} - \mathbf{F}$

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

Port has Waste Oil, sewage & Other Wastes Reception Facilities Policy, 2019. The generated oily wastes from the ships are disposed off through CPCB/SPCB approved recyclers.

Solid waste generated in the port is of domestic wastes like paper, packing material, water bottles, etc. and ship generated wastes including paper, plastic cans, metal drums, e-wastes, food waste, ropes, wooden packing material, etc.

As per MARPOL regulations, reception facility port has facilitated for the collection and disposal of ship generated wastes. The collected waste are segregated into different categories and sent to various recyclers for further beneficial use.

PART – G

Impact of pollution abatement measures taken towards conservation of natural resources and the cost of production

The cargo unloaded from the ships is directly transferred to the stackyards of NCTPS (TANGEDCO units) through closed elevated conveyors system operated by electrical power rather than the conventional mode of transportation through trucks operated by diesel power thereby reducing the fossil fuel consumption.

Moreover, Port has developed a green belt of 636.14 acres inside and outside the custom bound areas which acts as barrier for dust emissions and pollutants.

PART – H

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

Port's Environmental Management Plan (EMP) is aimed at mitigating the possible adverse impacts of projects and for ensuring to maintenance of the existing environmental quality.

Port has facilitated the ships with reception facilities as per MARPOL regulations for ships for disposal of wastes under Annexure- I (oil) and Annexure- V (Garbage). The septic wastes are disposed through waste through tanks/soak pits.

Workers are provided with PPEs like ear protection devices, masks, gloves and helmets. Emergency/Crisis Response Plan that covers situations such as cyclones, marine accidents, bomb threats, fire, explosion and accidents is in place. Port is having oil spill contingency plan prepared in line with National Oil Spill Disaster Contingency plan (NOS-DCP).

PART – I Any other particulars for improving the quality of the environment.

Nil



District Environmental Laboratory, Manali AMBIENT AIR QUALITY SURVEY – Report of Analysis Date: 23.03.2021

Report No. 64 /AAUS/202	J=21	the second secon
1. Name of the Industry	\$	M/s. Kamarajar Port Ltd., (Coal Berth)
2. Address of the Industry	4	Vallur Post, Chennal – 120.
3. Date of Survey	1	17.05.2021
4. Duration of Survey	1	8 Hours / 24 hours D-d (Organ - Large / Medium / Small
5. Category	1	Red / Orange / Orecti / Residential / Sensitive
Land use classification	- A	Industrian / Commercian / Activity

Meteorological Conditions

2014/02/2017	A.C.	Max	Relative	Min	Max
Ambient	wiin	IVIAO	1 humidity (0/2)	58	74
Temperature (⁰ C)	27	31	Humany (76)	50	1 1
Weather Condition	Partially Cloudy		Rain Fall (mm)	NII	
Predominant Wind	SSE	NNW	Mean Wind Speed (km/hr)	1	0

Ambient Air Quality Survey Results

-		G S	S *	ъĐ	Pol	lutants Co (microgra	oncentrati am / m ³)	ion
SI. No.	Location	Directi	Distan (m)	Heigl Form ((m)	PM 2.5	РМ 10	SO ₂	NO ₂
1	On top of Platform near Chettinad SS.	NE	50	3	**	60	8	11
2	On top of Platform near Dock.	ESE	100	3	**	54	9	13
3	On top of Platform near Control Tower.	SE	100	3	10	57	12	18
4	On building top of Main Gate	NW	350	4	17	77	10	16
5	On top of Platform near Admin	NNW	200	3		82	14	21

Note: * With respect to major emission sources. The analytical results are restricted to the sampling period of 8 hrs/24hrs



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Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Board Manali

	(Fridantin
Test Performed	Test Method
Test renormed	18 5182 : (Part 23) - 2006
PM10	Madified West - Gaeke / IS 5182 : (Part 2) - 2001 RA: 2012
SO2	Modified West Control (18 5182 : (Part 6) - 2006 RA:2012
NO2	Jacobs - Hoenneiser / 13 5162 . (Fair of Low

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District Environmental Laboratory, Manali

AMBIENT AIR QUALITY SURVEY

Schematic Diagram Showing Location of Sampling

Report No. 64/AAQ/SM/2020-21

Name and Address of the Industry

: M/s. Kamarajar Port Ltd., (Coal Berth) Vallur Post, Chennai – 120.

Date of Survey

; 17.03.2021



Note: All the values are expressed in µg/m3 and restricted to sampling period of 8 hrs/24hrs

Meteorologie	cal Conditions:
Predominant Wind Direction	SSE - NNW
Wind Speed (Km/hr)	10
Weather Condition	Partially Cloudy
Rainfall	Nil

2813/21

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Board Manali

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District Environmental Laboratory, Manali

AMBIENT/SOURCE NOISE LEVEL SURVEY - Report of Analysis

Report No. 64/ NLS/2020-21 Date: 23.03.2021

1.	Name of the Industry Address of the Industry Date of Survey	M/s. Kamarajar Port Ltd., (Coal Berth)					
2.	Name of the Industry Address of the Industry Date of Survey gory RL c of Survey Ambient eorological conditions	Vallu	Vallur Post, Chennai - 120.				
3.	Date of S	Date of Survey		.2021			
		DI	_	Land use Classification	Industrial		
Cate	gory	Ambient/S	Source	Time of Survey	Day		
Type	e of Survey	onditions		Calm/Windy/Rainy	Windy		

				a a a	$\mathbf{n}\mathbf{v}$	Parameters	
		- 20	SOMA Model SCOIL	080	S	rial No	T243103
Instrument Us	sed	C	SVA Model SCOT	0	34	anamaing Dange	50-110 dB(A)
Logging Inter	val		10 Minutes each po	int	N	Casuring Kange	FAST
Weighting	** /	۸"	Peak	"C	N.	I me weighting	1167
			weighting	-	_	and the house	14.00 - 15.00
Sound Incides	ace		RANDOM			Time in nrs	14.00 10.00

Report of Noise Level Monitoring

SI.	Location	ration min)	ance (m)	rection	Sound Level –dB(A)			
		Du	Disti	Di	Leq	Min	Max	
1	Near Chettinad SS	10	50	NE	55.9	51.7	74.0	
2	Near Jetty	10	100	ESE	62.6	57.0	62.5	
-	Near Control Tower	10	100	s	61.4	55.3	68.6	
4	Near Main Gate (CISF)	10	350	NW	63.0	54.8	75.0	
4	Near Admin	10	200	NNW	62.5	49.9	67.9	

Note: Leq value is the average energy for the measured period.

DCS023/3/21

23/3/21 9.29

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Board Manali

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District Environmental Laboratory, Manali

INFERENCE REPORT ON A.A.Q.S./ S.M.

1. Name of Industry	3	M/s. Kamarajar Port Ltd., (Coal Berth) Vallur Post, Chennai – 120.
2. Pollution Category	3	Red Large
3. Date of A.A.Q. Survey	ä	17.03.2021
4. Predominant Wind Direction	13	SSE - NNW
5. Weather condition		Partially Cloudy
	STATUS	OF POLLUTANTS LEVEL
	LITY .	

L. AMBIENT AIR QUALITY :-

1. Total No. of A.A.Q. stations monitored : 5

 No. of A.A.Q. stations in which Pollutants Level exceeded the Boards standards : Nil

Mavim	um and Minimum values of Polluta	ants Level observed:
yuaxiiiii	Values in microgram/m ³	BOARD's STANDARD
	Y diffies in merses	(As per concent order)

C1		Values in microgram/in		in or many second se
No	POLLUTANT	Maximum	Minimum	(As per consent order)
1.	PM ₁₀ PM.2.5 <u>GASEOUS</u> POLLUTANTS:-	82 17	54 10	100 60
	(i) SO2	14	8	80
	(ii) NO2	21	11	80

II. STACK MONITORING:-

1. Total No. of Stacks Monitored

- 3° ≥
- No. of Stacks in which Pollutants level Exceeded the Boards standards



: Nil

28/3/21

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Boar Manali

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KAMARAJAR PORT LIMTED



Compliance Report

On

Ministry's guidelines for

"EXPANSION PROPOSALS - DEVELOPMENT OF TERMINALS FOR MARINE LIQUIDS, COAL, IRON AND CONTAINERS IN SECOND PHASE AND ASSOCIATED DREDGING AT ENNORE PORT"

Point wise compliance report on Ministry's guidelines for the Ennore Port Expansion Proposals-Development of Terminals for marine liquids, coal, iron and containers in Second phase and associated dredging at Ennore Port Environmental clearance.

Ref: MoEF's Notification No. 10-28/2005-IA-III dated 19th May 2006

Ministry of Environment & Forests had accorded Environmental clearance for the development of satellite port at Ennore near Madras vide letter No. J16011/9/87-IA.III dated 28.9.1992. After commissioning of the satellite port in June 2001, Kamarajar Port Limited, KPL (erstwhile Ennore Port Limited) had proposed for expansion for development of the following projects. Subsequently MoEF & CC had accorded clearance vide letter No. 10-28/2005–IA-III dated 19th May 2006 for the following projects.

- i. Marine Liquid Terminal to handle 3 MTPA.
- ii. Coal Terminal other than TNEB Users to handle 8 MTPA.
- iii. Iron Ore Terminal to handle 12 MTPA.
- iv. Container Terminal for a quay length of 730m to handle 12 MTPA.
- v. Associated Capital Dredging of 15.50 Million cubic metres.

Status of various projects accorded clearance by MoEF

Marine liquid terminal:

The project was developed on BOT basis to handle Marine liquids and chemicals to a capacity of 3 MTPA. The license Agreement was signed during November 2004 with Ennore Tank Terminals Private Limited. The project was commissioned on 18.1.2009.

<u>Coal Terminal</u>

Kamarajar Port (KPL) has awarded license to M/s. Chettinad International Coal terminal Private Limited (CICTPL) to develop a terminal on design, build, operate, market and transfer basis in 2006 as a common user coal terminal. The terminal was completed with equipment and conveyor systems, yard and evacuations systems with capacity to handle **8 Million Metric Tons Per Annum (MMTPA)** and commenced the operation in the year 2011.

In the year 2020, M/s. CICTPL was acquired by M/s. JSW Infrastructure Limited, the infrastructure arm of the JSW group, one of the biggest steel producer in the private sector. Subsequent to acquisition of CICTPL terminal by JSW Infrastructure Limited in the year 2020, the terminal was rechristened as M/s. Ennore Coal Terminal Private Limited (ECTPL).

Iron Ore Terminal

The project was developed on BOT basis and the agreement was signed with M/s. SICAL Iron Ore Terminals Limited at an approved project cost of Rs.480 crores with a capacity of 12 MTPA. Constructions were completed. However, due to the ban on the Iron ore mining from Bellary-Hospet region, the Licensee could not perform the trail run and the terminal was lying idle without any operation since then. It was decided to convert the terminal to handle coal.

KPL submitted application to MoEF&CC for "Modification of existing iron ore terminal to handle coal". Ministry of Environment & Forests (MoEF) has accorded Environmental Clearance vide letter No. 10-28/2005–IA-III dated 9th May 2018. Presently the project is in stalled condition.

Container Terminal

KPL has subsequently modified this environment clearance for the development of container terminal. MoEF & CC has accorded Environment Clearance vide Letter No. 10-28/2005-IA-III dated 10th September 2007.

Further Environment Clearance was modified to handle container (16.8 MTPA) in quay length of 730m and Multi Cargo berth (2.0 MTPA) in a quay length of 270 m. MoEF&CC has accorded Environment Clearance vide Letter No. 10-28/2005–IA-III dated 24.12.2014.

Dredging

KPL has carried out capital dredging for the development of marine liquids, coal, iron ore and container terminals in second phase. As stipulated in EC, about 6 million cubic meters of dredge material from the basin has been dredged. Out of this about 4 million cubic meters dredge material was used for reclamation of low lying areas within the port limits, 3 million cubic meters has been put up for the beach nourishment and remaining 8.5 million cubic meters of dredged material has been dumped into the sea at designated dumping locations. Presently, port is carrying out maintenance dredging for the above said terminals and the work is in progress. The dredge material is being disposed into sea at designated locations.

S.No	MoEF Guidelines	Compliance Status		
1	All the conditions stipulated in the	Complied with all conditions stipulated in		
	No Objection Certificate from "Tamil	the No Objection Certificate obtained from		
	Nadu State Pollution Control Board	"Tamil Nadu State Pollution Control Board.		
	vide their letter	The status report is enclosed as		
	No.T12/TNPCB/Misc/F.3322/TVLR	Annexure-I		
	/05 dt. 7/12/06 should be strictly			
	implemented.			
2	Groins and other suitable structures	Kamarajar Port had requested State		
	should be constructed to prevent	Public Works Dept. vide letter dated		
	the closing of the mouth of Ennore	09.05.2017 to carry out the groynes		
	creek.	construction works on deposit basis. In		

Compliance Report

		response the state Public works
		Department Aranivar Basin Division vide
		letter No E6/AEE/ASE/2017 deted
		00 11 0017 communicated their
		09.11.2017 communicated then
		willingness for carrying out the works on
		deposit basis. Subsequently, the State
		PWD requested NIOT, Chennai to conduct
		the study and submit the estimate for the
		work. The copies of the above
		communication are enclosed herewith as
		Annexure-A & B.
		Based on the NIOT report, state PWD has
		submitted their estimate for an amount of
		Rs.141.05 Crores. KPL had scrutinized
		the estimate and sanctioned an amount of
		Rs.115.04 crores and the same will be
		executed through state PWD on deposit
		basis.
		KPL has released an amount of
		Rs.6.76Crores to PWD for transportation
		of tetrapods to the site.
3	The DPR and the technical details to	Complied with.
	be awarded to the BOT operators	
	should be provided to MoEF for post	The DPR for Iron ore and Coal terminals
	project monitoring within 6 months	were submitted to Regional Office, MoEF
	from the date of receipt of this letter.	Bangalore vide Ltr .No EPL/MS/49/2008
		dated $13/3/2008$. The copy of the is
		enclosed as Annexure-C
		The DPR for the Marine Liquid Terminal
		had submitted vide letter no.
		EPL/MS/49/2007 dated 03.07.2007. The
		copy of the is enclosed as Annexure-D
4	The marine terminal should be set	Complied with.
	up outside CRZ area	
		The terminal areas are developed outside
1	1	ODZ area as attinualated

5	Recommendations of Risk analysis	Complied with.
	report should be strictly	M/s. Ennore Tank Terminals Pvt. Ltd, one
	implemented and a comprehensive	of the BOT operator operating petroleum
	quantitative Risk Analysis should be	products and chemicals had carried out
	the project	Risk Analysis through M/s. ROOT
	the project.	THINKER PVT. LTD., during 2017. The
		Safety Audit during 2021
		Recommendations of Risk analysis were
		implemented by M/s. ETTPL. The relevant
		certification copies of the report are
		enclosed herewith.
		With regard to M/s. Ennore Coal Terminal
		Pvt. Ltd, the terminal has carried out risk
		analysis during the year 2011 and the
		With regard to M/s AFCTDI Operational
		Risk assessment was carried out and
		recommendations are being implemented.
		Operation al Risk Assessment report
		submitted vide letter No. AECTPL/KPL/
6	Approval from Chief Controller of	Complied with.
	Explosives should be obtained for	-
	hazardous chemicals storage,	For the Marine Liquid Terminal, license
	transfer and related activities.	was obtained for the Storage Terminal
		vide Licence No P/HO/TN/15/4648
		(P191324), dated $18/10/08$ and the same
		was renewed during 2013, vide letter
		dated 17.4.2013. The validity of the above
		said licence is till $31.12.2022$.
		With regard to M/s. Ennore Coal Terminal
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid upto 31.12.2022.
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid upto 31.12.2022. With regard to M/s AECTPL, the terminal
		With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid upto 31.12.2022. With regard to M/s AECTPL, the terminal is not storing any hazardous chemicals.
7	The reclamation of the port area	 With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid upto 31.12.2022. With regard to M/s AECTPL, the terminal is not storing any hazardous chemicals. Complied with.
7	The reclamation of the port area should be carried out with the dredged materials. Dredged material	With regard to M/s. Ennore Coal Terminal Pvt. Ltd, the terminal has obtained License 'B-Class' petroleum for operational use. License No. P/SC/TN/14/6874 (P285092) and valid upto 31.12.2022. With regard to M/s AECTPL, the terminal is not storing any hazardous chemicals. Complied with.

	No reclamation should be carried	area within the port limits.
	out outside the port limits.	However, MoEF & CC vide letter dated 6 th September, 2006 has directed subsequently that dredged material not suitable for reclamation and beach nourishment should be disposed off in the sea. No reclamation is carried outside the port limits.
8	The coastal protection works should be carried out after detailed hydrodynamic modeling studies and it should be ensured that no erosion or accretion takes place in other areas due to the shore protection works.	KPL has carried out the study through Central Water and Power Research Station, Pune. The study reports were submitted to MoEF vide our letter No. EPL/49/MS/2007 dated 8.12.2009. The copy of the is enclosed as Annexure-E As per the report, construction of sand trap beach nourishment etc., was carried out.
9	Reclamation of 500 acres should be	Complied with.
	carried out only for port development. The height of the reclaimed area will be maintained above the maximum flood level.	Reclamation carried out for the creation of stock yards for coal and iron ore are upto 4.5 m height, which is about 2 m above the flood level.
10	The wave tranquility study and the ship maneouvering studies carried out should be taken into account while operating the port.	Complied with. Wave tranquillity study and ship manoeuvring studies were carried out and the port is in operation.
11	The project proponent should ensure that during construction and operation of the port, there will be no impact on the livelihood of the fishermen. The fishermen should be provided free access to carry out the fishing activity.	Complied with. Due to port operations, there is no adverse impact on fishing activities.
12	All necessary precaution while undertaking construction and operation of the port should be taken up keeping in view, the bathymetric changes caused due to tsunami.	There was no bathymetry change due to Tsunami. After Tsunami bathymetry survey was carried out and confirmed.

13	All development in the port should	Complied with.
	the Coastal Regulation Zone	All development activities are carried out
	Notification, 1991 and approved	in accordance with the CRZ Notification.
	Coastal Zone Management Plan of	
	Tamil Nadu.	
14	The project proponent should undertake a comprehensive hydrodynamic modeling study with regard to river diversion and submit the report to the Ministry within 6 months from the date of receipt of this letter. Further, the unit should comply with all the findings/recommendations of the study.	Complied with. Hydrodynamic modelling study with regard to river diversion works was carried out by NIOT, Chennai and submitted to MoEF vide our letter No. EPL/49/MS/2007 dated 5/8/2008. The study was made based on the present site conditions. MoEF vide letter dated 15.12.2008 had communicated to comply with the recommendation of the study. The copy of the letters are enclosed as Annexure-F&G
		Accordingly, the works was commenced on 24.11.2016 and completed on 23.08.2018. The works of formation of protection bunds along the sides of the river are completed.
15	Construction of labour camps	Complied with.
	Regulation Zone areas and should be provided with adequate cooking and sanitation facilities.	No labour camps were established inside the port. Construction of the terminals is completed and the terminals are in operation.
16	The project-affected people, of any should be properly compensated	Complied with.
	and rehabilitated.	The land has been transferred from TNEB, TIDCO and Salt Department, Government of India. Hence no direct project affected people by Kamarajar Port Limited.
В	General conditions	Compliance Status
1	Development of the proposed channel should be undertaken meticulously conforming to the applicable Central/ local rules and regulations including Coastal Regulation Zone Notification, 1991 and its amendments. All the construction designs/drawings relating to the proposed development activities must have	Complied with. Port being a regulatory authority by itself, All constructions and plans are approved by port itself.

	approvals of the concerned State	
	Government Department/Agencies.	
2	A well equipped laboratory with	Being complied with.
	suitable instruments to monitor the	
	quality of air and water shall be set	Kamarajar Port is monitoring the
	up as to ensure that the quality of	environment. Port has engaged M/s.
	ambient air and water conforms to	Hubert Enviro Care Systems (P) Ltd, an
	the prescribed standards. The	MoEF and NABL accredited laboratory for
	laboratory will also be equipped with	sampling and testing of various
	qualified manpower including a	environmental parameters inside the port.
	marine biologist so that the marine	
	water quality is regularly monitored	M/s. ETTPL, the BOT operator handling
	in order to ensure that the marine	POL projects is monitoring the environment
	life is not adversely affected as a	by engaging a laboratory M/s. Green Chem
	result of implementation of the said	Solution (P) Ltd. once in month and
	project. The quality of ambient air	ensuring that it meets as per TNPCB
	and water shall be monitored	norms. Further, TNPCB also visits the
	periodically in all the seasons and	terminal for monitoring of air once in a
	the results should be properly	year. The analysis reports are enclosed
	maintained for inspection of the	herewith.
	concerned pollution control	
	agencies. The periodic monitoring	The operator of the coal terminal M/s.
	reports at least once in o months	Ennore Coal Terminal PVt Ltd., is
	(Regional Office at Bangalore) and	laboratories for sampling and testing of
	Pollution Control Committee	narameters. The reports are submitted to
	Tonution control committee.	TNPCB regularly
		The objective regulary.
		M/s AECTPL has awarded Environmental
		Monitoring services to NABL accredited
		laboratory. Ambient Air Quality, Noise
		Level, DG Stack emission, Marine &
		Surface water, sea sediment analysis are
		carried out on regular basis. The reports
		are being submitted to TNPCB also as part
		of the six monthly compliance reports.
		Monitoring reports are properly maintained
		and made available for inspection to
		required Environmental Monitoring record
		for the compliance period is enclosed
		herewith
		1010 withi.

3	Adequate provisions for	Complied with.
	infrastructure facilities such as	-
	water supply, fuel for cooking,	No labour camps were established inside
	sanitation etc. Must be provided for	the port. Construction of the terminal is
	the laborers during the construction	completed and the terminals are in
	period in order to avoid damage to	operation.
	the environment. Colonies for the	
	laborers should not be located in	
	Coastal Regulation Zone area It	
	should also be ensured that the	
	construction workers do not cut	
	trees including mangroves for fuel	
	wood purpose.	
4	To prevent discharge of sewage and	Complied with.
	other liquid wastes into the water	F
	bodies, adequate system for	Port handles coal. POL products and
	collection and treatment of the	exports of automobiles. No effluent or
	wastes must be provided. No	liquid wastes are generated due to the
	sewage and other liquid wastes	above said operations. Solid waste
	without treatment should be allowed	generated from the ships are collected,
	to enter into the water bodies.	segregated and sent to various recyclers
		for further beneficial use. No wastes are
		dumped into the water bodies.
		The operator M/s. ECTPL has installed a
		Sewage Treatment Plant at the stack-yard
		and is in operation. The outlet water is
		reused for gardening purpose. The results
		of analysis report is enclosed herewith.
		M/s. ETTPL had taken adequate
		precautions to ensure that no sewage and
		other liquid waste are entering into the
		water bodies.
		With regard to M/s AECTPL, the terminal
		operators had installed and operating
		25KLD capacity sewage treatment plant
		and the entire treated water is being used
		for horticulture purpose.
5	Appropriate facility should be	Complied with.
	created for the collection of solid	
	and liquid wastes generated by the	Kamarajar port is having Port "Waste Oil,
	barges/vessels and their safe	Sewage and Other Waste Disposal Policy-
	treatment and disposal should be	2019" for the disposal of waste oil through
	ensured to avoid possible	empanelled list of CPCB approved waste oil
	contamination of the water bodies.	recyclers.

		Port has engaged a contractor for the collection, segregation and disposal of solid wastes generated inside the port and from ships. The collected wastes like plastics, metals, wood, paper, cans, etc are segregated and sent to approved re-cyclers /industries for further beneficial use or for re-cycling. Hazardous wastes are sent to TSDF at Gummidipoondi.
6	Necessary navigational aids such as	Complied with.
	channel markers should be provided to prevent accidents. Internationally recognized safety standards shall be applied in case of barge/vessel movements.	Navigational aids are available. The channel length has been increased and additional navigational aids were provided.
7	The project authorities should take	Complied with.
	appropriate community development and welfare measures for villagers in the vicinity of the project site, including drinking water facilities. A separate fund should be allocated for this purpose.	As part of community development and welfare measures, Port has constructed new school building at a neighboring Kattupalli village. Ennore port has also provided access road and street light facility to the nearby Kattupalli village. A school building for Attipattu village was constructed during the year 2010-11 under CSR scheme and provided furniture, toilet facility for the school during the year 2011-12 under CSR scheme. Road improvement work at Attipattu Pudu Nagar village was carried out during 2011-12. KPL has engaged 19 members of women Self Help Group belonging to Attipattu village during September 2011.
		Port has engaged about 79 members of women Self Help Group belonging to the nearby Kattupalli for taking up of plantation and maintenance of green belt. The amount spent on CSR activities
		during last four years is as below.
		2018-19 is Rs. 4.69 crores 2019-20 is Rs. 8.11 crores

		2020-	21 is Rs 18 56 crore	Ś	
		The E	The Estimated cost for the CSR activities		
		for the	Sumated Cost for the		
		for the year 2021-22 is Rs. 7.07 crores			
		With 1	With regard to M/s ECTPL, the firm has		
		incurr	ed an amount of	Rs.12.13 lakhs	
		toward	towards CSR activities during the year		
		2021.			
		The h	realizin of dotails is a	a bolow	
				Amount Ba	
		D.	Description	Amount Ks.	
		1	Education		
		1	Euucation	2.70	
			Sports	2.37	
		4	Infractmicture	0.70	
			Development		
			Development	10.10	
			Total	12.13	
		Health Camp, Eye Camp, encouraging sports & events, etc., in the vicinity of the Port area. Expenses incurred for CSR during the compliance period is Rs.73.70 Lakhs. The breakup of details is as below			
		S.	Description	Amount Rs.	
		NO	D lass the	in Lakhs.	
		1	Lucation	4.2	
		2	Realth Oractaine 1.1	48.0	
		3	Livelihood	21.5	
			Development		
		4	Community	NII	
		4	Infrastructure	INIL	
			Development		
			Total	73 70	
8	The quarrying material required for	Comp	lied with	10.10	
0	the construction purpose shall be	comp	neu with.		
	abtained only from the approved	Thore	waa na raalirama	nt of allonming	
	guarrias /barrow areas Adacusts	them	was no requirence.	The construction	
	quarties/ portow areas. Adequate	of 1	aterial for the Port. I	and construction	
	saleguard measures shall be taken	or the	e terminais was c	arrieu out well	
	up to ensure that the overburden	within	the breakwaters,	the same was	
	and rocks at the quarry side do not	compl	eted and they are in	operation.	
	find their way into water bodies.				
9	For employing unskilled, semi- skilled and skilled workers for the project, preference shall be given to local people.	 M/s AECTPL has engaged the local people also during construction phase & also during the operation phase through contracts. M/s ETTPL has given preference to the local people in employment. M/s ECTPL has engaged local people during construction phase & also in the operation phase. 			
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10	The recommendations made in the Environmental Management Plan and Disaster Management Plan, as contained in the Environmental Impact Assessment and Risk analysis Reports of the project shall be effectively implemented.	Port is having a Crisis Management Plan and Disaster management Plan. However, with the subsequent development of various new projects phase wise, Port has updated the Disaster Management Plan (DMP) in line with National Disaster Management Authority Guidelines 2019. Indian Register of Shipping has vetted the DMP prepared by the Port.			
11	A separate Environmental Management Cell with suitable qualified staff to carry out various environments should be set up under the charge of a senior Executive who will report directly to the Chief Executive of the Company.	Port is equipped with HSE division which is a part of the Marine Services department headed by General Manager (MS). The HSE division is exclusively headed by an officer in the rank of Chief Manager(HSE). At present, the Environmental Cell comprises of the following officers. (i) Chief Manager(HSE), (ii) Sr. Manager(HSE) and (iii) Executive. The details of expenditure incurred towards Environmental management for the period of July to December 2021 by KPL is furnished herewith as below: 1. Environmental Monitoring = Rs. 9,56,840/- (excluding GST).			
		 2. Solid Waste Management = Rs. 4,53,758/- (excluding GST). With regard to M/s ECTPL, a separate Environment team is established at H.O to take care of all environmental activities. With regard to M/s AECTPL, a separate EMC with suitable qualified staff has been 			

12	The funds earmarked for environment protection measures should be maintained in a separate	put in variou monite Enviro Senior suppo Team M/s E by tak ETTPI labora Ltd. la variou the ter The e Marine	s day to day oring compliance and onmental Departme Manager-Environmental ted by Environmental at H.O. TTPL has appointed sing care of safety a boratory for samplin s Environmental particular minal premises. xpenditure by M/s e Liquid Terminal du ar 2020-21 is Rs. 25	or taking care of environmental d allied activities. ent headed by ent, who is well ntal Management the safety officer and environment. NABL accredited hem Solution (P) ng and testing for arameters inside . ETTPL for the uring the year for 5.08Lakbs and for
	account and there should be no diversion of these funds for any other purpose. A year-wise	the ye	ar 2021-22 is Rs. 82 spenditure incurred	.40Lakhs. by M/s. ECTPL
	expenditure on environmental safeguards should be reported to this Ministry.	for En Lakhs 20 and	vironment Managem & 49.31Lakhs for t 1 2020-21 respective	ient is Rs.52.96 the years 2019- ly.
		With	regard to M/s	AECTPL, the
		Enviro	onmental Expenditu	re carried out
		during	g the compliance per Breakup details are	iod is Rs. 36.68
		S.	Description	Amount Rs.
		No	-	in Lakhs
		1	Environmental	12.61
			Monitoring	2.05
		2	STD O&M	2.05
		4	Housekeeping	18.33
		5	IWMS	1.38
			Total	36.68
				·
13	Full support should be extended to the officers of this Ministry's Regional Office at Bangalore and the	Being All ne	complied with. cessary support is	being extended
	officers of the Central and State Pollution Control Boards by the Project proponent during this	during MoEF With	g the visit of officia	ls of TNPCB &
	inspection for monitoring purposes.	officia	ls inspect the termin	nal on monthly
	by furnishing full details and action	basis.	All the necessary s	upport is being

	plans including the action taken reports in respect if mitigate measures and other environmental protection activities.	provided during their site visit. With regard to M/s AECTPL, TNPCB officials are visiting the terminal on monthly basis. There was no visit from RO-MoEF & CC during the compliance period. All the necessary support is being provided during the site visit. With regard to M/s ETTPL & M/s ECTPL, necessary support is being extended by the terminal operators during the visit of officials.
14	In case there is an intention of	Complied with.
	deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection. The project proponent should be responsible for implementing the suggested safeguard measures.	(a) The specific condition (vii) was amended as "the dredged material not suitable for reclamation of the low lying areas of the port land and beach nourishment should be disposed off in the sea at the designated disposal site" vide MoEF&CC letter No. 10-28/2005-IA-III, dated 06.09.2006.
		(b) The quay length of the container terminal was increased from 700m to 1000m vide MoEF&CC letter No. 10-28/2005-IA-III, dated 10.09.2007 and again modified into 730m for container and 270m for multipurpose cargo terminal vide MoEF&CC letter No. 10-28/2005-IA-III, dated 24.12.2014
15	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 please.
16	This Ministry or any other competent authority may stipulate any additional conditions subsequently, if deemed necessary for environmental protection, which shall be complied with.	Noted for compliance.
17	The Project proponent should	Complied with.
	advertise at least in two local newspapers widely circulated in the	It was advertised in the vernacular Tamil

	region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and the copies of clearance letters are available with the state pollution Control Board and may also be seen at web site of the Ministry of Environment & Forests at http://www.envfor.nic.in. The advertisement should be forwarded to the Regional office of this Ministry at Bangalore.	and English newspapers on 02/06/2006. This was communicated to regional office of MOEF & CC vide EPL letter No. EPL/74/2005 dated 29/5/2006. The copies of the newspaper advertisement in Tamil and English languages are enclosed herewith as Annexure-H & I
18	The project proponents should inform the Regional Office as well as Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of development work.	Noted. The details are as given below.

The details of financial closure of the projects are as below.

Project Date of approval Dat		Date of Financial	Date of start of	
	by Competent	Closure	development work	
	Authority			
Marine Liquid Terminal	16-02-2004	September 2006	Work commenced on 09- 06-2006 and the terminal commissioned on 18.1.2009	
Coal Terminal	04-07-2006.	27 September 2007	06.02.2007	
Iron ore Terminal	20-06-2006.	27 September 2007 (in-principal approval accorded)	06.02.2007	
Container Terminal	14.2.2014	15.3.2014	20.10.2014	
Capital Dredging (Phase – I)	16-04-2007		Dredging ommenced on 16/2/2008 and completed on 31.01.09	
Capital Dredging (Phase – IIA)	05-12-2009		Dredging commenced on 22.02.2011 and completed on 20.04.2014.	
Deepening of ECTPL, CB1 & CB2 and its approaches	18.10.2014		Work completed.	

		Annexure- I
S. No	Guidelines issued by Tamil Nadu State Pollution Control Board vide their letter No.T12/TNPCB/Misc/F.3322/TVLR/05 dated 7/12/2006.	Compliance status
1	The unit shall provide adequate sewage Treatment Plant to treat the sewage generated.	Complied with. The sewage generated is of sanitary waste in nature and the buildings in the port are provided with soak pits and septic tanks. With regard to M/s. ETTPL, the sewage generated is of sanitary waste in nature and is cleaned at once in 6 months. Effluent treatment plant of capacity 20KLD is installed. M/s. ECTPL has installed a Sewage treatment Plant and it is in operation. The outlet water is reused for garden purpose. Samples are being drawn by TNPCB every month and the results of the same are enclosed.
2	Adequate dust control measures shall be provided for controlling the dust emanating from large stock piles of bulk cargoes such as coal, iron ore and other dusty cargoes.	 Complied with. Adequate dust control measures are provided for controlling the dust emanating from large stock piles of bulk cargoes such as coal. The bulk cargos are transported through elevated closed conveyor system installed with required dust extraction system at all transfer points, junction towers, etc. Water sprinkler systems are in place for minimizing dust at the stack yards. The details of dust control measures provided at the coal handling terminal (M/s. ECTPL) are as below. a) Water sprinklers, are installed around the stock yard to suppress the dust emission. b) Wind chield has been installed in the

· · · · · ·		· · · · ·
		predominant wind direction of North and South side at 12Mts height to mitigate the dust emission.
		c) Varieties of trees are planted around the stock yard to suppress the dust.
		d) At all the coal transfer towers, an in build high efficient water sprinkler system are installed to mitigate the dust emission.
		e) The conveyor is totally covered with bare galvalume sheet to protect the emission of coal during coal conveying process.
		f) In the Stacker / Re-claimer water spraying nozzles are installed to reduce the dust emission with exclusive water tanks and pumps. This is in-build dust suppression system incorporated in the basic design itself.
		g) A compound wall of sufficient height is constructed as all sides of the coal stock yard to protect the dust emission
		 h) Bulldozer grader / pay-loader are being used for coal compression to avoid dust at elevated levels.
		<i>i)</i> Coal is dampened by using water to reduce the dust dispersion.
3	The unit shall provide the following measures to control dust pollution from coal / iron ore handling activity,	The coals from berths (CB1 & CB2) are directly transported to North Chennai Thermal Power Station (NCTPS). Coal is not stored inside the port. The details of dust control measures provided at the M/s. ECTPL coal handling terminal are as below.
	a) Totally enclosed continuous loaders / unloaders and conveyor system should be adopted.	a) The conveyor is totally covered with bare galvalume sheet to protect the emission of coal during coal

			conveying process.
	b) Dust extraction system should be provided at all transfer points.	b) .	At all the coal transfer towers an in build high efficient water sprinkler system is installed to mitigate the dust emission.
	c) To minimize dust from the stack yard, proper water spraying should be done	c)	Water sprinklers, are installed all around the stock yard to suppress the dust emission.
	d) Compound wall of adequate height shall be made around the stack yard area	d) A is c	A compound wall of sufficient height s constructed on all sides of the coal stock yard to protect the dust emission.
4	Continuous Ambient Air Quality Monitoring Stations with computer printing arrangements shall be installed at strategic locations inside Port and neighbour hood for monitoring dust and shall be displayed online at the Main gate.	M/s Amb stati CAR With oper Solu qual by M once meet that also the a Onli been cont	. ECTPL has installed Continuous bient Air Quality Monitoring ions installed and it is connected to E air center – TNPCB. In regard to M/s. ETTPL, the rator has engaged M/s Green Chem ation Pvt. Ltd. The air and water lity monitoring is being carried out M/s Green Chem Solution Pvt. Ltd e in a month and ensured that it ts as per TNPCB norms. Apart from Tamilnadu Pollution Control Board visits the terminal for monitoring air quality once in a year.
5	To contain noise levels within the prescribed standards roofed conveyor belts should be deployed. Noise pollution in the port area should be reduced by putting up sound barriers at suitable locations. To protect the workers from high noise levels ear muffs / plugs should be provided.	Com M/s plug back and redu With conv	aplied with. . ETTPL has provided ear muffs/ gs to Workers. Moreover DG power kup are with acoustic arrangements other DGA set have silencer to ace noise level. In regard to M/s ECTPL, the veyor is totally covered to protect emission of coal and noise.

6	The unit has to furnish the ROA of the split coal collected from seabed during annual maintenance / periodic maintenance dredging analyzed for heavy metals and other toxic metals.	Being complied with. Kamarajar Port is carryout the analysis of seabed for heavy and toxic metals during the periodic maintenance dredging. Heavy metals are also monitored in the seawater and also in the sediments during dredging activities.
7	Water quality monitoring stations at strategic points must be set up in the project area to monitor water quality and marine pollution at regular intervals.	Complied with. Port has engaged M/s. Hubert Enviro Care Systems Pvt. Ltd. Chennai (MoEF & CC/ NABL certified) to carry out regular sampling and testing of various environmental parameters which includes marine water quality and ground water. ROA is submitted to TNPCB on monthly basis. M/s. ECTPL has installed 20 Nos. of piezometric well installed around the stack yard at ECTPL to monitor the ground water quality. ROA is submitted to TNPCB on monthly basis. With regard to M/s. ETTPL, there is no
8	The quality of treated effluents solid wastes, emissions and noise level etc must confirm to the standards laid down by the competent authorities including Central/State pollution Control Board and under the Environmental (Protection Act) 1986 whichever are more stringent.	Complied with. Port is regularly monitoring the emission and noise levels inside the port premises and it is found to be within the standards prescribed by Tamil Nadu Pollution Control Board. With regard to M/s. ETTPL, there is no generation of effluent by terminal. Noise level inside the terminal premises are monitored regularly and found to be within the standards prescribed by Pollution Control Board. DG power backup which is with an acoustic arrangement and other DGA sets have silencer to reduce noise level. M/s. ECTPL effluents, emission level and noise are within the limit. The

		results are enclosed.
9	Dredging operations must be undertaken in stages in consultation with some expert institution like CWPRS, in such a way as to ensure that these operations do not deteriorate the surface water quality which must be maintained within the prescribed standards. Water parameters should be measured on regular intervals to monitor water quality. Dredging material should not be used for filling up any water body.	Complied with. Port is monitoring the water quality and sediment quality, pre-dredging, during dredging and post dredging operations.
10	The port shall ensure that no spillage of POL/Chemicals handled is occurred in sea while unloading them either from ship or barge vessels to pipeline/road vessels.	Complied with. Port ensures that no spillage of POL/Chemicals in sea during the operations. The terminal where the POL/Chemicals, are being transferred from the ships to the terminal tank yard through unloading arms/hoses having leak proof systems. Any eventual spill will be tackled with required booms and skimmers. The POL/Chemicals are transferred to the tank farms through dedicated pipelines. KPL is having a dedicated Oil Spill Response team working 24 x 7 basis. Vessels berthed at Kamarajar Port Limited are being garlanded by booms to prevent the spread of oil spills (if any) during operations. To prevent spillage from loading arm connection, collection trays are provided. Dock line integrity is maintained by hydraulics test once in year and pneumatic tests are conducted before each discharge operation from ocean tanker and thickness tests are also carried out for the pipeline regularly. With regard to M/s ECTPL, the terminal is not handling POL/Chemicals.

11	The port shall have adequate	Complied with.
	contamination boom facility with	
	skimmer to contain and recover the	With regard to the oil spill
	spillage of POL in the sea if any.	contingencies, KPL falls under
		category B. Port is having oil spill
		contingency plan prepared in line with
		NOS-DCP. Necessary chemicals,
		booms, dispersants, etc. are readily
		available for containment of any
		is having a dedicated Oil Spill
		Response team working 24 x 7 basis
		Vessels berthed at Kamarajar Port
		Limited are being garlanded by booms
		to prevent the spread of oil spills (if
		any) during operations.
		BOT operator M/s. Ennore Tank
		Terminals Pvt. Ltd has provided
		contain any eventual oil spill Port is
		equipped with facility to contain Tier $-I$
		oil spills.
		with regard to M/s ECIPL, the
		CONTROL KIT
12	A proper safety audit should be carried	Complied with.
	out by specialized agency and their	M/s. Ennore Tank terminals Pvt. Ltd.,
	implemented	one of the BOT operator operating
	implementeu.	petroleum products and chemicals
		has carried out the safety audit
		through M/s.BUREAUVERITAS for
		the year of 2021. Safety audit
		recommendations are implemented.
		KPL had carried out safety audit of
		the terminals through National Safety
		Council during the year 2020, and
		requested the terminal operators to
		comply with the shortcomings; the
		of compliance to the shortcomings
		or compliance to the shortcommigs.

13	An environment division must be set up	At present KPL is having an
	in Ennore port headed by Environment	Environmental Division with the
	Manager with appropriate strength of	following officers.
	Environment Engineers. Forest officers.	
	forest guards and other laboratory staff.	(i) Chief Manager(HSE),
	An environmental laboratory for Air	(ii) Sr.Manager(HSE) and
	Water and solid waste monitoring must	(iii) Executive (AHO)
	be set up with adequate equipment and	to take care of the environmental
	qualified staff.	requirements of the port.
		The details of expenditure incurred
		towards Environmental management
		for the period of July to December 2021
		by KPL is furnished herewith as below:
		1. Environmental Monitoring =
		Rs. 9,56,840/- (excluding GST).
		2. Solid Waste Management =
		Rs. 4,53,758/- (excluding GST).
		Dort has approved M/a Unhart Enviro
		Port has engaged M/S. Hubert Enviro
		& CC / NABL certified) to correctly the
		regular environmental monitoring
		regular environmentar monitoring.
		TNPCB is also monitoring the Ambient
		Air Quality and Noise Levels at various
		locations inside the port.
		With regard to M/s ETTPL, the terminal
		operator has appointed the safety
		officer to take care of safety and
		environment. ETTPL has engaged M/s
		Green Chem Solutions Pvt Ltd, a
		laboratory for monitoring various
		environmental parameters inside the
		terminal premises.
14	The unit must ensure that all activities	Complied with.
	carried out in the area falling under	VDI is fallowing all the same is
	coastal Regulation Zone are regulated as	KFL is ionowing all the provisions
	per the provision contained in the CRZ	Contained in the Coastal Regulation
	Notification 1991 as amended.	Zone Notification.

15	The unit has to implement Environmental Management Plan as envisaged under Environmental Impact assessment study as Per EIA Notification, 1994 as amended by the Ministry of Environment and Forest, Government of India.	Noted and being complied with.
16	The port shall maintain the marine eco system.	Complied with. Port is maintaining the marine eco system by way of regular monitoring.
17	The project authorities must ensure that no cutting of trees takes place in the project area and shall develop green belt.	Complied with. No trees were cut in the project area. In case cutting becomes essential, equivalent plantation will be made.
18	No reclamation of water bodies should be undertaken in CRZ using dredged materials.	Noted. No reclamation of water bodies is undertaken in the CRZ areas using dredged material.
19	The nature of drainage of the terrain should not be affected by filling of low lying areas with dredged material.	Noted and complied with.
20	The possibilities of dumping the dredged spoil north of northern breakwaters in areas prone to sea erosion by creating sand dunes and/or for beach nourishment may also be explored.	Complied with. About 4.0 million m ³ of dredged material are dumped in the north of north break water as beach nourishment.
21	Wherever mangroves are present within the project area, it should not be disturbed.	Noted and complied with. Mangroves present in the project area are not disturbed.
22	The Ennore Port Limited shall develop additional green belt in an area of 150 hectares and install additional air quality monitoring stations with continuous display as assured vide letter dated 7.11.2005.	Complied with. Green belt being developed inside the port in a phased manner. Port has engaged M/s L&T Infrastructure Engineering Ltd., for the preparation of Bio-Diversity Management Plan. Based on the green belt map submitted by the firm, port has planned for the development of

	green belt of 68.66Acres inside the custom bound area and 621.91 Acres outside the custom bound area.
23	The details of dust suppression system adopted are mentioned at S.No 2 and 3 of this report.

Point wise compliance report on the conditions issued by Tamil Nadu State Coastal Zone Management vide Letter No. 30060/EC.3/2005-1 dated 06.12.2005

1	No reclamation of water bodies should be undertaken.	Complied with. KPL has not reclaimed any water bodies for the development of above terminals.
2	To ensure that the natural drainage of the terrain is not affected by filling of low lying areas with dredge spoils thus leading to inundation or water logging.	Complied with. The dredge spoil was used for the reclamation of 500 acres of land owned by port for the development of coal and iron ore stackyards.
		(Form-A) submitted to MoEF, for obtaining Environmental Clearance for Ennore Port Expansion proposals, Port has mentioned in the application that it would make use of the available materials to raise about 500 acres of low lying lands to (+) 2.50 M level for developing it as stack yards for coal and iron ore. Accordingly, the stock yard for the coal, iron ore, were developed in these lands.
3	To explore the possibilities of dumping the dredged spoil north of northern breakwaters in areas prone to sea erosion by creating sand dunes and/or for beach nourishment.	Complied with. About 4.0 million m3 of dredged material was dumped in the north of northern breakwater for beach nourishment.

4	The mangroves present near the project area should not be disturbed and action plan to conserve them may be indicated	While executing the project it was ensured that no mangroves were disturbed due to the construction of conveyor belt.
		KPL has conducted a study "Action plan and Ecological studies for Kamarajar Port" through National Centre for Sustainable Coastal Management, a unit of MoEF&CC, during May 2017. The report has identified the mangroves and also suggested various mitigation measures.
		Further, KPL has prepared Bio- Diversity Management Plan for Kamarajar Port Limited" through M/s L&T Infrastructure Engineers Ltd., and submitted to Tamilnadu Biodiversity Board (TNBB) for validation and approval. TNBB has accorded the approval vide their letter dated 31.12.2021. The copy of the letter is enclosed herewith as Annexure-J.
		The Bio-Diversity Management Plan will be implemented as per the timelines indicated.



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ANNEXURE – 1

(Environment Monitoring Report Jan'22- Jun'22)

REPORT ON

COMPREHENSIVE ENVIRONMENTAL MONITORING FOR

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED (AECTPL) (WITHIN KAMARAJAR PORTLIMITED) VALLUR POST, PONNERI TALUK, CHENNAI -600120

JANUARY 2022 - JUNE 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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ii.	Ambient Air Quality	19
iii.	Ambient Noise Level Intensity	25
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Index for Table

I. INTRODUCTION

M/s. Adani Ennore Container Terminal Pvt Ltd (AECTPL) located inside Kamarajar Port, Ennore is operating container berth and handling containerized Import/Export cargoes.

AECTPL have engaged M/s. Green Chem Solutions (P) Ltd, an Accredited Consultant by NABL to carry out the Comprehensive Environmental monitoring studies in the Adani Ennore Port continuously as per the statutory requirement. This report covers the monitored environmental data for the month of Jan 2022 to June 22.

II. LOCATION OF THE PROJECT

The Project site is located at Port area, Ennore 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 Water
- 6. Potable water
- 7. DG Set emission

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

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 03 stations for analyzing the following parameters: PM10 PM2.5 SO ₂ NO ₂ CO Lead Ozone Ammonia Benzene Benzo Pyrene Arsenic Nickel	Weekly Twice
3.	Ambient Noise	Collection of Noise levels on hourly basis at 3 locations • L _{eq} - Day (Max and Min) • L _{eq} - Night (Max and Min)	Monthly Once
4.	Marine Sampling		
	5	remon V"	

SCOPE OF WORK

4a	Surface and Bottom	Collection of Surface and Bottom Water	
14.	Wator	analyzed for - 2 location	
	water	Temperature	
		• pH @ 25°C	
		Total Suspended Solids	
		• BOD at 27 °C for 3 days	
		BOD at 27 C TOF 5 days Dissolved everyop	
		Dissolved oxygen Califating at 25 %	
		• Salinity at 25 °C	
		• Oil & Grease	
		 Nitrate as No₃ 	Monthly Once
		 Nitrite as No₂ 	
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		Total Nitrogen,	
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		• COD	
		 Total bacterial count, 	
		Coliforms	
		Escherichia coli	
		Salmonella	
		Shigella	
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	100 C 100 C	Vibrio parahaemolyticus	
	100 C 200 C 200 C	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 H₅ OH	
	Logo,	 Total Hardness as CaCO₃ 	
	Sec.	 Total Alkalinity as CaCO₃ 	
		• Sulphide as H ₂ S	
		 Sulphate as SO₄ 	
		Anionic surfactants as MBAS	
		Monocrotophos	
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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 Potassium	Monthly Once
4c.	Phytoplankton	 Total Chromium Petroleum Hydrocarbon Aluminium Total Nitrogen Organic Nitrogen Phosphorus Texture Total Count 	
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	Monitoring	 No. of species Chlorophyll-a Major Species 	Monthly Once
4d.	Zooplankton Monitoring	Total CountNo. of speciesMajor	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 - 1 locations	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	Sampling of Emission at 03 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 para	meters
	Auto weather stat	tion
2	Ambient Air Qua	lity
	Parameters	Method
	Respirable Suspended Particulate Matter (PM10)	IS 5182 Part 23 : 2006
	Particulate Matter PM2.5	GCS/Lab/SOP/087, CPCB Guidelines
	Sulphur dioxide as SO ₂	IS 5182 Part 2 : 2001 (Reaff. 2006)
	Oxides of Nitrogen as NO ₂	IS 5182 Part 6 : 2006
	Lead as Pb	IS 5182 Part 22 : 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	IS 5182 Part 10: 1999 (Reaff. 2009
]
	Ozone as O ₃	IS 5182 Part 9 : 1974 [Reaff.2009]
	Ammonia as NH ₃	GCS/Lab/SOP/086, CPCB Guidelines
	Benzene (α) pyrene	IS 5182 - Part 12
	Benzene as C ₆ H ₆	IS 5182 Part 11 : 2006
3	Ambient Noise Mon	itoring
	L _{eq} Day & Night	Instrument Manual,
		GCS/LAB/SOP/Noise/001
4	Marine Samplin	ADIA Mathada 22 rd Edition 2017
	Surface and Bottom water	APHA Methods 23 th Edition, 2017
	Sea Sediment	standard Methods for examination
	Phytoplankton Monitoring	
	Zooplankton Monitoring	5025 B
	Microbiological Monitoring	LISERA Test Methods
	Primary Productivity Monitoring	OSEI A Test Methods
	Phytobenthos Monitoring data	1.24
	Total Fauna Monitoring	
5	SIP water Analy	VSIS
	pr, iss, bob, raecal collionits	APHA Methods 25° Edition, 2017 Standard Mathods for examination
		of Water and Waste water and IS
6	Drinking Water An	alvsis
0	As per IS 10500 · 2012 - 36 Parameters	APHA Methods 23 rd Edition 2017
		Standard Methods for examination
		of Water and Waste water and IS
		3025
7	Emission Monitor	ring
-	PM, Carbon Monoxide, $NO_x - NO_2$, SO_2	IS 11255 Methods of measurement
	,, () <u>-</u> -	of emissions from Stationary source
		· · · · · · · · · · · · · · · · · · ·

V. ENVIRONMENTAL STUDIES - JAN 2022 TO JUNE 22

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 3 locations.
3.	STP water	Collection of STP Inlet & outlet water at one location
4.	Ambient Noise	Collection of Ambient noise levels for day and night at 3 locations
5.	Potable Water	Collection of Potable water at Canteen Building
6.	Marine Water and Marine Sediments	Collection of Marine water and Marine Sediments at One locations
7	DG Set Emissions	Collection of DG Set Emission at 4 locations.



i. METEOROLOGICAL DATA

Meteorological data was collected on hourly basis by installing an auto weather monitoring station at Plant site. The report depicted here under represents the data for Jan 2022 to June 2022. The Detailed report has been is enclosed as Annexure - 1 The following parameters were recorded

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

Α	nr	nex	xu	re	-	1

Jan - 2022

Date Tem	Ambien peratur	t e (°C)	Atmospheric Pressure (mbar)		Predominant wind Direction	w	ind Spe (m/s)	ed	Rela	tive Hur (%)	nidity	Rainfall		
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.01.22	25.6	27.9	26.9	1013	1016.8	1014.9	NNE	2.7	4	3.1	82	89	85.2	0.4
02.01.22	25.9	28.8	26.9	1012.1	1016.3	1014.0	NNE	1.8	4	2.8	77	85	81.1	0.0
03.01.22	25.8	27.9	26.6	1012	1015.3	1013.4	NNE	1.3	3.6	2.4	73	82	77.6	0.0
04.01.22	24.9	27.6	26.1	1011.9	<mark>1016</mark> .2	1013.7	NNE	1.8	3.1	2.6	68	79	74.4	0.0
05.01.22	21.5	27.3	25.1	1011.8	1015.4	1013.5	NNE	0.9	4	2.5	74	91	81.2	0.0
06.01.22	22.1	27.9	25.7	<mark>101</mark> 0.3	1015.3	1012.6	NNE	0.9	4	1.9	76	93	83.3	0.0
07.01.22	22.4	29.1	26.5	1010.9	1 <mark>015.2</mark>	1012.8	NE	0.4	2.7	1.5	74	93	81.3	0.0
08.01.22	26.1	28.8	27.1	1011.4	101 <mark>5.7</mark>	1013.2	NE	1.3	2.7	1.9	74	83	79.5	0.0
09.01.22	23.6	28.6	26.5	1009.5	1013.8	1011.6	NE	0.4	2.2	1.4	75	90	80.7	0.0
10.01.22	22.6	28.1	26.5	1010	1013.9	1011.7	E	0.9	3.6	2.0	79	92	83.1	0.0
11.01.22	25.9	29.2	27.3	1009.2	1013.4	1011.2	NNE	1.3	2.7	1.8	77	86	82.5	0.0
12.01.22	26.3	28.3	27.2	1008.9	1012.8	1010.8	Е	1.3	5.8	3.3	77	86	82.3	0.0
13.01.22	26.5	27.9	27.2	1007.8	1012.3	1010.1	ESE	4	6.3	5.1	81	87	84.7	0.0
14.01.22	25.3	28.2	27.1	1007.9	1012.4	1009.9	ESE	0.9	5.4	3.2	82	92	85.8	1.4
15.01.22	24.5	29.3	27.3	1009	1013	1011.0	NE	0.4	2.7	1.7	80	93	85.5	1.8
16.01.22	26.2	28.8	27.4	1010.6	1014.9	1012.6	NNE	1.3	3.1	2.2	78	86	81.9	0.0
17.01.22	21.8	27.8	25.1	1012.1	1016.2	1013.6	WNW	1.3	4	2.3	83	94	84.0	26.8
18.01.22	22.4	27.8	25.1	1011.1	1016.2	1013.6	NNE	0.4	4	2.3	74	94	84.0	0.0
19.01.22	21.9	28.6	25.3	1009.4	1014.5	1011.9	NNE	0.4	2.2	1.5	63	93	80.0	0.0
20.01.22	21	27.2	25.3	1007.8	1013	1010.2	ESE	0.9	3.6	2.3	72	91	78.0	0.0
21.01.22	21.8	27.1	25.2	1007.3	1012.5	1009.7	SSE	0.9	6.3	3.7	73	93	83.0	0.0
22.01.22	23.6	27.1	25.7	1005.6	1010.5	1008.0	SE	2.2	5.4	4.2	85	93	88.0	0.0
23.01.22	24.3	28.7	26.6	1005.7	1010.2	1008.0	SE	2.2	6.3	4.3	76	93	86.8	0.0
24.01.22	24.5	27.3	26.2	1006.2	1010.1	1007.9	SE	0.4	4.5	2.5	79	89	83.8	0.0

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F														
25.01.22	23.6	27.6	25.9	1006.2	1010.7	1008.5	SE	0.4	4.9	2.9	79	93	85.3	0.0
26.01.22	25.4	27.5	26.6	1007.4	1011.2	1009.3	SE	2.2	4.5	3.8	77	85	80.1	0.0
27.01.22	26	28.8	27.1	1008.3	1011.9	1010.0	NNE	0.9	3.6	2.3	72	82	78.1	0.0
28.01.22	26.1	28.8	27.0	1009.4	1014	1011.5	NNE	2.2	3.6	2.8	74	83	78.8	0.0
29.01.22	25.8	27.3	26.5	1010.7	1014.8	1012.4	NNE	1.3	4.5	2.8	75	83	78.9	0.0
30.01.22	24	28.2	26.6	1009.1	1014.2	1011.5	NNE	0.9	3.1	1.9	74	90	79.4	0.0
31.01.22	22.5	28.2	26.0	1008.7	1013	1010.6	ENE	0.4	3.1	1.7	74	93	81.6	0.0
						Fe	b - 2022							
Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	w	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.02.22	22.3	27.8	25.6	1008.1	1012.6	1010.1	ESE	0.9	3.1	1.9	73	92	79.9	0.0
02.02.22	21.8	26.8	24.9	1009.2	1013.2	1010.9	ESE	0.4	4	2.6	71	92	79.1	0.0
03.02.22	21.2	26.9	25.3	1007.9	1013	1010.3	SE	0.4	4.9	3.3	72	91	77.7	0.0
04.02.22	22.4	27.3	25.9	1005.9	1011	1008.5	SE	0.9	4 .5	3.4	77	91	81.8	0.0
05.02.22	23.7	28.5	26.5	1007.7	1011. <mark>9</mark>	1009.5	E	0.9	4.5	2.7	79	92	84.0	0.0
06.02.22	26.4	28.5	27.3	1010.2	101 <mark>4.5</mark>	1012.2	E	1.3	3.6	2.6	75	83	78.4	0.0
07.02.22	22.5	29.2	26.9	1010.7	<mark>1015</mark>	1012.7	NNE	0.4	2.2	1.2	68	90	75.9	0.0
08.02.22	22.5	29.1	26.8	1009.2	<mark>1014.</mark> 2	1011.6	NE	0.4	2.7	1.7	65	88	74.3	0.0
09.02.22	25.9	28.7	27.1	1009.9	1014.4	1011.8	NE	1.3	2.7	1.9	69	77	72.3	0.0
10.02.22	21.8	28.4	26.4	1008.8	1013.1	1011.0	NNE	0.9	4	2.3	68	90	75.8	0.0
11.02.22	22.8	28.9	26.5	1009.3	1013.1	1010.9	NNE	1.3	3.6	2.5	72	91	78.0	0.0
12.02.22	26.1	28.8	27.3	1008.6	1013.2	1010.5	NNE	1.3	3.1	2.2	72	79	76.4	0.0
13.02.22	23.2	29.4	27.0	1007.8	1012.3	1009.8	NNE	0.9	2.7	1.5	69	90	76.5	0.0
14.02.22	25.7	28.6	27.0	1007.7	1012.2	1009.7	NE	0.4	3.1	2.0	72	84	76.8	0.0
15.02.22	25.6	28.7	26.8	1007.9	1012. <mark>9</mark>	1009.9	NE	0.9	2.2	1.6	66	75	71.9	0.0
16.02.22	23.3	28.4	26.4	1005.1	1010.4	1008.0	NNE	0.4	2.2	1.3	69	85	74.0	0.0
17.02.22	21.9	29	27.3	1004.9	1011.4	1008.8	NNE	0.4	3.1	2.2	67	80	75.7	0.0
18.02.22	26.1	29	27.3	1006.4	1011.4	1008.8	NE	1.8	3.1	2.2	71	80	75.7	0.0
19.02.22	25.3	28.9	27.2	1008.8	1013.4	1010.8	NE	0.9	2.7	1.5	74	85	78.0	0.0
20.02.22	22.2	27.9	26.0	1007.4	1012.1	1009.5	ESE	0.4	4.9	2.7	76	93	82.8	0.0
21.02.22	22.8	27.8	26.1	1005.9	1010.4	1007.9	SE	0.9	6.3	4.1	81	94	87.2	0.0
22.02.22	23.8	28.6	26.8	1007.6	1012.7	1010.3	ESE	0.4	4	2.6	80	95	85.7	0.0
23.02.22	26.4	29.3	27.5	1011.2	1015.3	1013.2	E	2.2	4	2.9	74	83	78.4	0.0
24.02.22	26.3	29.4	27.5	1012.1	1016.7	1014.1	NE	0.9	2.2	1.5	71	80	75.7	0.0
25.02.22	22.8	29.2	26.8	1011.1	1015.5	1013.2	NE	0.9	2.7	1.7	68	87	74.2	0.0
26.02.22	25.8	29.2	27.4	1011.6	1015.7	1013.4	NE	1.3	2.7	2.0	74	80	76.6	0.0
27.02.22	26.2	28.9	27.4	1011	1015.6	1013.2	NNE	1.3	3.1	2.1	72	80	76.6	0.0
28.02.22	22.6	29.3	26.7	1010.1	1015	1012.5	NNE	0.4	3.1	1.7	72	91	80.4	0.0

						Ma	r - 2022							
Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pre (mbar)	essure	Predominant wind Direction	W	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	mm
01.03.22	22.8	29.6	26.7	1010.8	1014.4	1012.4	NNE	0.4	3.1	1.8	58	93	79.4	0.0
02.03.22	21.8	29.3	26.1	1009.7	1014.4	1011.7	NNE	0.9	3.1	2.1	74	92	83.3	0.0
03.03.22	23.2	29.2	27.1	1009.1	1013.7	1011.2	NNE	0.9	3.1	2.5	76	93	82.6	0.0
04.03.22	24.5	29.7	27.6	1009	1012.8	1010.7	NNE	2.2	3.6	2.9	69	89	76.4	3.0
05.03.22	24.3	29.7	27.7	1008.4	1011.9	1010.1	NNE	1.8	4.9	3.2	69	91	76.7	0.0
06.03.22	26.4	29.1	27.7	1008.4	1012.2	1010.2	NNE	2.2	5.4	3.2	56	80	71.3	0.0
07.03.22	27.1	29.7	28.2	1008.6	1012.1	1010.4	NNE	0.9	3.6	2.4	69	83	77.9	0.0
08.03.22	23.5	29.6	27.4	1008	1012.5	1010.3	NNE	0	2.7	1.3	75	93	81.8	0.0
09.03.22	23.4	30.1	27.2	1007.4	1011.8	1009.7	NNE	0.4	2.7	1.4	70	95	81.3	0.0
10.03.22	22.9	29.7	26.8	1007.7	1011.3	1009.4	NNE	0.4	2.7	1.3	73	92	82.7	0.0
11.03.22	23.6	29.1	27.0	1007	1011.2	1009.1	NNE	0.4	2.2	1.3	76	92	82.3	0.0
12.03.22	22.9	30.3	26.8	1006.4	1010.8	1008.6	NNE	0.4	2.2	1.4	66	94	82.5	0.0
13.03.22	23.5	30.8	27.4	1007.3	1010.8	1009.0	NNE	0.4	2.2	1.2	68	91	79.9	0.0
14.03.22	23.8	30.7	27.5	1006.8	1011.6	1009.0	NE	0.4	2.2	1.4	69	89	80.2	0.0
15.03.22	23.8	30.3	27.5	1005.3	<mark>1009.6</mark>	1007.6	E	0	4	2.1	63	94	80.2	0.0
16.03.22	23.7	30	27.3	1003.7	1008.4	1006.1	SE	0.9	5.8	3.1	62	90	79.2	0.0
17.03.22	24.4	28.9	27.3	1003	1008.3	1005.5	SE	0.9	7.2	4.7	65	93	85.9	0.0
18.03.22	23.4	28.9	27.3	1002.3	1008.3	1005.5	SE	1.8	7.2	4.7	78	93	85.9	0.0
19.03.22	26.8	29.4	28.0	1002.8	1008.3	1005.3	SE	2.2	5.8	4.5	79	91	87.0	0.0
20.03.22	27.2	29.7	28.4	1002.5	1007.1	1004.9	SE	1.3	6.3	3.9	85	95	89.5	0.0
21.03.22	27.3	30.4	28.9	100 <mark>2.</mark> 3	10 <mark>06.7</mark>	1004.8	SE	0.4	4.5	3.5	82	95	89.8	0.0
22.03.22	27.9	34	29.9	1003	1007. <mark>5</mark>	1005.3	SE	1.3	4	2.9	62	95	82.7	0.0
23.03.22	28.2	29.8	29.0	1003.6	1008.2	1005.7	SE	2.2	5.4	4.0	86	92	89.3	0.0
24.03.22	27.2	30.1	28.8	1004.3	1009.2	1006.4	SE	0.4	5.8	4.1	82	91	87.7	0.0
25.03.22	27.7	29.8	28.8	1005.4	1009.6	1007.6	SE	2.7	5.8	4.6	82	89	86.5	0.0
26.03.22	27.3	29.9	28.8	1007.3	1012	1009.2	SE	1.8	7.2	4.8	82	90	86.3	0.0
27.03.22	27.4	29.9	28.7	1007	1011.9	1009.4	SE	0.9	7.6	4.9	83	90	87.2	0.0
28.03.22	27.6	29.7	28.7	1006.5	1011.3	1008.6	SSE	3.6	7.2	5.4	82	91	87.8	0.0
29.03.22	27.7	30.1	28.8	1005.2	1009.4	1007.2	SSE	3.1	8.9	5.8	81	92	87.5	0.0
30.03.22	28	31.2	29.0	1004.3	1009.1	1006.6	SSE	4	8.5	6.0	77	94	88.2	0.0

Apr - 2022

Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	w	ind Spe (m/s)	ed	Rela	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.04.22	27.9	30.1	28.7	1005.4	1010.1	1007.5	NNE	3.6	8.9	6.0	82	93	88.0	0.0
02.04.22	27.8	29.7	28.7	1006.7	1011.6	1008.9	NNE	3.1	7.6	5.3	85	91	88.0	0.0
03.04.22	26.3	30	28.5	1005.7	1010.7	1008.4	NNE	0.4	6.3	4.3	83	92	87.6	0.0
04.04.22	27.8	29.6	28.7	1007.6	1011.8	1009.2	NNE	3.1	5.8	4.7	83	90	86.5	0.0
05.04.22	27.8	29.8	28.8	1008.6	1012.7	1010.8	NNE	2.7	6.7	5.0	82	87	84.5	0.0
06.04.22	25.7	29.5	28.4	1007.9	1013.1	1010.8	NNE	0.9	5.8	3.7	82	93	85.9	0.0
07.04.22	26.6	29.9	28.8	1007.2	1011.3	100 <mark>9.6</mark>	NNE	0.9	5.8	3.6	82	91	85.6	0.0
08.04.22	26.9	30.6	29.3	1006.4	1011.2	1008.9	NNE	0.4	4.9	2.8	78	91	83.3	0.0
09.04.22	27.7	30.8	29.5	1005.6	1009.5	1007.8	NNE	0.9	4.5	2.8	81	89	84.2	0.0
10.04.22	28.9	31.6	30.1	1005.2	1008.9	1007.2	NNE	0.4	3.6	1.8	79	87	83.2	0.0
11.04.22	28.8	31	29.8	1004.1	1008.7	1006.5	NNE	0.4	3.6	2.2	81	86	83.3	0.0
12.04.22	27.7	31	29.7	1003.1	1008.1	1005.9	NNE	0.9	4.9	2.7	80	89	84.2	0.0
13.04.22	27.7	30.3	29.4	1003.3	1007.1	1005.4	NNE	0.4	4.9	3.2	83	93	86.6	1.2
14.04.22	27.3	30.8	29.6	1003.3	1008.3	1005.6	NE	0.4	7.2	4.2	81	92	85.5	0.0
15.04.22	28.7	30.7	29.7	1002.4	1007.1	1005.1	Е	2.7	8	6.0	79	91	85.9	0.0
16.04.22	29.1	30.7	29.7	1001.4	1 <mark>005.9</mark>	1003.9	SE	3.6	7.2	5.4	82	93	87.7	0.0
17.04.22	28.9	30.3	29.4	1003	100 <mark>8.9</mark>	1006.7	SE	3.6	5.8	4.1	75	90	87.6	0.0
18.04.22	28.8	30.3	29.4	1004.4	1008.9	1006.7	SE	0.9	5.8	4.1	82	90	87.6	0.0
19.04.22	28.4	30.4	29.4	1005.6	1009.6	1007.9	SE	1.8	6.3	4.3	85	90	87.4	0.0
20.04.22	28.4	30.7	29.5	1004.1	1008.3	1006.5	SE	1.8	6.7	4.5	83	90	87.4	0.0
21.04.22	28.6	30.5	29.4	1004	1008.2	1006.2	SE	3.1	6.7	5.0	82	90	85.4	0.0
22.04.22	28.5	30.4	29.4	1005.9	1009.5	1007.6	SE	1.3	5.8	4.2	80	86	83.5	0.0
23.04.22	27.6	30.7	29.6	1005.5	1009.5	1007.8	SE	0.9	6.3	4.4	82	90	85.4	0.0
24.04.22	28.1	30.5	29.4	1004.2	1008.9	1006.6	SE	0.4	5.8	3.7	81	90	85.2	0.0
25.04.22	27.7	30.7	29.4	1003.2	1008	1005.7	SE	2.7	7.6	5.6	80	91	85.4	0.0
26.04.22	28.2	31.6	29.6	1004	1008.1	1006.1	SE	2.7	7.6	5.1	79	89	86.2	0.0
27.04.22	28.4	30.4	29.4	1003.3	1007.9	1005.8	SE	2.7	7.2	5.0	83	90	87.4	0.0
28.04.22	28.1	30.7	29.4	1004.3	1008.8	1006.5	SSE	2.2	7.2	5.0	81	90	87.1	0.0
29.04.22	28.7	30.7	29.6	1003.7	1007.9	1006.3	SSE	2.7	6.3	4.7	84	93	88.5	0.0
30.04.22	28.8	30.9	29.7	1001	1007.4	1004.3	SSE	4	7.2	5.4	86	94	90.0	0.0

Date Ambient Temperature (°C)		t e (°C)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	W	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall	
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.05.22	28.8	30.7	29.8	999.7	1005.5	1003.0	SSE	3.1	7.6	5.5	84	94	90.9	0.0
02.05.22	27.2	33.9	29.9	1000.7	1005.3	1003.1	SE	1.3	5.4	3.4	66	95	84.0	0.0
03.05.22	28.7	30.9	29.8	1002.4	1006.1	1004.3	SE	2.7	6.3	4.5	87	95	91.0	0.0
04.05.22	28.8	30.8	29.8	1003.9	1007.8	1005.7	SSE	2.7	5.4	4.0	85	94	90.2	0.0
05.05.22	27.7	30.6	29.6	1002.6	1007	1005.2	ESE	0	5.8	3.0	81	91	85.8	0.0
06.05.22	29.1	31.3	30.1	1001.5	1006.1	1004.4	SE	1.3	5.8	4.2	83	92	88.8	0.0
07.05.22	27.2	32.6	30.0	1000.9	1005.6	1003.7	ESE	0.4	4.5	2.4	75	93	85.0	0.0
08.05.22	28.4	32.7	30.4	998.9	1003.7	1001.6	ENE	0.4	3.6	1.8	81	93	87.2	0.0
09.05.22	28.7	32.8	30.3	996.3	1001.6	999.1	NW	0.4	5.4	2.8	69	92	84.4	0.0
10.05.22	23.3	29.7	26.8	994.3	1002.7	998.1	SW	1.3	5.4	3.3	81	94	88.9	17.2
11.05.22	26.1	31.6	28.4	996.4	1001.9	999.2	WSW	1.8	5.8	3.5	74	90	79.1	0.0
12.05.22	25	29.6	27.4	1000.2	1 <mark>003.1</mark>	1001.6	WSW	3.1	8	5.0	73	94	81.7	3.0
13.05.22	25.3	33.1	28.3	999.4	<mark>1003.7</mark>	1001.5	SSW	2.7	5.8	4.5	72	91	85.9	0.0
14.05.22	27.9	33.3	29.8	1000.3	1004.4	1002.0	SSE	1.8	5.4	3.9	73	90	84.7	0.0
15.05.22	26.9	30.5	29.2	1000.7	100 <mark>5</mark> .3	1003.1	SE	2.2	5.8	4.4	80	90	87.1	0.0
16.05.22	25.9	31.7	28.5	1000.2	<mark>1004</mark> .6	1002.8	SE	2.2	4.9	3.6	78	93	87.9	0.0
17.05.22	27.1	30	29.2	999.4	1004.1	1002.6	SE	0	8.5	6.2	85	92	88.5	0.0
18.05.22	28.5	30	29.2	1000.6	1004.1	1002.6	SSE	3.6	8.5	6.2	85	92	88.5	0.0
19.05.22	28.4	30.2	29.3	1001.2	10 <mark>05.2</mark>	1003.4	SSE	4.5	7.6	6.2	83	93	87.3	0.0
20.05.22	26.6	34	29.8	1002.3	1006. <mark>2</mark>	1004.3	WSW	1.3	5.8	3.8	64	91	76.3	0.0
21.05.22	27.7	34.9	31.2	1000.4	1005.3	1003.0	WSW	2.2	5.8	3.8	59	82	69.3	0.0
22.05.22	29.3	36.3	32.3	998.2	1003	1000.8	SW	1.3	4.9	3.9	58	75	68.0	0.0
23.05.22	28.5	34.3	30.7	998.7	1002.6	1000.7	SE	2.7	6.3	4.4	64	91	78.1	0.0
24.05.22	29.2	34.9	30.6	1000.4	1006.5	1003.1	SE	1.8	6.3	4.4	66	93	84.6	0.0
25.05.22	29	33.7	30.4	1003	1007.4	1005.1	SE	1.8	5.8	3.7	69	91	83.4	0.0
26.05.22	28.8	32.3	30.2	1002.3	1007	1005.1	SSW	2.2	6.7	4.7	69	87	80.1	0.0
27.05.22	28.1	34.1	30.4	1002.4	1006.6	1004.6	SW	2.2	5.4	4.0	66	92	79.6	0.0
28.05.22	28.2	35	30.1	1001.4	1005.1	1003.4	SW	2.7	6.3	4.3	60	92	82.0	0.0
29.05.22	28.8	35.2	30.4	1001.5	1005	1003.3	SSE	2.2	6.3	4.8	62	92	82.1	0.0
30.05.22	28.6	34.6	30.1	1000.5	1004.6	1002.7	SE	2.2	6.3	4.8	66	93	84.0	0.0
31.05.22	28.7	36.3	30.7	999.8	1003.4	1001.9	SSE	1.3	6.3	4.5	61	93	81.0	0.0

May - 2022

Date	Temp	Ambien peratur	t e (oC)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	w	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	mm
01.06.22	28.9	34.9	30.8	999.5	1003.3	1001.7	SE	1.3	6.3	4.4	63	91	80.6	0.0
02.06.22	29.3	35	31.0	999.9	1003.5	1001.7	SE	1.3	6.3	4.1	64	91	80.3	0.0
03.06.22	29.2	33.9	30.8	999.9	1003.1	1001.4	SSE	0.9	6.7	4.5	66	92	81.1	0.0
04.06.22	29.1	32.6	30.1	1000	1003.4	1001.6	SSE	1.3	6.3	4.4	66	93	84.5	0.0
05.06.22	29.1	32.9	30.1	999.7	1003.2	1001.6	ESE	3.6	8	6.0	74	93	86.6	0.0
06.06.22	25.2	32.1	29.3	1001.4	1004.7	1003.1	SW	1.8	8	4.5	71	91	82.1	0.0
07.06.22	27.1	35.4	30.7	1000.9	1004.5	1002.8	SW	2.2	6.7	4.4	63	90	76.5	0.0
08.06.22	29.4	37.3	31.2	999.8	1004	1001.9	SSE	2.7	7.2	5.5	61	92	78.7	0.0
09.06.22	29.1	34.1	30.7	1000.4	1003.8	1002.0	SSE	0.9	6.7	4.4	65	93	81.5	0.0
10.06.22	29.1	37.1	31.4	1000.4	1005.3	1002.8	SSE	3.6	7.2	5.1	53	93	78.0	0.0
11.06.22	28.9	35.4	30.7	1002	1006.1	1003.9	SSE	3.1	6.7	5.0	58	92	79.2	0.0
12.06.22	28.8	35.9	30.8	1002.2	100 <mark>6.2</mark>	1004.1	ESE	1.8	6.3	4.4	59	93	81.0	0.0
13.06.22	26.6	33	29.9	1003.2	1 <mark>007.4</mark>	1005.2	SE	1.3	4.9	3.0	65	90	80.5	0.8
14.06.22	28.9	34.6	30.9	1002	<mark>1006.1</mark>	1004.3	SSE	2.2	5.4	3.9	67	90	82.3	0.0
15.06.22	27.4	31.9	29.8	1002	1006.1	1004.1	ESE	1.8	7.6	4.5	72	85	80.5	0.0
16.06.22	26.5	33.1	29.8	1001.9	1005.9	1004.3	ESE	0.9	5.4	3.7	69	88	82.5	0.0
17.06.22	28.1	30.4	29.2	1002	1006.3	1004.7	SSE	0.9	6.3	4.8	73	91	85.2	0.0
18.06.22	27.3	30.4	29.2	1002.6	1006.3	1004.7	SSE	1.3	6.3	4.8	81	91	85.2	1.0
19.06.22	22.9	30.6	29.2	1002.1	1007.5	1004.7	SSE	2.2	7.6	5.0	83	95	87.5	8.6
20.06.22	23	32.3	27.6	1000.7	10 <mark>05.4</mark>	1003.8	SSE	2.2	6.7	3.9	73	96	87.6	14.8
21.06.22	24.5	32.4	27.4	1000.1	1004.9	1002.6	SW	1.3	6.3	3.6	75	95	88.2	14.2
22.06.22	25.1	32.2	28.6	1001.8	1006	1003.8	SSE	0	5.8	3.3	71	94	87.6	6.2
23.06.22	28.1	29.3	28.9	1002.7	1006.2	1005.0	SSE	0.9	4.5	2.8	83	91	86.5	0.0
24.06.22	23.2	33.8	29.8	1000.2	1006.1	1003.6	SE	1.8	5.8	4.5	67	94	84.3	7.0
25.06.22	26.2	33.8	29.7	998.6	1003.7	1001.5	WSW	0.4	6.7	3.5	68	90	79.3	5.0
26.06.22	28	34.2	30.3	1000.1	1004.2	1002.1	SW	1.8	6.7	4.3	65	91	78.3	0.0
27.06.22	28.3	32.8	30.0	1002.4	1006.1	1003.9	WSW	0.9	4.9	2.8	68	88	78.4	0.0
28.06.22	27.2	32.1	29.6	1001.9	1005.7	1004.1	WSW	0	5.4	2.1	68	92	82.0	0.0
29.06.22	27.3	34	30.0	999.9	1003.9	1002.2	SSE	0.9	5.8	3.7	67	92	82.5	2.6
30.06.22	25.8	32.9	29.5	999.1	1003.8	1001.6	ESE	0.4	5.8	3.0	72	94	85.1	13.8

June - 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	9	22	18	1	1	3.46	51	6.9
ENE	1	14	12	0	0	0	1.78	27	3.6
ESE	0	3	10	33	11	13	3.80	70	9.4
N	0	2	4	2	0	0	2.22	8	1.1
NE	14	50	24	0	0	0	1.55	88	11.8
NNE	9	83	116	60	0	0	2.22	268	36.1
NNW	0	0	0	1	0	0	3.60	1	0.1
NW	3	3	6	10	2	1	2.85	25	3.4
S	0	2	0	4	1	1	3.66	8	1.1
SE	0	0	5	29	32	11	4.25	77	10.4
SSE	0	1	3	8	2	2	4.02	16	2.2
SSW	0	0	0	4	2	0	4.02	6	0.8
SW	0	5	4	3	1	0	2.95	13	1.7
W	23	5	1	1	0	0	1.70	30	4.0
WNW	8	14	8	10	0	0	2.22	40	5.4
WSW	9	3	3	0	0	0	1.32	15	2.0
		1 - 1		- 11 - 1				743	
Number of events	67	194	218	183	52	29	743		-
Events (%)	9.0	26.1	29.3	24.6	7.0	3.9		-	

WIND PATTERN - Jan- 2022

WIND PATTERN - Feb- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	1	5	26	18	0	0	2.23	50	7.5
ENE	0	15	33	4	0	0	2.22	52	7.7
ESE	1	3	17	37	5	0	2.68	63	9.4
N	0	2	0	1	0	0	2.20	3	0.4
NE	16	122	52	1	0	0	1.77	191	28.5
NNE	29	60	54	13	0	0	1.77	156	23.2
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	6	0	0	5	0	0	2.40	11	1.6
S	0	0	1	1	0	0	3.15	2	0.3
SE	1	0	1	25	13	10	4.12	50	7.5
SSE	0	1	1	6	0	0	2.70	8	1.2
SSW	0	0	0	0	0	0	0.00	0	0.0
SW	1	0	5	2	0	0	2.50	8	1.2
W	19	8	0	0	0	0	1.10	27	4.0
WNW	14	14	3	3	0	0	1.77	34	5.1
WSW	10	5	1	0	0	0	1.42	16	2.4
								743	
Number of events	98	235	194	116	18	10	671		
Events (%)	14.6	35.0	28.9	17.3	2.7	1.5			

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	3	8	3	0	0	2.45	14	1.9
ENE	5	10	7	5	0	1	2.38	28	3.8
ESE	2	0	4	8	8	11	3.65	33	4.4
N	1	3	14	5	0	0	1.92	23	3.1
NE	8	14	9	4	1	0	2.51	36	4.9
NNE	27	41	52	36	0	0	2.22	156	21.0
NNW	1	0	0	1	0	0	2.20	2	0.3
NW	8	1	2	6	3	0	2.76	20	2.7
S	1	2	9	16	3	3	3.39	34	4.6
SE	0	1	7	37	35	85	5.34	165	22.2
SSE	0	3	14	38	19	42	4.92	116	15.6
SSW	0	2	2	1	0	2	3.95	7	0.9
SW	1	4	8	6	0	1	2.96	20	2.7
w	22	9	0	0	0	0	0.88	31	4.2
WNW	18	14	2	1	1	0	1.93	36	4.9
WSW	10	6	5	0	0	0	1.55	21	2.8
			1					742	
Number of events	104	113	143	167	70	145	742		
Events (%)	14.0	15.2	19.3	22.5	9.4	19.5			

WIND PATTERN - Mar- 2022

WIND PATTERN - Apr- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	4	0	19	0	22	0	2	6.5
ENE	5	1	0	8	0	0	0	0	1.9
ESE	1	1	0	9	0	28	0	29	12.9
N	0	0	0	0	0	0	0	0	0.0
NE	8	7	0	0	0	0	0	0	2.1
NNE	4	0	0	0	0	0	0	0	0.6
NNW	0	0	0	0	0	0	0	0	0.0
NW	5	1	0	0	0	0	0	0	0.8
S	1	2	0	5	0	12	0	6	3.9
SE	4	2	0	9	0	29	0	86	43.8
SSE	0	6	0	14	0	68	0	42	21.3
SSW	0	1	0	1	0	3	0	3	1.4
SW	1	2	0	1	0	2	0	0	0.8
W	8	2	0	0	0	0	0	0	1.4
WNW	3	4	0	0	0	0	0	0	1.0
WSW	7	3	0	1	0	0	0	0	1.5
								719	
Number of events	47	36	67	164	168	237	719		
Events (%)	6.5	5.0	9.3	22.8	23.4	33			

							Avg.		
Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	wind Speed (m/s)	Number of events	Events (%)
E	0	1	6	4	0	0	2.58	11	1.5
ENE	0	0	4	2	0	0	2.90	6	0.8
ESE	0	3	4	23	28	8	3.57	66	8.9
N	0	0	0	0	0	0	0.00	0	0.0
NE	0	5	3	0	0	0	1.77	8	1.1
NNE	1	4	1	0	0	0	1.68	6	0.8
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	1	0	3	2	3	1	3.20	10	1.3
S	0	2	2	13	16	11	4.78	44	5.9
SE	1	2	5	28	47	64	4.44	147	19.8
SSE	0	2	9	47	38	61	5.14	157	21.1
SSW	0	1	3	11	15	10	4.06	40	5.4
SW	1	8	10	45	33	7	3.31	104	14.0
W	10	5	8	2	1	0	2.05	26	3.5
WNW	2	2	6	1	1	0	2.29	12	1.6
WSW	3	15	22	47	12	7	2.90	106	14.6
			5.07					743	
Number of events	19	50	86	225	194	169	743		
Events (%)	2.6	6.7	11.6	30.3	26.1	22.7		-	

WIND PATTERN - May- 2022

WIND PATTERN - Jun- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	2	7	5	4	0	0	2.23	18	2.5
ENE	2	1	3	1	0	0	1.88	7	1.0
ESE	0	2	4	14	24	12	3.80	56	7.8
N	0	0	0	0	0	0	0.00	0	0.0
NE	1	3	5	1	0	0	1.88	10	1.4
NNE	1	2	2	0	0	0	1.90	5	0.7
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	1	0	0	4	0	1	3.92	6	0.8
S	1	1	4	11	18	14	4.16	49	6.8
SE	0	2	4	21	36	40	4.89	103	14.3
SSE	0	3	12	44	46	90	4.69	195	27.1
SSW	2	1	6	11	12	12	4.16	44	6.1
SW	0	6	6	39	20	23	4.02	94	13.1
W	6	15	2	1	0	0	1.66	24	3.3
WNW	1	3	4	0	0	0	1.78	8	1.1
WSW	4	8	33	46	8	1	2.90	100	13.9
								719	
Number of events	21	54	90	197	164	193	719		
Events (%)	2.9	7.5	12.5	27.4	22.8	26.8			

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.

Station code	Location	Geographical location	Environmental setting
AAQ1	Port operating building	13º 16' 12" N 80º 20' 5" E	Industrial
AAQ2	RMU Building	13º 16' 25" N 80º 20' 16" E	Industrial
AAQ3	In Terminal Gate	13º 16' 25" N 80º 20' 0" E	Industrial

DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

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)	µg/m³	1.0
2	PM _{2.5}	Fine particle Sampler (Gravimetric method)	µg/m³	5.0
3	Sulphur Dioxide Modified West and Gaeke method		µg/m³	4.0
4	Nitrogen Oxide Jacob & Hochheiser method		µg/m³	6.0
5	Lead	Atomic Absorption Spectrometry	µg/m³	0.5
6	Carbon Monoxide	Draggers Tube	mg/m ³	0.1
7	Ozone	UV Photometric	µg/m³	2.0
8	Ammonia	Indophenol blue method	µg/m³	2.0
9	Benzene	Gas Chromatography	µg/m³	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 presented and discussed. 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"

				PORT	OPERATI	NG BUILD	ING (AA	Q1)						
			Particular	Particular	Sulphur	Nitrogen		Carbon		Ammonia			Benzene	Benzo (a)
			matter	matter	dioxide	dioxide	Lead as	monoxide	Ozone	as	Arsenic	Nickel	as	pyrene as
	Pa	rameters	PM10	PM2.5	as	as NO2	Pb	as CO	as O3	NH3	as As	as Ni	C6H6	BaP
	ra	lameters			502									
	Unit			µg/m3	μg/m3	µg/m3	µg/m3	mg/m3	µg/m3	µg/m3	ng/m3	ng/m3	µg/m3	ng/m3
	National		100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number	100		00	00	-	- 7	100	400	Ŭ	20	9	-
1	03.01.2022	GCS/LAB/S/1111/21-22	60	21	6.4	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022	GCS/LAB/S/1111/21-22	63	20	6.6	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022	GCS/LAB/S/1111/21-22	52	18	5.3	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022	GCS/LAB/S/1111/21-22	47	15	5.0	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022	GCS/LAB/S/1111/21-22	55	19	5.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022	GCS/LAB/S/1111/21-22	68	27	7.1	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022	GCS/LAB/S/1111/21-22	67	24	7.4	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022	GCS/LAB/S/1111/21-22	61	23	7.0	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022	GCS/LAB/S/1164/21-22	54	18	7.7	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022	GCS/LAB/S/1164/21-22	59	23	6.0	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022	GCS/LAB/S/1164/21-22	68	30	6.2	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022	GCS/LAB/S/1164/21-22	64	26	6.5	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022	GCS/LAB/S/1164/21-22	49	17	5.9	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022	GCS/LAB/S/1164/21-22	60	24	6.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022	GCS/LAB/S/1164/21-22	57	28	7.6	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022	GCS/LAB/S/1164/21-22	51	18	6.4	15.6	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022	GCS/LAB/S/1231/21-22	50	17	5.5	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022	GCS/LAB/S/1231/21-22	47	16	4.9	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07.03.2022	GCS/LAB/S/1231/21-22	61	23	7.5	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022	GCS/LAB/S/1231/21-22	55	18	6.3	15./	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	14.03.2022	GCS/LAB/S/1231/21-22	57	28	7.9	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18.03.2022	GCS/LAB/S/1231/21-22	58	20	6.7	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	21.03.2022	GCS/LAB/S/1231/21-22	62	21	7.6	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	23.03.2022	GCS/LAB/S/1231/21-22	46	19	6.7	14.4	<0.1	<1.0	<10	<2	~2	~2	~1	<0.1
25	01.04.2022	GCS/LAB/S/1293/22-23	51	10	6.2	15.8	<0.1	<1.0	<10	<2	~2	< <u>^</u> 2	<u></u>	<0.1
20	08.04.2022	GCS/LAB/S/1293/22-23	49	15	49	13.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	11 04 2022	GCS/LAB/S/1293/22-23	45	16	53	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	15.04.2022	GCS/LAB/S/1293/22-23	54	22	7.1	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	18.04.2022	GCS/LAB/S/1293/22-23	57	24	6.9	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022	GCS/LAB/S/1293/22-23	60	26	7.5	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	25.04.2022	GCS/LAB/S/1293/22-23	64	28	7.2	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022	GCS/LAB/S/1350/22-23	42	16	6.5	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.05.2022	GCS/LAB/S/1350/22-23	56	22	6.9	17.3	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.05.2022	GCS/LAB/S/1350/22-23	51	20	6.1	15.8	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.05.2022	GCS/LAB/S/1350/22-23	48	17	5.8	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	16.05.2022	GCS/LAB/S/1350/22-23	44	18	7.5	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.05.2022	GCS/LAB/S/1350/22-23	61	25	6.0	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.05.2022	GCS/LAB/S/1350/22-23	57	23	7.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.05.2022	GCS/LAB/S/1350/22-23	53	21	6.1	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	03.06.2022	GCS/LAB/S/1421/22-23	55	20	7.2	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.06.2022	GCS/LAB/S/1421/22-23	51	18	7.5	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.06.2022	GCS/LAB/S/1421/22-23	57	23	7.9	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.06.2022	GCS/LAB/S/1421/22-23	53	19	6.7	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.06.2022	GCS/LAB/S/1421/22-23	49	21	7.0	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022	GCS/LAB/S/1421/22-23	54	22	7.4	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.06.2022	GCS/LAB/S/1421/22-23	52	17	7.3	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.06.2022	GCS/LAB/S/1421/22-23	58	24	7.8	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1

Annexure - 2



			Particular	Particular	Sulphur	Nitrogen	AQZ)	Carbon		Ammonia			Bonzono	Benzo (a)
			rarticular	r al ticulai	diavida	diavida		carbon	0	Annonia	A	Niekol	Denzene	
			matter	matter	aloxide	aloxide	Leau as	monoxide	Ozone	as	Arsenic	NICKEI	as	pyrene as
	Pa	rameters	PM10	PM2.5	as	as NO2	PD	as CO	as O3	NH3	as As	as Ni	C6H6	вар
					SO2									
	Unit			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	03.01.2022	GCS/LAB/S/1111/21-22	67	26	7.3	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022	GCS/LAB/S/1111/21-22	62	21	7.8	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022	GCS/LAB/S/1111/21-22	73	32	6.7	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022	GCS/LAB/S/1111/21-22	54	19	5.8	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022	GCS/LAB/S/1111/21-22	50	17	5.2	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022	GCS/LAB/S/1111/21-22	71	27	7.9	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022	GCS/LAB/S/1111/21-22	65	22	6.6	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022	GCS/LAB/S/1111/21-22	59	20	5.5	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022	GCS/LAB/S/1164/21-22	50	19	7.2	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022	GCS/LAB/S/1164/21-22	66	29	6.0	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022	GCS/LAB/S/1164/21-22	61	25	7.9	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022	GCS/LAB/S/1164/21-22	64	28	6.9	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022	GCS/LAB/S/1164/21-22	52	18	5.7	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022	GCS/LAB/S/1164/21-22	55	20	7.4	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022	GCS/LAB/S/1164/21-22	62	26	7.0	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022	GCS/LAB/S/1164/21-22	56	22	6.1	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022	GCS/LAB/S/1231/21-22	48	16	5.4	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022	GCS/LAB/S/1231/21-22	53	19	5.7	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07.03.2022	GCS/LAB/S/1231/21-22	55	26	7.3	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022	GCS/LAB/S/1231/21-22	56	20	5.8	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	14.03.2022	GCS/LAB/S/1231/21-22	62	24	6.7	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18.03.2022	GCS/LAB/S/1231/21-22	57	28	6.5	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	21.03.2022	GCS/LAB/S/1231/21-22	54	25	7.7	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	25.03.2022	GCS/LAB/S/1231/21-22	61	24	7.5	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	01.04.2022	GCS/LAB/S/1293/22-23	55	22	6.7	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	04.04.2022	GCS/LAB/S/1293/22-23	62	25	6.0	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	08.04.2022	GCS/LAB/S/1293/22-23	58	23	6.4	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	11.04.2022	GCS/LAB/S/1293/22-23	60	27	7.4	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	15.04.2022	GCS/LAB/S/1293/22-23	49	20	5.6	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	18.04.2022	GCS/LAB/S/1293/22-23	53	22	6.4	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022	GCS/LAB/S/1293/22-23	56	24	5.0	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	25.04.2022	GCS/LAB/S/1293/22-23	50	21	5.5	18.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022	GCS/LAB/S/1350/22-23	46	18	6.9	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.05 2022	GCS/LAB/S/1350/22-23	55	22	6.4	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.05 2022	GCS/LAB/S/1350/22-23	49	20	6.8	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.05 2022	GCS/LAB/S/1350/22-23	52	22	77	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	16 05 2022	GCS/LAB/S/1350/22-23	45	17	6.0	15.0	<0.1	<1.0	<10	<2	< <u>-</u>	< <u>2</u>	< <u>1</u>	<0.1
38	20.05.2022	GCS/LAB/S/1350/22-23	58	24	5.5	16.3	<0.1	<1.0	<10	~2	< <u>,</u>	~~	~1	<0.1
30	23 05 2022	GCS/LAB/S/1350/22-23	53	24	6.2	17.9	<0.1	<1.0	<10	~2	~~	~~	< <u>1</u>	<0.1
40	25 05 2022	GCS/LAB/S/1350/22-23	51	10	6.7	15.2	<0.1	<1.0	<10	~2	~~	~~	< <u>1</u>	<0.1
40	03 06 2022	GCS/LAB/S/1330/22-23	52	21	7.5	16.9	<0.1	<1.0	<10	~2	<2	~~	< <u>1</u>	<0.1
41	06 06 2022	GCS/LAB/S/1421/22-23	50	24	7.5	17.6	<0.1	<1.0	<10	~2	~2	~2	<1	<0.1
42	10.06.2022	GCS/LAB/S/1421/22-23	55	19	6.4	15.0	<0.1	<1.0	<10	~2	~2	~2	<1	<0.1
43	12 06 2022	GCS/LAD/ 3/ 1421/22-23	51	20	7.1	17.4	<0.1	<1.0	<10	~2	~2	~2	~1	<0.1
44	17.06.2022	GCS/LAD/S/1421/22-23	50	20	7.1	16.7	<0.1	<1.0	<10	~2	<2	<2	~1	<0.1
45	17.00.2022	GCS/LAD/S/1421/22-23	55	17	7.0	10./	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022	GCS/LAB/S/1421/22-23	49	1/	0.2	10.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4/	24.06.2022	GCS/LAB/S/1421/22-23	5/	23	7.9	18.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.06.2022	GCS/LAB/S/1421/22-23	54	25	1.3	16.8	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1



						(4 4 0 2)							
		Dorticular	Darticular	Sulphur	AL GATE	(AAQ3)	Carbon		Ammonia			Pontono	Panza (a)
		Particular	Particular	Sulphur	Nitrogen		Carbon	-	Ammonia			Denzene	Belizo (a)
		matter	matter	dioxide	dioxide	Lead as	monoxide	Ozone	as	Arsenic	Nickel	as	pyrene as
	Parameters	PM10	PM2.5	as	as NO2	Pb	as CO	as O3	NH3	as As	as Ni	C6H6	BaP
				SO2									
	Unit	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	mg/m3	ug/m3	ug/m3	ng/m3	ng/m3	ug/m3	ng/m3
	0	P6/110	F6/110	P6/ 110	P6/110	P6/110		P6/ 110	P6/110	1.6/11.0		P6/110	
	National AAQM Standard	100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling Report Number	er											
1	03.01.2022 GCS/LAB/S/1111/	21-22 73	30	7.7	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022 GCS/LAB/S/1111/	21-22 75	33	8.5	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022 GCS/LAB/S/1111/	21-22 <u>66</u>	27	7.5	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022 GCS/LAB/S/1111/	21-22 65	26	7.4	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022 GCS/LAB/S/1111/	21-22 60	24	6.8	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022 GCS/LAB/S/1111/	21-22 70	28	7.5	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022 GCS/LAB/S/1111/	21-22 74	31	7.0	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022 GCS/LAB/S/1111/	21-22 76	35	8.1	18.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022 GCS/LAB/S/1164/	21-22 55	22	6.9	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022 GCS/LAB/S/1164/	21-22 70	31	8.0	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022 GCS/LAB/S/1164/	21-22 58	24	7.1	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022 GCS/LAB/S/1164/	21-22 60	27	7.5	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022 GCS/LAB/S/1164/	21-22 53	21	6.4	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022 GCS/LAB/S/1164/	21-22 62	26	7.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022 GCS/LAB/S/1164/	21-22 66	29	7.4	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022 GCS/LAB/S/1164/	21-22 59	25	6.8	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022 GCS/LAB/S/1231/	21-22 59	21	6.3	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022 GCS/LAB/S/1231/	21-22 55	20	6.1	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07 03 2022 GCS/LAB/S/1231/	21-22 55	21	8.0	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022 GCS/LAB/S/1231/	21-22 53	24	8.6	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	14 03 2022 GCS/LAB/S/1231/	21-22 62	26	7.5	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18 03 2022 GCS/LAB/S/1231/	21-22 57	23	8.4	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	21 03 2022 GCS/LAB/S/1231/	21-22 61	27	7.9	18.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	25.03.2022 GCS/LAB/S/1231/	21-22 01	22	8.6	18.4	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
25	01 04 2022 GCS/LAB/S/1293/	21-22 55	25	6.8	17.0	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
25	04.04.2022 GCS/LAB/S/1293/	22-23 04	16	5.5	1/.0	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
20	09.04.2022 GCS/LAB/S/1293/	22-23 51	22	6.2	16.2	<0.1	<1.0	<10	<2	~2	~2	~1	<0.1
27	11 04 2022 GCS/LAB/S/1293/		23	7.4	17.0	<0.1	<1.0	<10	<2	~2	~2	<1	<0.1
20	11.04.2022 GC3/LAB/3/1293/		22	7.4	17.5	<0.1	<1.0	<10	<2	~2	~2	<1	<0.1
29	19.04.2022 GCS/LAD/S/1293/	22-23 54	20	7.0	12.0	<0.1	<1.0	<10	~2	~2	~2	~1	<0.1
30	10.04.2022 GCS/LAB/S/1293/	22-23 62	29	0./	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022 GLS/LAB/S/1293/	22-23 5/	21	7.0	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	23.04.2022 GCS/LAB/S/1293/	22-23 60	20	<u>8.1</u>	1/.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022 GCS/LAB/S/1350/	22-23 60	25	7.2	10.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	00.05.2022 GCS/LAB/S/1350/	22-23 58	24	7.6	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	US.US.ZUZZ GCS/LAB/S/1350/	22-23 62	28	7.1	1/.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	13.05.2022 GCS/LAB/S/1350/	22-23 52	19	5.4	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3/	10.05.2022 GCS/LAB/S/1350/	22-23 63	21	5.5	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.05.2022 GCS/LAB/S/1350/	22-23 58	23	8.1	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.05.2022 GCS/LAB/S/1350/	22-23 61	30	8.6	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.05.2022 GCS/LAB/S/1350/	22-23 56	23	1.7	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	03.06.2022 GCS/LAB/S/1421/	22-23 64	27	7.9	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.06.2022 GCS/LAB/S/1421/	22-23 67	28	8.3	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.06.2022 GCS/LAB/S/1421/	22-23 57	21	7.5	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.06.2022 GCS/LAB/S/1421/	22-23 60	25	7.2	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.06.2022 GCS/LAB/S/1421/	22-23 68	29	8.5	18.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022 GCS/LAB/S/1421/	22-23 55	20	6.8	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.06.2022 GCS/LAB/S/1421/	22-23 66	26	9.1	18.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	27 06 2022 GCS/LAB/S/1/21/	77 72 61	24	0 6	10 0	<01	~10	~10	~2	~2	12	-1	-01



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

			on in Ambient					
S. No.	Pollutant	Time Weighted average	Industrial, Residential, Rural and Other Area	Ecologically sensitive area (notified by Central Govt.)	Methods of Measurement			
(1)	(2)	(3)	(4)	(5)	(6)			
		Annual*	50	20	 Improved West and 			
1	Sulphur Dioxide (SO ₂), µg/m ³	24 hours**	80	80	Geake • Ultraviolet fluorescence			
		Annual*	40	30	 Modified Jacob & 			
2	Nitrogen Dioxide (NO ₂), μg/m ³	24 hours**	80	80	Hochheiser (Na- Arsenite) • Chemiluminescence			
	Particulate Matter	Annual*	60	60	 Gravimetric 			
3	(size less than 10 µm) or PM ₁₀ µg/m ³	24 hours**	100	100	 TOEM Beta attenuation 			
	Particulate Matter	Annual*	40	40	 Gravimetric 			
4	(size less than 2.5 microns) or PM _{2.5} µg/m ³	24 hours**	60	60	TOEM Beta attenuation			
		8 hours **	100	100	 UV photometric 			
5	Ozone (O ₃) µg/m ³	1 hour **	180	180	Chemiluminescence Chemical method			
		Annual*	0.5	0.5	 ASS / ICP method 			
6	Lead (Pb) µg/m ³	24 hours**	1.0	1.0	after sampling on EPM 2000 or equivalent filter paper • ED - XRF using Teflon filter			

		Carbon Monovide	8 hours**	2	2	Non Dispersive Infra
1	7	(CO) mg/m ³	l hour**	4	4	RED (NDIR) Spectroscopy
U.		Ammonia (NH-)	Annual*	100	100	 Chemiluminescence
1	8	μg/m ³	24 hours**	400	400	 Indophenol blue method
	9	$\frac{\text{Benzene}\left(C_{e}H_{6}\right)}{\mu\text{g/m}^{3}}$	Annual*	5	5	 Gas chromatography based continuous analyser Adsorption and desorption followed by GC analysis
	10	Benzo (a) Pyrene (BaP) – particulate phase only ng/m ³	Annual*	1	1	Solvent extraction followed by HPLC / GC analysis
	11	Arsenic (As) ng/m ³	Annual*	6	6	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper
	12	Nickel (Ni) ng/m ³	Annual*	20	20	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper

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

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

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

iii. AMBIENT NOISE LEVEL INTENSITY

Collection of ambient noise levels at four locations. Spot noise levels where measured with a pre calibrated Noise Level Meter - SL- 4023 SD for day and night periods. The Detailed report has been is enclosed as Annexure - 3

STATION CODE	LOCATIONS	Geographical Location
N1	In Terminal Gate	13º 16' 25" N 80º 20' 0" E
N2	RMU Building	13º 16' 25" N 80º 20' 16" E
N3	Port operating building	13 ⁰ 16' 12" N 80 ⁰ 20' 5" E

DETAILS OF NOISE MONITORING LOCATIONS

Fig - 4. Noise Level Sampling Locations



	Location		PORT	OPERATI	NG BUILD	NG				RMU BUI	LDING		
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
	Parameter & Unit	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
S.No	Time of Sampling												
1	06.00 – 07.00 (Day)	66.5	63.6	56.8	63.1	59.1	62.4	66.4	63.4	57.7	61.7	66.5	60.6
2	07.00 -08.00	64.3	66.1	60.7	64.5	58.6	60.3	64.3	64.0	57.1	60.3	62.1	56.4
3	08.00 - 09.00	61.4	63.1	56.7	63.9	61.2	58.9	67.4	64.9	56.7	61.9	59.7	61.7
4	09.00 - 10.00	60.6	63.0	60.4	62.7	57.9	61.5	64.6	62.1	55.4	63.4	59.5	63.0
5	10.00 - 11.00	61.9	65.6	60.4	64.2	60.3	57.0	65.8	60.7	61.5	60.5	61.6	59.4
6	11.00 - 12.00	63.2	61.2	58.3	64.9	58.9	60.8	63.1	64.3	59.2	62.5	64.3	62.6
7	12.00 - 13.00	63.7	67.8	59.5	65.7	59.5	62.2	64.7	62.6	58.8	60.8	59.8	61.3
8	13.00 - 14.00	60.6	61.9	56.6	64.5	60.0	57.7	66.6	61.8	62.1	63.1	59.9	62.5
9	14.00 - 15.00	65.5	65.0	58.2	63.2	62.4	58.5	63.9	64.3	62.5	59.7	63.0	60.9
10	15.00 - 16.00	67.6	64.9	57.7	63.8	65.0	62.2	65.1	60.9	60.3	58.6	65.1	61.1
11	16.00 - 17.00	68.2	59.3	56.6	61.7	64.2	58.0	67.9	63.5	58.4	61.0	60.2	57.7
12	17.00 - 18.00	69.3	59.7	55.8	62.0	57.4	55.9	63.2	64.7	59.8	57.5	60.8	58.4
13	18.00 - 19.00	61.8	60.3	55.5	60.8	62.2	60.3	66.1	58.5	60.8	58.3	63.3	56.2
14	19.00 - 20.00	60.9	60.1	56.7	60.5	63.1	54.2	62.0	57.2	58.1	57.4	62.7	58.0
15	20.00 - 21.00	56.9	62.0	56.9	57.3	58.9	57.6	61.1	61.0	61.6	58.1	57.0	54.3
16	21.00 - 22.00	60.7	57.0	58.2	58.4	60.3	56.1	60.3	62.8	57.6	58.9	55.4	54.6
17	22.00 – 23.00 (Night)	61.4	54.3	53.1	54.7	58.9	54.7	62.0	55.8	56.7	52.5	52.0	53.4
18	23.00 - 00.00	61.5	55.6	54.0	53.4	58.4	52.5	63.8	54.5	56.3	53.1	53.2	51.8
19	00.00 - 01.00	61.4	54.0	54.2	53.0	56.3	47.6	62.6	56.7	57.6	51.8	54.2	52.0
20	01.00 - 02.00	62.7	51.9	53.3	52.8	47.5	52.8	60.4	53.4	57.8	52.0	53.0	51.2
21	02.00 - 03.00	60.8	52.4	50.4	53.2	48.9	53.2	62.7	52.8	55.2	51.7	55.2	56.7
22	03.00 - 04.00	64.6	53.6	53.2	54.9	52.4	50.0	63.1	52.3	55.7	54.3	49.8	52.3
23	04.00 - 05.00	63.0	54.8	53.5	55.7	54.9	52.6	64.7	56.4	53.3	53.9	53.5	50.5
24	05.00 - 06.00	65.9	55.0	53.0	58.0	54.5	57.4	64.2	58.1	58.0	56.4	57.2	55.9

Annexure - 3





Page **26** of **35**

	Location		I	N TERMIN	AL GATE		
	Month & Year		PORT	OPERATII	NG BUILDIN	IG	
	Parameter & Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No	Time of Sampling	Leq	Leq	Leq	Leq	Leq	Leq
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
1	06.00 – 07.00 (Day)	70.8	62.4	64.1	62.4	64.0	66.8
2	07.00 - 08.00	69.4	68.2	65.6	63.6	65.9	63.7
3	08.00 - 09.00	70.6	69.1	66.4	62.3	64.2	65.1
4	09.00 - 10.00	70.4	68.6	63.7	62.3	65.6	66.3
5	10.00 - 11.00	70.0	65.2	64.2	62.0	64.7	60.8
6	11.00 - 12.00	70.1	67.9	67.0	62.3	56.3	63.4
7	12.00 - 13.00	69.0	60.3	68.4	62.4	62.8	64.0
8	13.00 - 14.00	68.5	68.9	65.6	65.2	63.2	65.9
9	14.00 - 15.00	66.1	59.5	63.3	66.1	65.0	61.2
10	15.00 - 16.00	61.0	60.0	61.9	65.5	64.3	58.6
11	16.00 - 17.00	67.2	56.3	62.5	64.3	64.4	60.5
12	17.00 - 18.00	69.4	63.0	63.0	65.3	63.1	57.3
13	18.00 - 19.00	58.4	58.9	60.9	65.2	60.3	61.8
14	19.00 -20.00	60.2	58.4	63.8	64.8	62.8	55.0
15	20.00 - 21.00	58.1	59.5	62.4	65.1	64.3	59.2
16	21.00 - 22.00	62.6	59.4	61.2	59.0	62.9	58.4
17	22.00 – 23.00 (Night)	63.4	60.3	62.0	62.2	57.5	55.0
18	23.00 - 00.00	62.2	58.6	60.8	56.5	55.8	57.9
19	00.00 - 01.00	64.0	62.1	63.5	60.6	54.0	56.2
20	01.00 - 02.00	65.7	58.7	61.9	56.7	56.4	58.5
21	02.00 - 03.00	59.8	60.5	62.7	60.2	59.6	59.1
22	03.00 - 04.00	62.6	61.3	64.3	63.6	58.2	57.4
23	04.00 - 05.00	63.4	63.7	65.1	62.8	60.1	61.3
24	05.00 - 06.00	65.3	57.9	67.0	62.2	62.8	60.7



Amisient Air Quality Standards in respect of Noise

Area	Category of Area / Zone	Limitz in dB	(A) Leq*
0009		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	-55
(C)	Residential area.	55	45
(D)	Silence Zone	60	40

Note:- 1.

Day time shall mean from 6.00 a.m. to 10.00 p.m. Night time shall mean from 10.00 p.m. to 6.00 a.m. 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 estimation 2.3.

Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority. 42

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

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

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

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

iv. DG SET EMISSIONS

Sampling of Flue gas emission of 1500 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

STATION CODE	LOCATIONS	Geographical Location
SM - 1	DG - 1 1500 KVA	13º 16' 12" N
SM - 2	DG - 2 1500 KVA	80 ⁰ 20' 5" E
SM - 3	DG 125 KVA	13°16'13.33" N 80°20'6.64" E

DETAILS OF EMISSION MONITORING LOCATIONS

Annexure - 4

	STACK MONITORING												
	Location	1500KVA -	– 3 DG 1500KVA -1										
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.N	Parameters												
1	Stack Temperature, °C		220	214				229		230	241	253	240
2	Flue Gas Velocity, m/s		22.17	21.23				22.92		22.58	23.26	24.08	24.86
3	Sulphur Dioxide, mg/Nm3		8.1	7.1				7.6		8.2	7.5	7.9	7.4
4	NOX (as NO2) in ppmv		127	120				134		131	136	142	135
5	Particular matter, mg/Nm3		9.6	10.4				11		92	11	9.6	8.2
6	Carbon Monoxide, mg/Nm3		35	33	_	-		40	-	40	38	40	38
7	Gas Discharge, Nm3/hr		6050	5796				6143		5606	6124	6159	6520



	STACK MONITORING												
	Locatio DG 1500KVA - 2 DG 125KVA												
	Month	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.N	Paramet												
1	Stack Temperature, °C	223		235	230			-	126	122		129	121
2	Flue Gas Velocity, m/s	21.49		23.06	21.98			-	12.05	12.91		12.46	12.04
3	Sulphur Dioxide, mg/Nm3	7.2		7.8	7.1			-	4.9	5.3		4.0	4.2
4	NOX (as NO2) in ppmv	131		127	130			-	67	60		56	50
5	Particular matter, mg/Nm3	10		8.8	9.6				4.6	5.3		4.9	4.5
6	Carbon Monoxide, mg/Nm3	42		36	35				23	21		21	17
7	Gas Discharge, Nm3/hr	5830		5755	5879			-	571	571		586	578



Paran	neter	Area	Total engine rating of	Generator	sets commis	sioning date	
		Category	the plant (includes existing as well as new generator sets)	Before 1.7.2003	Between 1.7.2003 and 1.7.2005	On or after 1.7.2005	
NO _X (as N	(O2) (At 15%	A	Up to 75 MW	1100	970	710	
O_2 , dry basis, in ppmv		В	Up to 150 MW	CHARGEST	1812017451	NOWSER	
252.18	NMHC (as C) (at 15% Bo O ₂), mg/Nm ³ a		More than 75 MW	1100	710	360	
			More than 150 MW		04.047	10052828	
NMHC (a O2), mg/N				150	100		
PM (at 15% O ₂), mg/Nm ³	Diesel Fuels- HSD & LDO	Both A and B		75	ţ,	75	
	Furnace Oils- LSHS & FO	Both A and B		150	1	00	
CO (at 15% O ₂), mg/Nm ³		Both A and B		150	I	150	

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.

• 25 KLD Treated Water Outlet

DETAILS OF STP WATER LOCATIONS

STATION CODE	LOCATIONS	Geographical Location
		13º 16' 12" N
STP - 1	25 KLD	80° 20' 8" E

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

Annexure - 5

						STP W	ATER						
	Location	STP OUTLET (25 KLD)											
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No	Parameters								×				
1	pH @ 25°C	6.85	6.56	7.17	7.72	7.08	6.98	7.53	7.28	7.40	8.22	7.61	7.32
2	Total Suspended	98	83	73	68	55	64	21	23	14	22	18	24
3	BOD at 27°C for 3	64	62	60	82	70	86	14	17	12	13	9.2	17
4	Fecal Coliform	670	610	510	610	690	810	280	250	160	240	180	280
5	COD	435	401	372	196	196	342	58	73	36	46	32	84
6	Oil & Grease	6.2	5.6	5.0	6.4	5.1	7.4	BDL	BDL	BDL	BDL	BDL	BDL
/	Total Dissolved Solids	1284	1184	1268	1352	1246	1318	1156	1042	1144	1274	1098	1012
8	Chlorides (as Cl)	430	408	310	350	304	352	398	375	248	232	196	318
9	Sulphates (as SO4)	72	64	38	42	35	70	63	40	22	30	24	66

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:-

 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:-----

SI. No.	Industry	Parameters	Standards	5
1	2	3	4	
	22.2	Effluent discharge stand	lards (applicable to all mode of disposal)	
"105	Sewage Treatment		Location	Concentration not to exceed
	Plants		(a)	(b)
	(STPs)	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 Vadesh, Uttarakhand, Jammu and	20

	Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	
3	Areas/regions other than mentioned above	-30
Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Protesh, Assam, Manipur, Meghalaya Mizocan, Nagaland, Tripura Sikkim, Hirnachal Pradesh, Uttarakhasd, Jammu and Kashmir and Unson territory of Andaman and Nicobar Jalanda, Dadar and Nagar Haveti Daman and Diu and Lakchadweep	<50
	Areas/regions other than mentioned above	<100
Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100mi	Anywhere in the country	<1000

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.

	DRINKING WATER										
	Month & Year	Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22			
S.No.	Parameters										
1	pH @ 25°C	-	6.76	7.23	7.07	8.20	6.97	6.86			
2	Total Hardness as CaCo3	mg/L	4.0	8.0	14	12	16	10			
3	Chloride as Cl	mg/L	14	17	21	14	20	14			
4	Total Dissolved Solids	mg/L	32	44	72	44	68	48			
5	Calcium as Ca	mg/L	0.8	1.2	2.5	4.8	5.2	1.6			
6	Sulphate as SO4	mg/L	BDL	BDL	BDL	BDL	BDL	2.5			
7	Total Alkalinity as CaCo3	mg/L	21	26	36	30	36	25			
8	Magnesium as Mg	mg/L	0.48	1.2	1.88	BDL (0.24)	0.73	1.5			
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)								
15	Total Residual Chlorine	mg/L	BDL(DL 0.1)								
16	Copper as Cu	mg/L	BDL(DL 0.05)								
17	Manganese as Mn	mg/L	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 C6H5OH	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)								
23	Arsenic as As	mg/L	BDL(DL 0.01)								
24	Lead as Pb	mg/L	BDL(DL 0.01)								
25	Zinc as Zn	mg/L	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)								
28	Phenolphthalein Alkalinity as CaCO3	mg/L	Nil	Nil	Nil	Nil	Nil	Nil			
29	Aluminium as Al	mg/L	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)	0.37	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 - 6

vii. 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 - 7 & 8.

STATION CODE	LOCATIONS	Geographical Location
		13º 16' 25" N
MW - 1 / MS - 1	Bollard	80º 20' 16" E

DETAILS OF MARINE WATER AND SEDIMENT LOCATIONS

Fig - 5. Water and Marine Sampling Locations



					MA	RINE WA	TER							
S.NO	PARAMETER	UNITS	Jan	- 22	Feb -	- 22	Mar	- 22	Apr	- 22	May	- 22	Jun	- 22
			Bolla	rd - 07	Bollaro	d - 16	Bollar	rd - 26	Bolla	rd - 19	Bollar	d - 02	BERTH	I AREA
P	hysicochemical Paramet	ters	Surface	Bottom	Surface	Bottom								
1	Colour	Hazan	20	45	25	40	25	35	20	30	15	35	15	35
2	Odour	-					ι	Jnobjectio	onable					
3	pH @ 25°C	-	8.14	8.47	8.13	8.36	8.22	8.37	8.09	8.41	7.86	8.24	8.08	8.21
4	Temperature	°C	29	29	28	28	29	29	30	30	31	31	30	30
5	Turbidity	NTU	7.5	18	8.3	16	9.8	17.3	8.1	15.4	9.5	17.8	7.8	21
6	Total Suspended Solids	mg/L	12	25	14	23	18	24	14	26	11	29	10	33
7	BOD at 27 oC for 3	mg/L	4.6	4.7	4.5	4.9	4.6	4.4	4.8	4.6	4.5	4.3	4.6	4.4
8	COD	mg/L	152	165	140	161	134	152	120	138	106	126	118	135
9	Dissolved oxygen	mg/L	2.6	2.4	2.7	2.5	2.5	2.7	2.6	2.8	2.7	2.6	2.9	3.0
10	Salinity at 25 °C	ppt	34.2	35.6	34.7	35.1	31.4	30.1	32.8	31.9	36.8	38.1	39.6	40.2
11	Oil & Grease	mg/L	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL :	BDL (DL :	BDL (DL :	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)
			210)		Nutrie	ent Paran	neters	2.0,	2.07	210)	210,	210)	2.0,	1.0,
12	Nitrate as No3	mg/L	4.91	6.18	4.10	6.73	4.91	6.05	5.56	6.72	4.12	5.80	4.98	4.12
13	Nitrite as No2	mg/L	1.85	2.96	1.52	2.39	2.13	2.48	1.94	2.05	2.43	2.98	2.05	2.54
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)							
15	as N Total Nitrogen	mg/L	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL :	BDL (DL :							
16	Inorganic phosphates	mg/L	5.87	6.71	4.64	6.10	4.27	5.73	3.86	5.18	5.03	6.72	5.98	4.12
17	as PO4 Silica as SiO2	mg/L	8.03	9.86	8.57	9.14	5.26	7.29	6.05	8.12	7.18	8.84	9.15	8.07
18	Particulate Organic	μgC/L	10	14	11	16	14	18	17	20	13	21	10	17
19	Carbon Pertoleum	μg/L	BDL (DL :	BDL (DL :										
	Hydrocarbons		0.01)	0.01)	0.01)		0.01)	0.01)	0.01)	0.01)	0.01)	0.01)	0.01)	0.01)
		mg/L	BDL (DL :	BDL (DL	BDL (DL :	BDL (DL								
20	Cadmium as Cd		0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)
21	Copper as Cu	mg/L	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)
22	Total Iron as Fe	mg/L	0.48	0.62	0.53	0.64	0.57	0.78	0.63	0.81	0.67	0.78	0.64	0.72
23	Zinc as Zn	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)										
24	Lead as Pb	mg/L	BDL (DL :	BDL (DL :										
25	Mercury as Hg	mg/L	0.01) BDL (DL :	0.01) BDL (DL	0.01) BDL (DL :	0.01) BDL (DL								
		mg/l	0.001) BDL (DL :	:0.001) BDL (DL :	0.001) BDL (DL :	:0.001) BDL (DL :								
26	Nickel as Ni		0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)
27	Total Chromium as Cr	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)										
					Bacterio	logical Pa	rameters							
28	Escherichia Coli (ECLO)	cfu/ml	Absence	Absence										
29	Faecal Coliform (FCLO)	cfu/ml	Absence	Absence										
30	Pseudomonas aeruginosa (PALO)	cfu/ml	Absence	Absence										
31	Streptococcus faecalis (SFLO)	cfu/ml	Absence	Absence										
32	Shigella (SHLO)	cfu/ml	Absence	Absence										
33	Salmonella (SLO)	cfu/ml	Absence	Absence										
34	Total Coliform (TC)	cfu/ml	Absence	Absence										
35	Total Viable Count (TVC)	cfu/ml	Absence	Absence										
36	Vibrio cholera (VC)	cfu/ml	Absence	Absence										
37	Vibrio	cfu/ml	Absence	Absence										
34 35 36 37	Total Coliform (TC) Total Viable Count (TVC) Vibrio cholera (VC) Vibrio	cfu/ml cfu/ml cfu/ml cfu/ml	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Abse Abse Abse Abse

Annexure – 7

	Month & Year		Jar	- 22	Feb	- 22	Mar	- 22	Apr	- 22	May	- 22	Jun	- 22
			Bolla	rd - 07	Bolla	rd - 16	Bollar	d - 26	Bollar	d - 19	Bollar	d - 02	BERTH	AREA
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	10.71	11.63	10.85	11.93	9.14	10.21	8.67	10.84	9.41	10.23	8.21	10.78
39	Chlorophyll a	mg /m3	6.27	6.96	6.78	7.05	6.39	6.85	6.12	6.07	5.60	6.37	4.73	6.06
40	Phaeopigment	mg /m3	2.60	3.74	2.91	3.09	2.27	2.93	2.41	3.12	2.78	3.91	2.15	3.40
41	Total Biomass	ml /100 m3	2.14	2.81	2.77	3.02	1.65	2.07	1.96	2.68	1.73	2.19	1.96	2.73
	1				PH	YTOPLAN	KTON							
42	Bacteriastrum hyalinum	nos/ml	12	15	10	8	14	17	18	21	15	19	10	16
43	Bacteriastrum varians	nos/ml	13	17	15	19	11	15	15	17	11	14	16	18
44	Chaetoceros didymus	nos/ml	8	11	12	14	8	11	10	13	16	11	8	5
45	Chaetoceros decipiens	nos/ml	14	19	16	11	15	18	12	16	7	13	9	11
46	Biddulphia mobiliensis	nos/ml	7	8	13	16	10	7	8	10	12	8	17	15
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	17	18	19	21	14	16	7	11	10	15	13	19
51	Coscinodiscus granii	nos/ml	15	25	18	20	9	13	13	18	17	20	21	24
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	11	9	14	12	8	10	11	14	6	9	12	17
54	Laudaria annulata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
55	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
56	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
57	Leptocylindrus danicus	nos/ml	16	14	10	11	16	20	19	22	14	18	11	14
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	10	17	13	19	17	21	21	23	20	25	18	20
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	21	26	17	23	20	24	14	18	12	16	17	21
62	Thalassionema nitzschioide	es nos/ml	8	13	7	10	13	15	16	19	9	12	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
-			NII		70	OPLANK	TONS		NI			INII		NII
68	Acrocalanus gracilis	nos/ml	11	14	10	13	13	17	10	12	15	17	10	14
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	17 Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	0	15	12	17	10	12	0	10	11	7	16	12
71	Futintinus sps	nos/ml	12	15	14	1/	10	15	10	10	12	15	10	21
72	Centronages furcatus	nos/ml	10	10	-14	15	17	10	13	17	12	10	10	21
73	Corvcaeus dana	nos/ml	NU	15	0	15	11	10 Nil	14	17	10 Nil	19	13	25 Nil
74	Oithona brevicornis	nos/ml	1/	17	16	10	12	17	0	12	14	16	1111 Q	10
75	Futernina acutifrons	nos/ml	-14	1/	10	13	14	10	0	21	-14	14	0	10
75	Metacalanus aurivilli	nos/ml	/	9	10	13	14	13	10	21	9	14	13	12
70	Coninod naunlii				NII		NII	NII					NII 44	NII
70			15	20	14	18	19	21	14	18	7	10	11	15
78		nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
/9	Divalve veliger	nos/ml	8	6	6	9	15	18	17	20	18	23	14	20
80	Gastropod veliger	nos/ml	17	21	11	23	22	25	15	22	11	17	18	22

			SE	A SEDIMENT				
	Location			1	Sea Sediment			
	Month & Year	Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No.	Parameters		Bollard - 07	Bollard - 16	Bollard - 26	Bollard - 19	Bollard - 02	BERTH AREA
1	Total organic matter	%	0.79	0.72	0.67	0.61	0.68	0.73
2	% Sand	%	10	11	12	14	15	17
3	%silt	%	31	33	30	33	31	28
4	%Clay	%	59	56	58	53	54	55
5	lron (as Fe)	mg/kg	29.2	27.5	23.9	25.1	19.6	21.3
6	Aluminium (as Al)	mg/kg	8947	9012	9426	9784	9053	9579
7	Chromium (as cr)	mg/kg	31	34	30	37	32	27
8	Copper (as cu)	mg/kg	124	120	92	55	64	61
9	Manganese (as Mn)	mg/kg	47	49	45	41	37	30
10	Nickel (as Ni)	mg/kg	29	25	19.7	18.1	19	22
11	Lead (as Pb)	mg/kg	24	22	21.2	19.5	21	20
12	Zinc (as Zn)	mg/kg	198	190	184	178	185	156
13	Mercury(as Hg)	mg/kg	0.36	0.37	0.33	0.31	BDL(DL 0.1)	BDL(DL 0.1)
14	Total phosphorus as P	mg/kg	121	125	116	120	139	131
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	0.72	0.76	0.71	0.73	0.81	0.70
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. Nem	atoda							
28	Oncholaimussp	nos/m ²	15	13	15	18	15	12
29	Tricomasp	nos/m ²	10	16	11	13	10	17
II. Fora	minifera							
30	Ammoniabeccarii	nos/m ²	16	11	19	15	19	15
31	Quinqulinasp	nos/m ²	18	15	13	11	14	10
32	Discorbinellasp.,	nos/m ²	17	10	23	20	23	19
33	Bolivinaspathulata	nos/m ²	21	24	10	14	17	13
34	Elphidiumsp	nos/m ²	14	17	18	12	11	10
35	Noniondepressula	nos/m ²	11	8	14	16	18	23
III. Mo	lluscs-Bivalvia					1.0		1
36	Meretrixveligers	nos/m ²	24	20	16	19	22	25
37	Anadoraveligers	nos/m ²	26	19	21	24	20	22
	Total No. of individuals	nos/m ²	172	153	160	162	169	166
	Shanon Weaver Diversity Index		2.26	2.25	2.27	2.28	2.27	2.25
L								

Annexure - 8

Form-V

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

Environmental Statement for the financial year ending 31st March 2021

PART - A

0	Name and Address of the owner / occupier of the industry operation or process		Mr. Jai Singh Khurana Chief Executive Officer Adani Ennore Container Terminal Private Limited C/O Kamarajar Port Limited Vallur Post, Ennore Thiruvallur District- 600 120 Tamil Nadu, Indía
11)	Industry Category		Primary : Red Secondary : 1065 - Ports and Harbour, Jetties and Dredging Operations.
(iii)	Production Capacity	:	Cargo Handling Capacity : 11.68 MMTPA of Container cargo
iv)	Year of establishment	5	2016
v)	Date of the last environmental statement		Vide our Letter No. AECTPL/TNPCB/2020-21/28 dated 21.09.2020



* 1|Page

PART - B

WATER AND RAW MATERIAL CONSUMPTION

(i) Water Consumption

S. No	Water Consumption (m ³ /Calendar Day)	2019-2020	2020-2021
1	Domestic	10.93	13.8

(ii) Raw Material Consumption

S. No.	Name of Raw Material	Name of Products	Consumption of Raw Ma	terial per Unit of output
			During the previous financial year (2019-20)	During the current financial year (2020-21)
1	Not Applicable	Not Applicable	NIL	NIL

1870

819 a 0.9

PART - C

POLLUTION DISCHARGE TO ENVIRONEMENT/ UNIT OF OUTPUT

(Parameters as specified in the consent issued)

Pollutants	Quality of Pollutants Discharged (Mass/day)	Concer Poll disc (mass	ntration of lutants harges /volume)	Percent prescr	age of variation from ibed standards with reason
a) Water	STP Treated Wa	ter Charac	teristics: -		
	Parameter		Consent Limit	Actual	% Variation with prescribed standard
	рН		5.5-9	7.48	-Nit-
	Total Suspende (mg/l)	d Solids	30	20.45	-Nil-
	BOD (3 days at (mg/l)	27°C)	20	13.86	-Nii-
b) Air	DG sets are provi failure only. The the monitored pa	ided as sta Height of arameters	ndby power DG stacks a: are within si	source and s per CPCB/ tandards.	are used during powe TNPCB Standards, A
Particulate Matter (mg/Nm3)					
Sulphur Dioxide (mg/Nm3)	DG stack emissio	in report is	s enclosed as	s Annexure	1
Nitrogen Oxide (ppm)	-		-		

hit.

31-4.0

PART-D

HAZARDOUS WASTES

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

	Total Qua	Total Quantity (Kg)						
Hazardous Wastes	During the previous Financial Year (2019-20)	During the current Financial Year (2020-21)						
(a) From Process	 Used Oil (5.1) - 10 Tons Oil from Contaminated filter element (3.3) - 0.5 Tons Empty Oil barrel (33.1) - 0.5 Tons 	NII						
(b) From Pollution control facilities	NA	NA						

PARTIE

SOLID WASTES

		Burley the standard Firessist	Budden also average Brancisco
	Solid Waste	Year (2019-20)	Year (2020-21)
a)	From process	NIL	NIL
b)	From pollution control facilities- STP	57.28 kgs	63.42 kgs
	1. Quantity recycled or reutilized within the	57.28 kgs	63.42 kgs
c)	Unit 2. Sold	NIL	NIL
	3. Disposed	NIL	NIL

1.86

Ena,

Grupper?

419808

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 8 recover the materials and are handled as per 5R (Reuse, Recycle, Recover and Reprocess) principle.
- AECTPL has awarded with Zero Waste to Landfill Management System (ZWTL MS 2020) from TUV Rheinland India Pvt. Ltd (Annexure – 2).
- Hazardous wastes include Used oil, Filters contaminated with Oil and Empty barrels / containers contaminated with hazardous wastes. 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 Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 (As amended).
- The used batteries and E -waste are also stored in Integrated Waste Management Shed and disposed off through approved vendor in line to 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 & Trans boundary Movement) Rules, 2016.
- E-waste returns in Form 3 was submitted in line with the E-waste Management Rules, 2016.
- 100% utilization of STP sludge for greenbelt maintenance as manure.
- AECTPL certified as "Single Use Plastic (SUP) Free" site from Cll –ITC Centre of Excellence for Sustainable Development (Annexure – 3)
- Plastic free Drive:
 - AECTPL has displayed stickers at various places at the facility, spreading awareness as plastic are prohibited now.

STPAGE

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

PART-G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

- Adani Ennore Container Terminal Private Limited is having electrified cranes only and hence the diesel consumption by the cranes is totally eliminated.
- All the domestic wastewater being generated at port is treated at existing sewage treatment plant and the treated water is being reused within port premises for gardening/horticulture purpose.
- Sewage Treatment Plant (STP) is in continuous operation and the treated effluent water quality is meeting the TNPCB norms. The total cost spent on STP operation during the year 2020-21 is Rs. 4.39 Lakhs.
- Regular Environmental monitoring is being carried out through NABL accredited laboratory. All the monitored environmental parameters are well within the prescribed norms & the details of monitored data is being submitted regularly to
 TNPCB, CPCB, MoEF&CC and other concerned authorities.
- Unit is continuously developing and maintaining Greenbelt within port premises.
- Implemented Integrated Waste Management System (IWMS) for managing all types of wastes in line with 5R principle.

PART-H

Additional measures/investment proposal for_Environmental protection including abatement of pollution, prevention of pollution.

	Regular Expenditure (Cost in INR lakhs/year)					
5. IO.	Description 1	Cost				
i	Environmental monitoring of MOEF recognized third party	7.22				

610500

	Green beit 8 Harticulture development	4.87
3	Annual maintenance contractor of STP operation	4.39
4	Operation & Maintenance of Integrated Waste Management System	1.88

PART-I

ANY OTHER PARTICULARS IN RESPECT TO ENVIRONMENT

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

Date: 23,09.2021

fourt?

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

Name : Jai Khurana Designation: Chief Executive Officer

Address : Adani Ennore Container Terminal Pvt Ltd C/O Kamarajar Port Limited Vallur post, Ennore Thiruvallur District- 600 120.

719408
KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

"EXPANSION PROPOSALS - DEVELOPMENT OF TERMINALS FOR MARINE LIQUIDS, COAL, IRON AND CONTAINERS IN SECOND PHASE AND ASSOCIATED DREDGING AT ENNORE PORT"

Point wise compliance report on Ministry's guidelines for the Ennore Port Expansion Proposals-Development of Terminals for marine liquids, coal, iron and containers in Second phase and associated dredging at Ennore Port Environmental clearance

Ref: MoEF Letter No. 10-28/2005-IA-III dated 10th September 2007.

Back ground information

MoEF had accorded environmental clearance vide letter No. 10-28/2005–IA-III dated 19th May 2006 for the following projects:-

- 1. Marine Liquid Terminal to handle 3 MTPA.
- 2. Coal Terminal other than TNEB Users to handle 8 MTPA.
- 3. Iron Ore Terminal to handle 12 MTPA.
- 4. Container Terminal for a quay length of 700m to handle 12 MTPA.
- 5. Associated Capital Dredging of 15.50 million cubic meters.

Kamarajar Port Limited requested for modification of the above environmental clearance **with respect to the Container Terminal**, for the following reasons:

Reason for Modification of Environmental Clearance

- i. The draft policy for maritime sector (Ports, merchant Shipping and IWT) suggested that Port Planning for the Development of Container Terminal should have a quay length of 1000m and capacity of 1.50 million TEUs.
- ii. In accordance the NMDP prepared by Dept. of Shipping included the Development of Container Terminal at Ennore Port with 1000 meters.
- iii. Department of Shipping has formulated an Action Plan for development of 18 Berths in various major Ports, which includes the Container Terminal of 1000 m quay length at Ennore Port during the financial year, 2007-08.
- iv. Accordingly, it was proposed to reconfigure the container Terminal from 700 m to 1000m.
- Reconfiguration of the quay length of the proposed container Terminal from 700 m to 1000 m would require an associated capital dredging of additional 4 million cu.m
- vi. Reconfiguration would revise the capacity of the Container Terminal from 1.0 million TEUs to 1.50 million TEUs.

MoEF had accorded environmental clearance vide letter No. 10-28/2005-IA-III dated 10^{th} September 2007

Status of the project:

Further KPL modified the above Environment Clearance for the development of Container Terminal and Multi Cargo Terminal.

Modified Environmental clearance from MoEF&CC

MoEF&CC has accorded environmental clearance for the development of container terminal in the 730m quay length and multi cargo berth in the 230m quay length vide its communication No. 10-28/2005-IA.III dated 24.12.2014.

<u>Compliance report on MoEF Letter No. 10-28/2005-IA-III dated 10th September</u> 2007:

S. No	(A) Specific Conditions	Compliance Status
(i)	It should be ensured that no mangroves are destroyed during reclamation.	Complied with. No mangroves are present at container project site inside the port.
(ii)	The proposed extension to the project should not cause any shoreline change abutting Ennore Port.	Complied with. The proposed extension of the project was addition of 300m to the quay length of 700m. (The container terminal will be developed to handle 11.68 MTPA in the 730m quay length and multi cargo berth of 2.0 MTPA in the 230m quay length). The alignment of the berth is in the N-S direction abutting the land side which is within the existing break-waters; hence, no shoreline changes are caused.
(iii)	Adequate provision for beach nourishment and sand by pass should be provided.	Complied with. The dredge material was used as beach nourishment in the north of north break water and filling up of back up area.
(iv)	The dredged material obtained should be utilized for filling up of	Complied with.

	backup area.	About 2.0 million cubic meter of dredge material was used as filling up of back up area.
(v)	All conditions stipulated in the environmental clearance letter of even number dated 19.5.2006 should be strictly complied with.	Complied with. All stipulated conditions applicable in the environmental clearance letters are being complied with and the compliance reports are submitted to Regional Office of MoEF & CC, Chennai.
(vi)	The additional dredged material of 4 million cubic meters obtained from the project should not be disposed of into the sea.	Complied with. The dredge material was used as beach nourishment and filling up of back up area.
(vii)	The reclaimed area should be used as container stackyards only.	Complied with. Reclaimed area was used as container stack yard.
(viii)	Adequate drainage facilities should be provided in the reclaimed area along with collection and treatment system for treating the run-off from the container stackyard.	Complied with. The drainage facilities are provided.
(ix)	Necessary approvals/clearances should be obtained from the Tamil Nadu Coastal Zone Management Authority and Tamil Nadu Pollution Control Board before implementing the project.	Complied with.TamilNaduCoastalZoneManagementAuthorityhasrecommended the project vide letterNo.17250/EC-3/2009-1dated26.10.2009.TNPCB has accorded the renewal ofConsent To Operate (CTO) for thefacilityvidetheirordersnos.2108136876855& 2108236876855dated24.08.2021underAir Acts., valid till 31.03.2026.

B. (General Conditions	Compliance report	
(i)	Construction of the proposed structures should 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.	Noted and complied with.	
(ii)	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation, etc. should 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 with. Construction of the Terminals was completed and the projects are under operation.	
(iii)	The project authorities must 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 with. M/s. AECTPL has installed and operating 25 KLD sewage treatment plant to collect and treat the sewage generated from the terminal. The entire treated water is being used for horticulture purpose. M/s AECTPL has implemented integrated waste management system-waste segregation yard. All the solid waste generated is being handled in line to Solid Waste Management Rules' 2016 as amended. M/s AECTPL vision is based on adoption of 5R principle of Solid Waste Management i.e reduce,	

		Reuse, Reprocess, Recycle & recover. All waste is being handled inline to 5R principle.
(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 Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.	Complied with. The quay length 1000m was bifurcated into 730m quay length to handle containers of 11.68 MTPA and in the remaining 270m to develop Multi Cargo terminal to handle 2.0 MTPA of cargo. Environmental clearance for the above was obtained from MoEF&CC vide letter dated 10- 28/2005-IA.III dated 24.12.2014. TNPCB has accorded the renewal of Consent To Operate (CTO) for the facility vide their orders nos. 2108136876855 & 2108236876855 dated 24.08.2021 under Water and Air Acts., valid till 31.03.2026.
(v)	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 with. M/s AECTPL has awarded Environmental monitoring services to a NABL accredited laboratory. Monitoring of Ambient Air Quality, Noise, Stack, STP, Drinking water, Marine Surface Water, Sea Sediment is carried out on regular basis. The reports are being submitted to Tamilnadu Pollution Control Board on monthly basis and also as part of six monthly compliance report. Environment Monitoring report for the period July to December'2021 is enclosed herewith. Reports are made available for the inspection to the concerned State/central officials during their visits.

(vi)	In order to carry out the	Complied with	
	environmental monitoring during the operational phase of the projects, the project authorities should provide an environmental laboratory well equipped with standard equipment and facilities and qualified manpower to carry out the testing of various environmental parameters.	 Complied with. Environmental Monitoring is being carried out through NABL accredited laboratory. Monitoring of Ambient Air Quality, Noise, Stack and STP is carried out on regular basis. The reports are being submitted to Tamilnadu Pollution Control Board on monthly basis and also as part of six monthly compliance reports. Environment Monitoring report for the period July to December'2021 is enclosed herewith. 	
(vii)	The sand dunes and mangroves, if	Complied with.	
	any, on the site should not be disturbed in any way.	No sand dunes or mangroves are present inside the port of this project site.	
(viii)	A copy of the clearance letter will	Complied with.	
	be marked to the concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been received while processing the proposal.	No suggestion or representation was received from Panchayat/local NGO while processing the proposal.	
(ix)	The Tamil Nadu Pollution Control	Complied with.	
	Board should display a copy of the clearance letter at the Regional Office, District Industries centre and Collectors Office/Thasildhar office for 30 days.	No action needed as far as KPL is concerned.	
(x)	The funds earmarked for	The environmental expenditure carried out by M/s AECTPL during the	ed he
	should be maintained in a	compliance period is Rs. 26.68 Lakhs.	•
	separate account and there should	The breakup details are as follows.	
	any other purpose. A year-wise	S. Description Amount	
	expenditure on environmental	No(Rs. in Lakhs)1Environmental2.39	-
	safeguards should be reported to	Monitoring	
	this Ministry's Regional Office at	2 Greenbelt 2.46	

	Dangalars and the State Dellution	2 STD $O_{8}M$ 0.07	
	Bangalore and the State Pollution	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	Control Board.	5 IWMS 1.02	
		5 1WMS 1.23 Total 25.89	
		10tal 23.89	
(xi)	Full support should be extended to the officers of this Ministry's Regional Office at Bangalore and the officers of the Central and State Pollution Control Boards by the Project proponent during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect if mitigative measures and other environmental protection activities.	Being complied with. With regard to M/s AECTPL, TNPCB officials are visiting the terminal on monthly basis. There was no visit from RO-MoEF & CC during the compliance period. All the necessary support is being provided during the site visit.	
(xii)	In case of deviation or alteration in the project including the implementing agency, a fresh reference should be made to this Ministry for modification in the clearance conditions or imposition of new ones for ensuring environmental protection.	Complied with. The quay length of the container terminal of 1000m length was bifurcated into 730m quay length to handle containers of 11.68 MTPA and in the remaining 230m to develop Multi Cargo terminal to handle 2.0 MTPA of cargo. Environmental clearance for the above was obtained from MoEF&CC vide letter dated 10- 28/2005-IA.III dated 24.12.2014.	
(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.	
(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.	

(xv)	The Project proponent should	Complied with.
(xv)	The Project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and the copies of clearance letters are available with the state pollution Control Board and may also be seen at web site of the Ministry of Environment & Forests at //http:www.envfor.nic.in. The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be	Complied with. It was advertised in the vernacular Tamil and English newspapers on 17/9/2008.
	forwarded to the Regional office of this Ministry at Bangalore.	
(xvi)	The project proponents should inform the Regional Office at Bangalore 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 with.

Point wise compliance report on the conditions issued by Tamil Nadu State Coastal Zone Management vide Letter No. 17250/EC-3/2009-1 dated 26.10.2009

1.	The composition of the dredged materials should be duly analyzed and examined to find out the availability of any toxic contents.	 Port has carried out a study through Institute of Ocean Management, Anna University, Chennai entitled "Assessment of Water, Sediment & Biota in Ennore Port" during January 2009. The study revealed that the toxic heavy metals are found to be well within the safety limits and as such do not pose any problem to the marine environment. Sediment quality is also monitored during dredging operations. Port is also monitoring monthly marine water quality for various physio-chemical parameters including heavy metals.
2.	Based on the analysis, a suitable methodology for the disposal of dredging material has to be evolved out.	National Institute of Ocean Technology (NIOT), Chennai has carried out EIA and Risk assessment for the second phase expansion proposals, which is inclusive of Modeling studies has identified a marine disposal area (5 km x 5 km area) for disposal of dredged material. The study has identified a location for the safe disposal of dredged material with a holding capacity of 18.0 million cubic meters.
3.	A permanent air quality monitoring station should be established to check and maintain the air quality within the permissible level.	Port has engaged M/s. Hubert Enviro Care Systems (P) Ltd, a MoEF an NABL accredited laboratory, for sampling and testing of various environmental parameters inside the port premises. Port is monitoring ambient air quality (PM10 & PM2.5). All the monitored parameters are well within the standard limits. The analysis reports are regularly submitted to TNPCB & Regional Office of MoEF&CC.

		District Environmental Laboratory, Tamil Pollution Control Board also monitors annually, the air quality at different locations inside the port. The results of analysis reveal that ambient air quality and noise levels inside the port are well within standards during the survey carried out.
4.	A study should be carried out to ascertain the occurrence of coastal erosion/coastal accretion due to the dredging/dumping of dredged materials in the low lying coastal areas and if so, its extent of implication and the steps required to prevent erosion, mitigate the adverse impacts, etc.	 Desk studies for shoreline management for the proposed phase –II development at Ennore Port" CWPRS, (September 2009; Technical Report- 4658). The study recommended creation of sand trap at the entrance Regular dredging of the sand trap and dredging the sand accumulated at the mouth of the Ennore creek would be required to keep the inlet open. This would enable minimizing further accretion / stabilization of land already formed on the south of the south breakwater. Regular dredging of sand accumulated at the mouth is being carried out by TNEB.

ANNEXURE – 1

(Environment Monitoring Report Jan'22- Jun'22)

REPORT ON

COMPREHENSIVE ENVIRONMENTAL MONITORING FOR

ADANI ENNORE CONTAINER TERMINAL PRIVATE LIMITED (AECTPL) (WITHIN KAMARAJAR PORTLIMITED) VALLUR POST, PONNERI TALUK, CHENNAI -600120

JANUARY 2022 - JUNE 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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I. INTRODUCTION

M/s. Adani Ennore Container Terminal Pvt Ltd (AECTPL) located inside Kamarajar Port, Ennore is operating container berth and handling containerized Import/Export cargoes.

AECTPL have engaged M/s. Green Chem Solutions (P) Ltd, an Accredited Consultant by NABL to carry out the Comprehensive Environmental monitoring studies in the Adani Ennore Port continuously as per the statutory requirement. This report covers the monitored environmental data for the month of Jan 2022 to June 22.

II. LOCATION OF THE PROJECT

The Project site is located at Port area, Ennore 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 Water
- 6. Potable water
- 7. DG Set emission

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

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 03 stations for analyzing the following parameters: PM10 PM2.5 SO ₂ NO ₂ CO Lead Ozone Ammonia Benzene Benzo Pyrene Arsenic Nickel	Weekly Twice
3.	Ambient Noise	Collection of Noise levels on hourly basis at 3 locations • L _{eq} - Day (Max and Min) • L _{eq} - Night (Max and Min)	Monthly Once
4.	Marine Sampling		
	5	remon V"	

SCOPE OF WORK

4a	Surface and Bottom	Collection of Surface and Bottom Water	
14.	Wator	analyzed for - 2 location	
	water	Temperature	
		• pH @ 25°C	
		Total Suspended Solids	
		• BOD at 27 °C for 3 days	
		BOD at 27 C TOF 5 days Dissolved everyop	
		Dissolved oxygen Califating at 25 %	
		• Salinity at 25 °C	
		• Oil & Grease	
		 Nitrate as No₃ 	Monthly Once
		 Nitrite as No₂ 	
		Ammonical Nitrogen as N	
		Ammonia as NH ₃	
		 Kieldahl Nitrogen as Nl 	
		 Total phosphates as PO₄ 	
		Total Nitrogen,	
		Total Dissolved Solids	
		• COD	
		 Total bacterial count, 	
		Coliforms	
		Escherichia coli	
		Salmonella	
		Shigella	
	and the second of the	Vibrio cholera	
	100 C 100 C	Vibrio parahaemolyticus	
	100 CO. CO.	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 H₅ OH	
	Logo,	 Total Hardness as CaCO₃ 	
	Sec.	 Total Alkalinity as CaCO₃ 	
		• Sulphide as H ₂ S	
		 Sulphate as SO₄ 	
		Anionic surfactants as MBAS	
		Monocrotophos	
		Atrazine	
		• Ethion	
		Chiorpyrifos	
		Phorate	
		Menyle parathion	
		Malathion	
		DUI (o,p and p,p-Isomers of	
		DUI, DUE and DUD	
		Gamma HCH (Lindane)	
		Alppna HCH Bata UCU	
		Beta HCH	

		 Delta HCH Endosulfan (Alpha, beta and sulphate) 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 Tridecane Tetradecane Hexadecane Heptadecane Octadecane Nonadecane Elcosan 	
4b.	Sea Sediment	Collection of sea sediment analyzed for - 2 location pH Organic Matter Moisture Content Conductivity Iron Sodium Copper Nickel Zinc Manganese Lead Boron Phosphate Chloride Sulphate Sulphide Pesticide Potassium	Monthly Once

4c.	Phytoplankton	 Total Chromium Petroleum Hydrocarbon Aluminium Total Nitrogen Organic Nitrogen Phosphorus Texture Total Count 	
	Monitoring	 No. of species Chlorophyll-a Major Species 	Monthly Once
4d.	Zooplankton Monitoring	Total CountNo. of speciesMajor	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 - 1 locations	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	Sampling of Emission at 03 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 stat	tion							
2	Ambient Air Qua	lity							
	Parameters	Method							
	Respirable Suspended Particulate Matter (PM10)	IS 5182 Part 23 : 2006							
	Particulate Matter PM2.5	GCS/Lab/SOP/087, CPCB Guidelines							
	Sulphur dioxide as SO ₂	IS 5182 Part 2 : 2001 (Reaff. 2006)							
	Oxides of Nitrogen as NO ₂	IS 5182 Part 6 : 2006							
	Lead as Pb	IS 5182 Part 22 : 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	IS 5182 Part 10: 1999 (Reaff. 2009							
]							
	Ozone as O ₃	IS 5182 Part 9 : 1974 [Reaff.2009]							
	Ammonia as NH ₃	GCS/Lab/SOP/086, CPCB Guidelines							
	Benzene (α) pyrene	IS 5182 - Part 12							
	Benzene as C ₆ H ₆	IS 5182 Part 11 : 2006							
3	Ambient Noise Mon	itoring							
	L _{eq} Day & Night	Instrument Manual,							
		GCS/LAB/SOP/Noise/001							
4	Marine Samplin	ADIA Mathada 22 rd Edition 2017							
	Surface and Bottom water	APHA Methods 23 th Edition, 2017							
	Sea Sediment	standard Methods for examination							
	Phytoplankton Monitoring								
	Zooplankton Monitoring	5025 B							
	Microbiological Monitoring	LISERA Test Methods							
	Primary Productivity Monitoring	OSEI A Test Methods							
	Phytobenthos Monitoring data	1.24							
	Total Fauna Monitoring								
5	SIP water Analy	VSIS							
	pr, iss, bob, raecal collionits	APHA Methods 25° Edition, 2017 Standard Mathods for examination							
		of Water and Waste water and IS							
6	Drinking Water An	alvsis							
0	As per IS 10500 · 2012 - 36 Parameters	APHA Methods 23 rd Edition 2017							
		Standard Methods for examination							
		of Water and Waste water and IS							
		3025							
7	Emission Monitor	ring							
-	PM, Carbon Monoxide, $NO_x - NO_2$, SO_2	IS 11255 Methods of measurement							
	,, () <u>-</u> -	of emissions from Stationary source							
		· · · · · · · · · · · · · · · · · · ·							

V. ENVIRONMENTAL STUDIES - JAN 2022 TO JUNE 22

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 3 locations.
3.	STP water	Collection of STP Inlet & outlet water at one location
4.	Ambient Noise	Collection of Ambient noise levels for day and night at 3 locations
5.	Potable Water	Collection of Potable water at Canteen Building
6.	Marine Water and Marine Sediments	Collection of Marine water and Marine Sediments at One locations
7	DG Set Emissions	Collection of DG Set Emission at 4 locations.



i. METEOROLOGICAL DATA

Meteorological data was collected on hourly basis by installing an auto weather monitoring station at Plant site. The report depicted here under represents the data for Jan 2022 to June 2022. The Detailed report has been is enclosed as Annexure - 1 The following parameters were recorded

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

Α	nr	nez	xu	re	-	1

Jan - 2022

Date	Tem	Ambien peratur	t e (°C)	Atmospheric Pressure (mbar)		Predominant wind Direction	edominant wind Wind Speed Direction (m/s)		ed	Rela	nidity	Rainfall		
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.01.22	25.6	27.9	26.9	1013	1016.8	1014.9	NNE	2.7	4	3.1	82	89	85.2	0.4
02.01.22	25.9	28.8	26.9	1012.1	1016.3	1014.0	NNE	1.8	4	2.8	77	85	81.1	0.0
03.01.22	25.8	27.9	26.6	1012	1015.3	1013.4	NNE	1.3	3.6	2.4	73	82	77.6	0.0
04.01.22	24.9	27.6	26.1	1011.9	<mark>1016</mark> .2	1013.7	NNE	1.8	3.1	2.6	68	79	74.4	0.0
05.01.22	21.5	27.3	25.1	1011.8	<mark>1015.</mark> 4	1013.5	NNE	0.9	4	2.5	74	91	81.2	0.0
06.01.22	22.1	27.9	25.7	<mark>101</mark> 0.3	1015.3	1012.6	NNE	0.9	4	1.9	76	93	83.3	0.0
07.01.22	22.4	29.1	26.5	1010.9	1 <mark>015.2</mark>	1012.8	NE	0.4	2.7	1.5	74	93	81.3	0.0
08.01.22	26.1	28.8	27.1	1011.4	101 <mark>5.7</mark>	1013.2	NE	1.3	2.7	1.9	74	83	79.5	0.0
09.01.22	23.6	28.6	26.5	1009.5	1013.8	1011.6	NE	0.4	2.2	1.4	75	90	80.7	0.0
10.01.22	22.6	28.1	26.5	1010	1013.9	1011.7	E	0.9	3.6	2.0	79	92	83.1	0.0
11.01.22	25.9	29.2	27.3	1009.2	1013.4	1011.2	NNE	1.3	2.7	1.8	77	86	82.5	0.0
12.01.22	26.3	28.3	27.2	1008.9	1012.8	1010.8	Е	1.3	5.8	3.3	77	86	82.3	0.0
13.01.22	26.5	27.9	27.2	1007.8	1012.3	1010.1	ESE	4	6.3	5.1	81	87	84.7	0.0
14.01.22	25.3	28.2	27.1	1007.9	1012.4	1009.9	ESE	0.9	5.4	3.2	82	92	85.8	1.4
15.01.22	24.5	29.3	27.3	1009	1013	1011.0	NE	0.4	2.7	1.7	80	93	85.5	1.8
16.01.22	26.2	28.8	27.4	1010.6	1014.9	1012.6	NNE	1.3	3.1	2.2	78	86	81.9	0.0
17.01.22	21.8	27.8	25.1	1012.1	1016.2	1013.6	WNW	1.3	4	2.3	83	94	84.0	26.8
18.01.22	22.4	27.8	25.1	1011.1	1016.2	1013.6	NNE	0.4	4	2.3	74	94	84.0	0.0
19.01.22	21.9	28.6	25.3	1009.4	1014.5	1011.9	NNE	0.4	2.2	1.5	63	93	80.0	0.0
20.01.22	21	27.2	25.3	1007.8	1013	1010.2	ESE	0.9	3.6	2.3	72	91	78.0	0.0
21.01.22	21.8	27.1	25.2	1007.3	1012.5	1009.7	SSE	0.9	6.3	3.7	73	93	83.0	0.0
22.01.22	23.6	27.1	25.7	1005.6	1010.5	1008.0	SE	2.2	5.4	4.2	85	93	88.0	0.0
23.01.22	24.3	28.7	26.6	1005.7	1010.2	1008.0	SE	2.2	6.3	4.3	76	93	86.8	0.0
24.01.22	24.5	27.3	26.2	1006.2	1010.1	1007.9	SE	0.4	4.5	2.5	79	89	83.8	0.0

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F														
25.01.22	23.6	27.6	25.9	1006.2	1010.7	1008.5	SE	0.4	4.9	2.9	79	93	85.3	0.0
26.01.22	25.4	27.5	26.6	1007.4	1011.2	1009.3	SE	2.2	4.5	3.8	77	85	80.1	0.0
27.01.22	26	28.8	27.1	1008.3	1011.9	1010.0	NNE	0.9	3.6	2.3	72	82	78.1	0.0
28.01.22	26.1	28.8	27.0	1009.4	1014	1011.5	NNE	2.2	3.6	2.8	74	83	78.8	0.0
29.01.22	25.8	27.3	26.5	1010.7	1014.8	1012.4	NNE	1.3	4.5	2.8	75	83	78.9	0.0
30.01.22	24	28.2	26.6	1009.1	1014.2	1011.5	NNE	0.9	3.1	1.9	74	90	79.4	0.0
31.01.22	22.5	28.2	26.0	1008.7	1013	1010.6	ENE	0.4	3.1	1.7	74	93	81.6	0.0
						Fe	b - 2022							
Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pro (mbar)	essure	sure Predominant wind Direction		Wind Speed (m/s)			tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.02.22	22.3	27.8	25.6	1008.1	1012.6	1010.1	ESE	0.9	3.1	1.9	73	92	79.9	0.0
02.02.22	21.8	26.8	24.9	1009.2	1013.2	1010.9	ESE	0.4	4	2.6	71	92	79.1	0.0
03.02.22	21.2	26.9	25.3	1007.9	1013	1010.3	SE	0.4	4.9	3.3	72	91	77.7	0.0
04.02.22	22.4	27.3	25.9	1005.9	1011	1008.5	SE	0.9	4 .5	3.4	77	91	81.8	0.0
05.02.22	23.7	28.5	26.5	1007.7	1011. <mark>9</mark>	1009.5	E	0.9	4.5	2.7	79	92	84.0	0.0
06.02.22	26.4	28.5	27.3	1010.2	101 <mark>4.5</mark>	1012.2	E	1.3	3.6	2.6	75	83	78.4	0.0
07.02.22	22.5	29.2	26.9	1010.7	<mark>1015</mark>	1012.7	NNE	0.4	2.2	1.2	68	90	75.9	0.0
08.02.22	22.5	29.1	26.8	1009.2	<mark>1014.</mark> 2	1011.6	NE	0.4	2.7	1.7	65	88	74.3	0.0
09.02.22	25.9	28.7	27.1	1009.9	1014.4	1011.8	NE	1.3	2.7	1.9	69	77	72.3	0.0
10.02.22	21.8	28.4	26.4	1008.8	1013.1	1011.0	NNE	0.9	4	2.3	68	90	75.8	0.0
11.02.22	22.8	28.9	26.5	1009.3	1013.1	1010.9	NNE	1.3	3.6	2.5	72	91	78.0	0.0
12.02.22	26.1	28.8	27.3	1008.6	1013.2	1010.5	NNE	1.3	3.1	2.2	72	79	76.4	0.0
13.02.22	23.2	29.4	27.0	1007.8	1012.3	1009.8	NNE	0.9	2.7	1.5	69	90	76.5	0.0
14.02.22	25.7	28.6	27.0	1007.7	1012.2	1009.7	NE	0.4	3.1	2.0	72	84	76.8	0.0
15.02.22	25.6	28.7	26.8	1007.9	1012. <mark>9</mark>	1009.9	NE	0.9	2.2	1.6	66	75	71.9	0.0
16.02.22	23.3	28.4	26.4	1005.1	1010.4	1008.0	NNE	0.4	2.2	1.3	69	85	74.0	0.0
17.02.22	21.9	29	27.3	1004.9	1011.4	1008.8	NNE	0.4	3.1	2.2	67	80	75.7	0.0
18.02.22	26.1	29	27.3	1006.4	1011.4	1008.8	NE	1.8	3.1	2.2	71	80	75.7	0.0
19.02.22	25.3	28.9	27.2	1008.8	1013.4	1010.8	NE	0.9	2.7	1.5	74	85	78.0	0.0
20.02.22	22.2	27.9	26.0	1007.4	1012.1	1009.5	ESE	0.4	4.9	2.7	76	93	82.8	0.0
21.02.22	22.8	27.8	26.1	1005.9	1010.4	1007.9	SE	0.9	6.3	4.1	81	94	87.2	0.0
22.02.22	23.8	28.6	26.8	1007.6	1012.7	1010.3	ESE	0.4	4	2.6	80	95	85.7	0.0
23.02.22	26.4	29.3	27.5	1011.2	1015.3	1013.2	E	2.2	4	2.9	74	83	78.4	0.0
24.02.22	26.3	29.4	27.5	1012.1	1016.7	1014.1	NE	0.9	2.2	1.5	71	80	75.7	0.0
25.02.22	22.8	29.2	26.8	1011.1	1015.5	1013.2	NE	0.9	2.7	1.7	68	87	74.2	0.0
26.02.22	25.8	29.2	27.4	1011.6	1015.7	1013.4	NE	1.3	2.7	2.0	74	80	76.6	0.0
27.02.22	26.2	28.9	27.4	1011	1015.6	1013.2	NNE	1.3	3.1	2.1	72	80	76.6	0.0
28.02.22	22.6	29.3	26.7	1010.1	1015	1012.5	NNE	0.4	3.1	1.7	72	91	80.4	0.0

						Ma	r - 2022							
Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pre (mbar)	essure	Predominant wind Direction	W	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	mm
01.03.22	22.8	29.6	26.7	1010.8	1014.4	1012.4	NNE	0.4	3.1	1.8	58	93	79.4	0.0
02.03.22	21.8	29.3	26.1	1009.7	1014.4	1011.7	NNE	0.9	3.1	2.1	74	92	83.3	0.0
03.03.22	23.2	29.2	27.1	1009.1	1013.7	1011.2	NNE	0.9	3.1	2.5	76	93	82.6	0.0
04.03.22	24.5	29.7	27.6	1009	1012.8	1010.7	NNE	2.2	3.6	2.9	69	89	76.4	3.0
05.03.22	24.3	29.7	27.7	1008.4	1011.9	1010.1	NNE	1.8	4.9	3.2	69	91	76.7	0.0
06.03.22	26.4	29.1	27.7	1008.4	1012.2	1010.2	NNE	2.2	5.4	3.2	56	80	71.3	0.0
07.03.22	27.1	29.7	28.2	1008.6	1012.1	1010.4	NNE	0.9	3.6	2.4	69	83	77.9	0.0
08.03.22	23.5	29.6	27.4	1008	1012.5	1010.3	NNE	0	2.7	1.3	75	93	81.8	0.0
09.03.22	23.4	30.1	27.2	1007.4	1011.8	1009.7	NNE	0.4	2.7	1.4	70	95	81.3	0.0
10.03.22	22.9	29.7	26.8	1007.7	1011.3	1009.4	NNE	0.4	2.7	1.3	73	92	82.7	0.0
11.03.22	23.6	29.1	27.0	1007	1011.2	1009.1	NNE	0.4	2.2	1.3	76	92	82.3	0.0
12.03.22	22.9	30.3	26.8	1006.4	1010.8	1008.6	NNE	0.4	2.2	1.4	66	94	82.5	0.0
13.03.22	23.5	30.8	27.4	1007.3	1010.8	1009.0	NNE	0.4	2.2	1.2	68	91	79.9	0.0
14.03.22	23.8	30.7	27.5	1006.8	1011.6	1009.0	NE	0.4	2.2	1.4	69	89	80.2	0.0
15.03.22	23.8	30.3	27.5	1005.3	<mark>1009.6</mark>	1007.6	E	0	4	2.1	63	94	80.2	0.0
16.03.22	23.7	30	27.3	1003.7	1008.4	1006.1	SE	0.9	5.8	3.1	62	90	79.2	0.0
17.03.22	24.4	28.9	27.3	1003	1008.3	1005.5	SE	0.9	7.2	4.7	65	93	85.9	0.0
18.03.22	23.4	28.9	27.3	1002.3	1008.3	1005.5	SE	1.8	7.2	4.7	78	93	85.9	0.0
19.03.22	26.8	29.4	28.0	1002.8	1008.3	1005.3	SE	2.2	5.8	4.5	79	91	87.0	0.0
20.03.22	27.2	29.7	28.4	1002.5	1007.1	1004.9	SE	1.3	6.3	3.9	85	95	89.5	0.0
21.03.22	27.3	30.4	28.9	100 <mark>2.</mark> 3	10 <mark>06.7</mark>	1004.8	SE	0.4	4.5	3.5	82	95	89.8	0.0
22.03.22	27.9	34	29.9	1003	1007. <mark>5</mark>	1005.3	SE	1.3	4	2.9	62	95	82.7	0.0
23.03.22	28.2	29.8	29.0	1003.6	1008.2	1005.7	SE	2.2	5.4	4.0	86	92	89.3	0.0
24.03.22	27.2	30.1	28.8	1004.3	1009.2	1006.4	SE	0.4	5.8	4.1	82	91	87.7	0.0
25.03.22	27.7	29.8	28.8	1005.4	1009.6	1007.6	SE	2.7	5.8	4.6	82	89	86.5	0.0
26.03.22	27.3	29.9	28.8	1007.3	1012	1009.2	SE	1.8	7.2	4.8	82	90	86.3	0.0
27.03.22	27.4	29.9	28.7	1007	1011.9	1009.4	SE	0.9	7.6	4.9	83	90	87.2	0.0
28.03.22	27.6	29.7	28.7	1006.5	1011.3	1008.6	SSE	3.6	7.2	5.4	82	91	87.8	0.0
29.03.22	27.7	30.1	28.8	1005.2	1009.4	1007.2	SSE	3.1	8.9	5.8	81	92	87.5	0.0
30.03.22	28	31.2	29.0	1004.3	1009.1	1006.6	SSE	4	8.5	6.0	77	94	88.2	0.0

Apr - 2022

Date	Tem	Ambien peratur	t e (°C)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	w	ind Spe (m/s)	ed	Rela	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.04.22	27.9	30.1	28.7	1005.4	1010.1	1007.5	NNE	3.6	8.9	6.0	82	93	88.0	0.0
02.04.22	27.8	29.7	28.7	1006.7	1011.6	1008.9	NNE	3.1	7.6	5.3	85	91	88.0	0.0
03.04.22	26.3	30	28.5	1005.7	1010.7	1008.4	NNE	0.4	6.3	4.3	83	92	87.6	0.0
04.04.22	27.8	29.6	28.7	1007.6	1011.8	1009.2	NNE	3.1	5.8	4.7	83	90	86.5	0.0
05.04.22	27.8	29.8	28.8	1008.6	1012.7	1010.8	NNE	2.7	6.7	5.0	82	87	84.5	0.0
06.04.22	25.7	29.5	28.4	1007.9	1013.1	1010.8	NNE	0.9	5.8	3.7	82	93	85.9	0.0
07.04.22	26.6	29.9	28.8	1007.2	1011.3	100 <mark>9.6</mark>	NNE	0.9	5.8	3.6	82	91	85.6	0.0
08.04.22	26.9	30.6	29.3	1006.4	1011.2	1008.9	NNE	0.4	4.9	2.8	78	91	83.3	0.0
09.04.22	27.7	30.8	29.5	1005.6	1009.5	1007.8	NNE	0.9	4.5	2.8	81	89	84.2	0.0
10.04.22	28.9	31.6	30.1	1005.2	1008.9	1007.2	NNE	0.4	3.6	1.8	79	87	83.2	0.0
11.04.22	28.8	31	29.8	1004.1	1008.7	1006.5	NNE	0.4	3.6	2.2	81	86	83.3	0.0
12.04.22	27.7	31	29.7	1003.1	1008.1	1005.9	NNE	0.9	4.9	2.7	80	89	84.2	0.0
13.04.22	27.7	30.3	29.4	1003.3	1007.1	1005.4	NNE	0.4	4.9	3.2	83	93	86.6	1.2
14.04.22	27.3	30.8	29.6	1003.3	1008.3	1005.6	NE	0.4	7.2	4.2	81	92	85.5	0.0
15.04.22	28.7	30.7	29.7	1002.4	1007.1	1005.1	Е	2.7	8	6.0	79	91	85.9	0.0
16.04.22	29.1	30.7	29.7	1001.4	1 <mark>005.9</mark>	1003.9	SE	3.6	7.2	5.4	82	93	87.7	0.0
17.04.22	28.9	30.3	29.4	1003	100 <mark>8.9</mark>	1006.7	SE	3.6	5.8	4.1	75	90	87.6	0.0
18.04.22	28.8	30.3	29.4	1004.4	1008.9	1006.7	SE	0.9	5.8	4.1	82	90	87.6	0.0
19.04.22	28.4	30.4	29.4	1005.6	1009.6	1007.9	SE	1.8	6.3	4.3	85	90	87.4	0.0
20.04.22	28.4	30.7	29.5	1004.1	1008.3	1006.5	SE	1.8	6.7	4.5	83	90	87.4	0.0
21.04.22	28.6	30.5	29.4	1004	1008.2	1006.2	SE	3.1	6.7	5.0	82	90	85.4	0.0
22.04.22	28.5	30.4	29.4	1005.9	1009.5	1007.6	SE	1.3	5.8	4.2	80	86	83.5	0.0
23.04.22	27.6	30.7	29.6	1005.5	1009.5	1007.8	SE	0.9	6.3	4.4	82	90	85.4	0.0
24.04.22	28.1	30.5	29.4	1004.2	1008.9	1006.6	SE	0.4	5.8	3.7	81	90	85.2	0.0
25.04.22	27.7	30.7	29.4	1003.2	1008	1005.7	SE	2.7	7.6	5.6	80	91	85.4	0.0
26.04.22	28.2	31.6	29.6	1004	1008.1	1006.1	SE	2.7	7.6	5.1	79	89	86.2	0.0
27.04.22	28.4	30.4	29.4	1003.3	1007.9	1005.8	SE	2.7	7.2	5.0	83	90	87.4	0.0
28.04.22	28.1	30.7	29.4	1004.3	1008.8	1006.5	SSE	2.2	7.2	5.0	81	90	87.1	0.0
29.04.22	28.7	30.7	29.6	1003.7	1007.9	1006.3	SSE	2.7	6.3	4.7	84	93	88.5	0.0
30.04.22	28.8	30.9	29.7	1001	1007.4	1004.3	SSE	4	7.2	5.4	86	94	90.0	0.0

Date	Temp	Ambien peratur	t e (°C)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	W	ind Spe (m/s)	ed	Relat	tive Hur (%)	nidity	Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	
01.05.22	28.8	30.7	29.8	999.7	1005.5	1003.0	SSE	3.1	7.6	5.5	84	94	90.9	0.0
02.05.22	27.2	33.9	29.9	1000.7	1005.3	1003.1	SE	1.3	5.4	3.4	66	95	84.0	0.0
03.05.22	28.7	30.9	29.8	1002.4	1006.1	1004.3	SE	2.7	6.3	4.5	87	95	91.0	0.0
04.05.22	28.8	30.8	29.8	1003.9	1007.8	1005.7	SSE	2.7	5.4	4.0	85	94	90.2	0.0
05.05.22	27.7	30.6	29.6	1002.6	1007	1005.2	ESE	0	5.8	3.0	81	91	85.8	0.0
06.05.22	29.1	31.3	30.1	1001.5	1006.1	1004.4	SE	1.3	5.8	4.2	83	92	88.8	0.0
07.05.22	27.2	32.6	30.0	1000.9	1005.6	1003.7	ESE	0.4	4.5	2.4	75	93	85.0	0.0
08.05.22	28.4	32.7	30.4	998.9	1003.7	1001.6	ENE	0.4	3.6	1.8	81	93	87.2	0.0
09.05.22	28.7	32.8	30.3	996.3	1001.6	999.1	NW	0.4	5.4	2.8	69	92	84.4	0.0
10.05.22	23.3	29.7	26.8	994.3	1002.7	998.1	SW	1.3	5.4	3.3	81	94	88.9	17.2
11.05.22	26.1	31.6	28.4	996.4	1001.9	999.2	WSW	1.8	5.8	3.5	74	90	79.1	0.0
12.05.22	25	29.6	27.4	1000.2	1 <mark>003.1</mark>	1001.6	WSW	3.1	8	5.0	73	94	81.7	3.0
13.05.22	25.3	33.1	28.3	999.4	<mark>1003.7</mark>	1001.5	SSW	2.7	5.8	4.5	72	91	85.9	0.0
14.05.22	27.9	33.3	29.8	1000.3	1004.4	1002.0	SSE	1.8	5.4	3.9	73	90	84.7	0.0
15.05.22	26.9	30.5	29.2	1000.7	100 <mark>5</mark> .3	1003.1	SE	2.2	5.8	4.4	80	90	87.1	0.0
16.05.22	25.9	31.7	28.5	1000.2	<mark>1004</mark> .6	1002.8	SE	2.2	4.9	3.6	78	93	87.9	0.0
17.05.22	27.1	30	29.2	999.4	1004.1	1002.6	SE	0	8.5	6.2	85	92	88.5	0.0
18.05.22	28.5	30	29.2	1000.6	1004.1	1002.6	SSE	3.6	8.5	6.2	85	92	88.5	0.0
19.05.22	28.4	30.2	29.3	1001.2	10 <mark>05.2</mark>	1003.4	SSE	4.5	7.6	6.2	83	93	87.3	0.0
20.05.22	26.6	34	29.8	1002.3	1006. <mark>2</mark>	1004.3	WSW	1.3	5.8	3.8	64	91	76.3	0.0
21.05.22	27.7	34.9	31.2	1000.4	1005.3	1003.0	WSW	2.2	5.8	3.8	59	82	69.3	0.0
22.05.22	29.3	36.3	32.3	998.2	1003	1000.8	SW	1.3	4.9	3.9	58	75	68.0	0.0
23.05.22	28.5	34.3	30.7	998.7	1002.6	1000.7	SE	2.7	6.3	4.4	64	91	78.1	0.0
24.05.22	29.2	34.9	30.6	1000.4	1006.5	1003.1	SE	1.8	6.3	4.4	66	93	84.6	0.0
25.05.22	29	33.7	30.4	1003	1007.4	1005.1	SE	1.8	5.8	3.7	69	91	83.4	0.0
26.05.22	28.8	32.3	30.2	1002.3	1007	1005.1	SSW	2.2	6.7	4.7	69	87	80.1	0.0
27.05.22	28.1	34.1	30.4	1002.4	1006.6	1004.6	SW	2.2	5.4	4.0	66	92	79.6	0.0
28.05.22	28.2	35	30.1	1001.4	1005.1	1003.4	SW	2.7	6.3	4.3	60	92	82.0	0.0
29.05.22	28.8	35.2	30.4	1001.5	1005	1003.3	SSE	2.2	6.3	4.8	62	92	82.1	0.0
30.05.22	28.6	34.6	30.1	1000.5	1004.6	1002.7	SE	2.2	6.3	4.8	66	93	84.0	0.0
31.05.22	28.7	36.3	30.7	999.8	1003.4	1001.9	SSE	1.3	6.3	4.5	61	93	81.0	0.0

May - 2022

	Julie - 2022													
Date	Temp	Ambien peratur	t e (oC)	Atmos	pheric Pro (mbar)	essure	Predominant wind Direction	w	ind Spe (m/s)	ed	Relative Humidity (%)			Rainfall
	Min	Max	Avg	Min	Max	Avg	(Blowing From)	Min	Max	Avg	Min	Max	Avg	mm
01.06.22	28.9	34.9	30.8	999.5	1003.3	1001.7	SE	1.3	6.3	4.4	63	91	80.6	0.0
02.06.22	29.3	35	31.0	999.9	1003.5	1001.7	SE	1.3	6.3	4.1	64	91	80.3	0.0
03.06.22	29.2	33.9	30.8	999.9	1003.1	1001.4	SSE	0.9	6.7	4.5	66	92	81.1	0.0
04.06.22	29.1	32.6	30.1	1000	1003.4	1001.6	SSE	1.3	6.3	4.4	66	93	84.5	0.0
05.06.22	29.1	32.9	30.1	999.7	1003.2	1001.6	ESE	3.6	8	6.0	74	93	86.6	0.0
06.06.22	25.2	32.1	29.3	1001.4	1004.7	1003.1	SW	1.8	8	4.5	71	91	82.1	0.0
07.06.22	27.1	35.4	30.7	1000.9	1004.5	1002.8	SW	2.2	6.7	4.4	63	90	76.5	0.0
08.06.22	29.4	37.3	31.2	999.8	1004	1001.9	SSE	2.7	7.2	5.5	61	92	78.7	0.0
09.06.22	29.1	34.1	30.7	1000.4	1003.8	1002.0	SSE	0.9	6.7	4.4	65	93	81.5	0.0
10.06.22	29.1	37.1	31.4	1000.4	1005.3	1002.8	SSE	3.6	7.2	5.1	53	93	78.0	0.0
11.06.22	28.9	35.4	30.7	1002	1006.1	1003.9	SSE	3.1	6.7	5.0	58	92	79.2	0.0
12.06.22	28.8	35.9	30.8	1002.2	100 <mark>6.2</mark>	1004.1	ESE	1.8	6.3	4.4	59	93	81.0	0.0
13.06.22	26.6	33	29.9	1003.2	1 <mark>007.4</mark>	1005.2	SE	1.3	4.9	3.0	65	90	80.5	0.8
14.06.22	28.9	34.6	30.9	1002	<mark>1006.1</mark>	1004.3	SSE	2.2	5.4	3.9	67	90	82.3	0.0
15.06.22	27.4	31.9	29.8	1002	1006.1	1004.1	ESE	1.8	7.6	4.5	72	85	80.5	0.0
16.06.22	26.5	33.1	29.8	1001.9	1005.9	1004.3	ESE	0.9	5.4	3.7	69	88	82.5	0.0
17.06.22	28.1	30.4	29.2	1002	1006.3	1004.7	SSE	0.9	6.3	4.8	73	91	85.2	0.0
18.06.22	27.3	30.4	29.2	1002.6	1006.3	1004.7	SSE	1.3	6.3	4.8	81	91	85.2	1.0
19.06.22	22.9	30.6	29.2	1002.1	1007.5	1004.7	SSE	2.2	7.6	5.0	83	95	87.5	8.6
20.06.22	23	32.3	27.6	1000.7	10 <mark>05.4</mark>	1003.8	SSE	2.2	6.7	3.9	73	96	87.6	14.8
21.06.22	24.5	32.4	27.4	1000.1	1004.9	1002.6	SW	1.3	6.3	3.6	75	95	88.2	14.2
22.06.22	25.1	32.2	28.6	1001.8	1006	1003.8	SSE	0	5.8	3.3	71	94	87.6	6.2
23.06.22	28.1	29.3	28.9	1002.7	1006.2	1005.0	SSE	0.9	4.5	2.8	83	91	86.5	0.0
24.06.22	23.2	33.8	29.8	1000.2	1006.1	1003.6	SE	1.8	5.8	4.5	67	94	84.3	7.0
25.06.22	26.2	33.8	29.7	998.6	1003.7	1001.5	WSW	0.4	6.7	3.5	68	90	79.3	5.0
26.06.22	28	34.2	30.3	1000.1	1004.2	1002.1	SW	1.8	6.7	4.3	65	91	78.3	0.0
27.06.22	28.3	32.8	30.0	1002.4	1006.1	1003.9	WSW	0.9	4.9	2.8	68	88	78.4	0.0
28.06.22	27.2	32.1	29.6	1001.9	1005.7	1004.1	WSW	0	5.4	2.1	68	92	82.0	0.0
29.06.22	27.3	34	30.0	999.9	1003.9	1002.2	SSE	0.9	5.8	3.7	67	92	82.5	2.6
30.06.22	25.8	32.9	29.5	999.1	1003.8	1001.6	ESE	0.4	5.8	3.0	72	94	85.1	13.8

June - 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	9	22	18	1	1	3.46	51	6.9
ENE	1	14	12	0	0	0	1.78	27	3.6
ESE	0	3	10	33	11	13	3.80	70	9.4
N	0	2	4	2	0	0	2.22	8	1.1
NE	14	50	24	0	0	0	1.55	88	11.8
NNE	9	83	116	60	0	0	2.22	268	36.1
NNW	0	0	0	1	0	0	3.60	1	0.1
NW	3	3	6	10	2	1	2.85	25	3.4
S	0	2	0	4	1	1	3.66	8	1.1
SE	0	0	5	29	32	11	4.25	77	10.4
SSE	0	1	3	8	2	2	4.02	16	2.2
SSW	0	0	0	4	2	0	4.02	6	0.8
SW	0	5	4	3	1	0	2.95	13	1.7
W	23	5	1	1	0	0	1.70	30	4.0
WNW	8	14	8	10	0	0	2.22	40	5.4
WSW	9	3	3	0	0	0	1.32	15	2.0
		1 - 1						743	
Number of events	67	194	218	183	52	29	743		-
Events (%)	9.0	26.1	29.3	24.6	7.0	3.9		-	

WIND PATTERN - Jan- 2022

WIND PATTERN - Feb- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	1	5	26	18	0	0	2.23	50	7.5
ENE	0	15	33	4	0	0	2.22	52	7.7
ESE	1	3	17	37	5	0	2.68	63	9.4
N	0	2	0	1	0	0	2.20	3	0.4
NE	16	122	52	1	0	0	1.77	191	28.5
NNE	29	60	54	13	0	0	1.77	156	23.2
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	6	0	0	5	0	0	2.40	11	1.6
S	0	0	1	1	0	0	3.15	2	0.3
SE	1	0	1	25	13	10	4.12	50	7.5
SSE	0	1	1	6	0	0	2.70	8	1.2
SSW	0	0	0	0	0	0	0.00	0	0.0
SW	1	0	5	2	0	0	2.50	8	1.2
W	19	8	0	0	0	0	1.10	27	4.0
WNW	14	14	3	3	0	0	1.77	34	5.1
WSW	10	5	1	0	0	0	1.42	16	2.4
								743	
Number of events	98	235	194	116	18	10	671		
Events (%)	14.6	35.0	28.9	17.3	2.7	1.5			

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	3	8	3	0	0	2.45	14	1.9
ENE	5	10	7	5	0	1	2.38	28	3.8
ESE	2	0	4	8	8	11	3.65	33	4.4
N	1	3	14	5	0	0	1.92	23	3.1
NE	8	14	9	4	1	0	2.51	36	4.9
NNE	27	41	52	36	0	0	2.22	156	21.0
NNW	1	0	0	1	0	0	2.20	2	0.3
NW	8	1	2	6	3	0	2.76	20	2.7
S	1	2	9	16	3	3	3.39	34	4.6
SE	0	1	7	37	35	85	5.34	165	22.2
SSE	0	3	14	38	19	42	4.92	116	15.6
SSW	0	2	2	1	0	2	3.95	7	0.9
SW	1	4	8	6	0	1	2.96	20	2.7
w	22	9	0	0	0	0	0.88	31	4.2
WNW	18	14	2	1	1	0	1.93	36	4.9
WSW	10	6	5	0	0	0	1.55	21	2.8
			1					742	
Number of events	104	113	143	167	70	145	742		
Events (%)	14.0	15.2	19.3	22.5	9.4	19.5			

WIND PATTERN - Mar- 2022

WIND PATTERN - Apr- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	0	4	0	19	0	22	0	2	6.5
ENE	5	1	0	8	0	0	0	0	1.9
ESE	1	1	0	9	0	28	0	29	12.9
N	0	0	0	0	0	0	0	0	0.0
NE	8	7	0	0	0	0	0	0	2.1
NNE	4	0	0	0	0	0	0	0	0.6
NNW	0	0	0	0	0	0	0	0	0.0
NW	5	1	0	0	0	0	0	0	0.8
S	1	2	0	5	0	12	0	6	3.9
SE	4	2	0	9	0	29	0	86	43.8
SSE	0	6	0	14	0	68	0	42	21.3
SSW	0	1	0	1	0	3	0	3	1.4
SW	1	2	0	1	0	2	0	0	0.8
W	8	2	0	0	0	0	0	0	1.4
WNW	3	4	0	0	0	0	0	0	1.0
WSW	7	3	0	1	0	0	0	0	1.5
								719	
Number of events	47	36	67	164	168	237	719		
Events (%)	6.5	5.0	9.3	22.8	23.4	33			

							Avg.		
Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	wind Speed (m/s)	Number of events	Events (%)
E	0	1	6	4	0	0	2.58	11	1.5
ENE	0	0	4	2	0	0	2.90	6	0.8
ESE	0	3	4	23	28	8	3.57	66	8.9
N	0	0	0	0	0	0	0.00	0	0.0
NE	0	5	3	0	0	0	1.77	8	1.1
NNE	1	4	1	0	0	0	1.68	6	0.8
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	1	0	3	2	3	1	3.20	10	1.3
S	0	2	2	13	16	11	4.78	44	5.9
SE	1	2	5	28	47	64	4.44	147	19.8
SSE	0	2	9	47	38	61	5.14	157	21.1
SSW	0	1	3	11	15	10	4.06	40	5.4
SW	1	8	10	45	33	7	3.31	104	14.0
W	10	5	8	2	1	0	2.05	26	3.5
WNW	2	2	6	1	1	0	2.29	12	1.6
WSW	3	15	22	47	12	7	2.90	106	14.6
			5.97					743	
Number of events	19	50	86	225	194	169	743		
Events (%)	2.6	6.7	11.6	30.3	26.1	22.7		-	

WIND PATTERN - May- 2022

WIND PATTERN - Jun- 2022

Direction	0 <= ws< 1	1 <= ws< 2	2 <= ws< 3	3 <= ws< 4	4 <= ws< 5	ws>= 5	Avg. wind Speed (m/s)	Number of events	Events (%)
E	2	7	5	4	0	0	2.23	18	2.5
ENE	2	1	3	1	0	0	1.88	7	1.0
ESE	0	2	4	14	24	12	3.80	56	7.8
N	0	0	0	0	0	0	0.00	0	0.0
NE	1	3	5	1	0	0	1.88	10	1.4
NNE	1	2	2	0	0	0	1.90	5	0.7
NNW	0	0	0	0	0	0	0.00	0	0.0
NW	1	0	0	4	0	1	3.92	6	0.8
S	1	1	4	11	18	14	4.16	49	6.8
SE	0	2	4	21	36	40	4.89	103	14.3
SSE	0	3	12	44	46	90	4.69	195	27.1
SSW	2	1	6	11	12	12	4.16	44	6.1
SW	0	6	6	39	20	23	4.02	94	13.1
W	6	15	2	1	0	0	1.66	24	3.3
WNW	1	3	4	0	0	0	1.78	8	1.1
WSW	4	8	33	46	8	1	2.90	100	13.9
								719	
Number of events	21	54	90	197	164	193	719		
Events (%)	2.9	7.5	12.5	27.4	22.8	26.8			

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.

Station code	Location	Geographical location	Environmental setting
AAQ1	Port operating building	13º 16' 12" N 80º 20' 5" E	Industrial
AAQ2	RMU Building	13º 16' 25" N 80º 20' 16" E	Industrial
AAQ3	In Terminal Gate	13º 16' 25" N 80º 20' 0" E	Industrial

DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

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)	µg/m³	1.0
2	PM _{2.5}	Fine particle Sampler (Gravimetric method)	µg/m³	5.0
3	Sulphur Dioxide	Modified West and Gaeke method	µg/m³	4.0
4	Nitrogen Oxide	Jacob & Hochheiser method	µg/m³	6.0
5	Lead	Atomic Absorption Spectrometry	µg/m³	0.5
6	Carbon Monoxide	Draggers Tube	mg/m ³	0.1
7	Ozone	UV Photometric	µg/m³	2.0
8	Ammonia	Indophenol blue method	µg/m³	2.0
9	Benzene	Gas Chromatography	µg/m³	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 presented and discussed. 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"

				PORT	OPERATI	NG BUILD	ING (AA	Q1)						
			Particular	Particular	Sulphur	Nitrogen		Carbon		Ammonia			Benzene	Benzo (a)
			matter	matter	dioxide	dioxide	Lead as	monoxide	Ozone	as	Arsenic	Nickel	as	pyrene as
	Pa	rameters	PM10	PM2.5	as	as NO2	Pb	as CO	as O3	NH3	as As	as Ni	C6H6	BaP
	ra	lameters			502									
		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		100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling	Report Number	100		00	00	-	- 7	100	400	Ŭ	20	9	-
1	03.01.2022	GCS/LAB/S/1111/21-22	60	21	6.4	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022	GCS/LAB/S/1111/21-22	63	20	6.6	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022	GCS/LAB/S/1111/21-22	52	18	5.3	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022	GCS/LAB/S/1111/21-22	47	15	5.0	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022	GCS/LAB/S/1111/21-22	55	19	5.2	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022	GCS/LAB/S/1111/21-22	68	27	7.1	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022	GCS/LAB/S/1111/21-22	67	24	7.4	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022	GCS/LAB/S/1111/21-22	61	23	7.0	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022	GCS/LAB/S/1164/21-22	54	18	7.7	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022	GCS/LAB/S/1164/21-22	59	23	6.0	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022	GCS/LAB/S/1164/21-22	68	30	6.2	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022	GCS/LAB/S/1164/21-22	64	26	6.5	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022	GCS/LAB/S/1164/21-22	49	17	5.9	15.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022	GCS/LAB/S/1164/21-22	60	24	6.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022	GCS/LAB/S/1164/21-22	57	28	7.6	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022	GCS/LAB/S/1164/21-22	51	18	6.4	15.6	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022	GCS/LAB/S/1231/21-22	50	17	5.5	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022	GCS/LAB/S/1231/21-22	47	16	4.9	14.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07.03.2022	GCS/LAB/S/1231/21-22	61	23	7.5	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022	GCS/LAB/S/1231/21-22	55	18	6.3	15./	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	14.03.2022	GCS/LAB/S/1231/21-22	57	28	7.9	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18.03.2022	GCS/LAB/S/1231/21-22	58	20	6.7	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	21.03.2022	GCS/LAB/S/1231/21-22	62	21	7.6	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	23.03.2022	GCS/LAB/S/1231/21-22	46	19	6.7	14.4	<0.1	<1.0	<10	<2	~2	~2	~1	<0.1
25	01.04.2022	GCS/LAB/S/1293/22-23	51	10	6.2	15.8	<0.1	<1.0	<10	<2	~2	< <u>^</u> 2	<u></u>	<0.1
20	08.04.2022	GCS/LAB/S/1293/22-23	49	15	49	13.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	11 04 2022	GCS/LAB/S/1293/22-23	45	16	53	14.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	15.04.2022	GCS/LAB/S/1293/22-23	54	22	7.1	15.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	18.04.2022	GCS/LAB/S/1293/22-23	57	24	6.9	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022	GCS/LAB/S/1293/22-23	60	26	7.5	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	25.04.2022	GCS/LAB/S/1293/22-23	64	28	7.2	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022	GCS/LAB/S/1350/22-23	42	16	6.5	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.05.2022	GCS/LAB/S/1350/22-23	56	22	6.9	17.3	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.05.2022	GCS/LAB/S/1350/22-23	51	20	6.1	15.8	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.05.2022	GCS/LAB/S/1350/22-23	48	17	5.8	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	16.05.2022	GCS/LAB/S/1350/22-23	44	18	7.5	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.05.2022	GCS/LAB/S/1350/22-23	61	25	6.0	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.05.2022	GCS/LAB/S/1350/22-23	57	23	7.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.05.2022	GCS/LAB/S/1350/22-23	53	21	6.1	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	03.06.2022	GCS/LAB/S/1421/22-23	55	20	7.2	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.06.2022	GCS/LAB/S/1421/22-23	51	18	7.5	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.06.2022	GCS/LAB/S/1421/22-23	57	23	7.9	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.06.2022	GCS/LAB/S/1421/22-23	53	19	6.7	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.06.2022	GCS/LAB/S/1421/22-23	49	21	7.0	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022	GCS/LAB/S/1421/22-23	54	22	7.4	16.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.06.2022	GCS/LAB/S/1421/22-23	52	17	7.3	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.06.2022	GCS/LAB/S/1421/22-23	58	24	7.8	17.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1

Annexure - 2



			Particular	Particular	Sulphur	Nitrogen	AQZ)	Carbon		Ammonia			Bonzono	Benzo (a)
			rarticular	r al ticulai	diavida	diavida		carbon	0	Annonia	A	Niekol	Denzene	
			matter	matter	aloxide	aloxide	Leau as	monoxide	Ozone	as	Arsenic	NICKEI	as	pyrene as
	Pa	rameters	PM10	PM2.5	as	as NO2	PD	as CO	as O3	NH3	as As	as Ni	C6H6	вар
					SO2									
		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	03.01.2022	GCS/LAB/S/1111/21-22	67	26	7.3	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022	GCS/LAB/S/1111/21-22	62	21	7.8	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022	GCS/LAB/S/1111/21-22	73	32	6.7	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022	GCS/LAB/S/1111/21-22	54	19	5.8	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022	GCS/LAB/S/1111/21-22	50	17	5.2	14.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022	GCS/LAB/S/1111/21-22	71	27	7.9	17.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022	GCS/LAB/S/1111/21-22	65	22	6.6	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022	GCS/LAB/S/1111/21-22	59	20	5.5	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022	GCS/LAB/S/1164/21-22	50	19	7.2	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022	GCS/LAB/S/1164/21-22	66	29	6.0	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022	GCS/LAB/S/1164/21-22	61	25	7.9	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022	GCS/LAB/S/1164/21-22	64	28	6.9	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022	GCS/LAB/S/1164/21-22	52	18	5.7	15.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022	GCS/LAB/S/1164/21-22	55	20	7.4	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022	GCS/LAB/S/1164/21-22	62	26	7.0	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022	GCS/LAB/S/1164/21-22	56	22	6.1	16.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022	GCS/LAB/S/1231/21-22	48	16	5.4	14.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022	GCS/LAB/S/1231/21-22	53	19	5.7	15.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07.03.2022	GCS/LAB/S/1231/21-22	55	26	7.3	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022	GCS/LAB/S/1231/21-22	56	20	5.8	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
21	14.03.2022	GCS/LAB/S/1231/21-22	62	24	6.7	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18.03.2022	GCS/LAB/S/1231/21-22	57	28	6.5	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
23	21.03.2022	GCS/LAB/S/1231/21-22	54	25	7.7	14.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
24	25.03.2022	GCS/LAB/S/1231/21-22	61	24	7.5	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
25	01.04.2022	GCS/LAB/S/1293/22-23	55	22	6.7	15.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
26	04.04.2022	GCS/LAB/S/1293/22-23	62	25	6.0	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
27	08.04.2022	GCS/LAB/S/1293/22-23	58	23	6.4	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
28	11.04.2022	GCS/LAB/S/1293/22-23	60	27	7.4	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
29	15.04.2022	GCS/LAB/S/1293/22-23	49	20	5.6	14.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	18.04.2022	GCS/LAB/S/1293/22-23	53	22	6.4	15.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022	GCS/LAB/S/1293/22-23	56	24	5.0	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	25.04.2022	GCS/LAB/S/1293/22-23	50	21	5.5	18.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022	GCS/LAB/S/1350/22-23	46	18	6.9	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	06.05 2022	GCS/LAB/S/1350/22-23	55	22	6.4	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	09.05 2022	GCS/LAB/S/1350/22-23	49	20	6.8	15.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
36	13.05 2022	GCS/LAB/S/1350/22-23	52	22	77	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
37	16 05 2022	GCS/LAB/S/1350/22-23	45	17	6.0	15.0	<0.1	<1.0	<10	<2	< <u>-</u>	< <u>2</u>	< <u>1</u>	<0.1
38	20.05.2022	GCS/LAB/S/1350/22-23	58	24	5.5	16.3	<0.1	<1.0	<10	~2	< <u>,</u>	~~	~1	<0.1
30	23 05 2022	GCS/LAB/S/1350/22-23	53	24	6.2	17.9	<0.1	<1.0	<10	~2	~~	~~	< <u>1</u>	<0.1
40	25 05 2022	GCS/LAB/S/1350/22-23	51	10	6.7	15.2	<0.1	<1.0	<10	~2	~~	~~	< <u>1</u>	<0.1
40	03 06 2022	GCS/LAB/S/1330/22-23	52	21	7.5	16.9	<0.1	<1.0	<10	~2	<2	~~	< <u>1</u>	<0.1
41	06 06 2022	GCS/LAB/S/1421/22-23	50	24	7.5	17.6	<0.1	<1.0	<10	~2	~2	~2	<1	<0.1
42	10.06.2022	GCS/LAB/S/1421/22-23	55	19	6.4	15.0	<0.1	<1.0	<10	~2	~2	~2	<1	<0.1
43	12 06 2022	GCS/LAD/ 3/ 1421/22-23	51	20	7.1	17.4	<0.1	<1.0	<10	~2	~2	~2	~1	<0.1
44	17.06.2022	GCS/LAD/S/1421/22-23	50	20	7.1	16.7	<0.1	<1.0	<10	~2	<2	<2	~1	<0.1
45	17.00.2022	GCS/LAD/S/1421/22-23	55	17	7.0	10./	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022	GCS/LAB/S/1421/22-23	49	1/	0.2	10.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4/	24.06.2022	GCS/LAB/S/1421/22-23	5/	23	7.9	18.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
48	27.06.2022	GCS/LAB/S/1421/22-23	54	25	1.3	16.8	< 0.1	<1.0	<10	<2	<2	<2	<1	<0.1



						(4 4 0 2)							
		Dorticular	Darticular	Sulphur	AL GATE	(AAQ3)	Carbon		Ammonia			Pontono	Panza (a)
		Particular	Particular	Sulphur	Nitrogen		Carbon	-	Ammonia			Denzene	Belizo (a)
		matter	matter	dioxide	dioxide	Lead as	monoxide	Ozone	as	Arsenic	Nickel	as	pyrene as
	Parameters	PM10	PM2.5	as	as NO2	Pb	as CO	as O3	NH3	as As	as Ni	C6H6	BaP
				SO2									
	Unit	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	mg/m3	ug/m3	ug/m3	ng/m3	ng/m3	ug/m3	ng/m3
	0	P6/110	F6/110	P6/ 110	P6/110	P6/110		P6/ 110	P6/110	1.6/11.0		P6/110	
	National AAQM Standard	100	60	80	80	1	4	180	400	6	20	5	1
S.No.	Sampling Report Number	er											
1	03.01.2022 GCS/LAB/S/1111/	21-22 73	30	7.7	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
2	07.01.2022 GCS/LAB/S/1111/	21-22 75	33	8.5	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3	10.01.2022 GCS/LAB/S/1111/	21-22 <u>66</u>	27	7.5	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
4	12.01.2022 GCS/LAB/S/1111/	21-22 65	26	7.4	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
5	17.01.2022 GCS/LAB/S/1111/	21-22 60	24	6.8	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
6	21.01.2022 GCS/LAB/S/1111/	21-22 70	28	7.5	17.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
7	24.01.2022 GCS/LAB/S/1111/	21-22 74	31	7.0	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
8	27.01.2022 GCS/LAB/S/1111/	21-22 76	35	8.1	18.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
9	01.02.2022 GCS/LAB/S/1164/	21-22 55	22	6.9	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
10	04.02.2022 GCS/LAB/S/1164/	21-22 70	31	8.0	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
11	07.02.2022 GCS/LAB/S/1164/	21-22 58	24	7.1	16.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
12	11.02.2022 GCS/LAB/S/1164/	21-22 60	27	7.5	16.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
13	14.02.2022 GCS/LAB/S/1164/	21-22 53	21	6.4	17.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
14	18.02.2022 GCS/LAB/S/1164/	21-22 62	26	7.8	16.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
15	21.02.2022 GCS/LAB/S/1164/	21-22 66	29	7.4	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
16	23.02.2022 GCS/LAB/S/1164/	21-22 59	25	6.8	17.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
17	01.03.2022 GCS/LAB/S/1231/	21-22 59	21	6.3	16.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	04.03.2022 GCS/LAB/S/1231/	21-22 55	20	6.1	15.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
19	07 03 2022 GCS/LAB/S/1231/	21-22 55	21	8.0	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	11.03.2022 GCS/LAB/S/1231/	21-22 53	24	8.6	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	14 03 2022 GCS/LAB/S/1231/	21-22 53	26	7.5	17.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	18 03 2022 GCS/LAB/S/1231/	21-22 57	23	8.4	18.1	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
22	21 03 2022 GCS/LAB/S/1231/	21-22 61	27	7.9	18.6	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
20	25.03.2022 GCS/LAB/S/1231/	21-22 01	22	8.6	18.4	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
25	01 04 2022 GCS/LAB/S/1293/	21-22 55	25	6.8	17.0	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
25	04.04.2022 GCS/LAB/S/1293/	22-23 04	16	5.5	1/.0	<0.1	<1.0	<10	<2	< <u>~</u>	(2)	< <u>1</u>	<0.1
20	09.04.2022 GCS/LAB/S/1293/	22-23 51	22	6.2	16.2	<0.1	<1.0	<10	<2	~2	~2	~1	<0.1
27	11 04 2022 GCS/LAB/S/1293/		23	7.4	17.0	<0.1	<1.0	<10	<2	~2	~2	<1	<0.1
20	11.04.2022 GC3/LAB/3/1293/		22	7.4	17.5	<0.1	<1.0	<10	<2	~2	~2	<1	<0.1
29	19.04.2022 GCS/LAD/S/1293/	22-23 54	20	7.0	12.0	<0.1	<1.0	<10	~2	~2	~2	~1	<0.1
30	10.04.2022 GCS/LAB/S/1293/	22-23 62	29	0./	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
31	22.04.2022 GLS/LAB/S/1293/	22-23 5/	21	7.0	17.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
32	23.04.2022 GCS/LAB/S/1293/	22-23 60	20	<u>8.1</u>	1/.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
33	02.05.2022 GCS/LAB/S/1350/	22-23 60	25	7.2	10.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
34	00.05.2022 GCS/LAB/S/1350/	22-23 58	24	7.6	17.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
35	US.US.ZUZZ GCS/LAB/S/1350/	22-23 62	28	7.1	1/.3	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
30	13.05.2022 GCS/LAB/S/1350/	22-23 52	19	5.4	16.7	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
3/	10.05.2022 GCS/LAB/S/1350/	22-23 63	21	5.5	18.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
38	20.05.2022 GCS/LAB/S/1350/	22-23 58	23	8.1	18.0	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
39	23.05.2022 GCS/LAB/S/1350/	22-23 61	30	8.6	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
40	25.05.2022 GCS/LAB/S/1350/	22-23 56	23	1.7	16.2	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
41	03.06.2022 GCS/LAB/S/1421/	22-23 64	27	7.9	17.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
42	06.06.2022 GCS/LAB/S/1421/	22-23 67	28	8.3	18.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
43	10.06.2022 GCS/LAB/S/1421/	22-23 57	21	7.5	16.5	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
44	13.06.2022 GCS/LAB/S/1421/	22-23 60	25	7.2	17.8	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
45	17.06.2022 GCS/LAB/S/1421/	22-23 68	29	8.5	18.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
46	20.06.2022 GCS/LAB/S/1421/	22-23 55	20	6.8	16.4	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
47	24.06.2022 GCS/LAB/S/1421/	22-23 66	26	9.1	18.9	<0.1	<1.0	<10	<2	<2	<2	<1	<0.1
18	27 06 2022 GCS/LAB/S/1/21/	77 72 61	24	0 6	10 0	<01	~10	~10	~2	~2	12	-1	-01



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

			Concentrati	on in Ambient					
S. No.	Pollutant	Time Weighted average	Industrial, Residential, Rural and Other Area	Ecologically sensitive area (notified by Central Govt.)	Methods of Measurement				
(1)	(2)	(3)	(4)	(5)	(6)				
		Annual*	50	20	 Improved West and 				
1	Sulphur Dioxide (SO ₂), µg/m ³	24 hours**	80	80	Geake • Ultraviolet fluorescence				
		Annual*	40	30	 Modified Jacob & 				
2	Nitrogen Dioxide (NO ₂), μg/m ³	24 hours**	80	80	Hochheiser (Na- Arsenite) • Chemiluminescence				
	Particulate Matter	Annual*	60	60	 Gravimetric 				
3	(size less than 10 µm) or PM ₁₀ µg/m ³	24 hours**	100	100	 TOEM Beta attenuation 				
	Particulate Matter	Annual*	40	40	 Gravimetric 				
4	(size less than 2.5 microns) or PM _{2.5} µg/m ³	24 hours**	60	60	TOEM Beta attenuation				
		8 hours **	100	100	 UV photometric 				
5	Ozone (O ₃) µg/m ³	1 hour **	180	180	Chemiluminescence Chemical method				
		Annual*	0.5	0.5	 ASS / ICP method 				
6	Lead (Pb) µg/m³	24 hours**	1.0	1.0	after sampling on EPM 2000 or equivalent filter paper • ED - XRF using Teflon filter				

		Carbon Monovide	8 hours**	2	2	Non Dispersive Infra
1	7	(CO) mg/m ³	l hour**	4	4	RED (NDIR) Spectroscopy
U.		Ammonia (NH-)	Annual*	100	100	 Chemiluminescence
1	8	μg/m ³	24 hours**	400	400	 Indophenol blue method
	9	$\frac{\text{Benzene}\left(C_{e}H_{6}\right)}{\mu\text{g/m}^{3}}$	Annual*	5	5	 Gas chromatography based continuous analyser Adsorption and desorption followed by GC analysis
	10	Benzo (a) Pyrene (BaP) – particulate phase only ng/m ³	Annual*	1	1	Solvent extraction followed by HPLC / GC analysis
	11	Arsenic (As) ng/m ³	Annual*	6	6	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper
	12	Nickel (Ni) ng/m ³	Annual*	20	20	AAS / ICP method after sampling on EPM 2000 or equivalent filter paper

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

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

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

Collection of ambient noise levels at four locations. Spot noise levels where measured with a pre calibrated Noise Level Meter - SL- 4023 SD for day and night periods. The Detailed report has been is enclosed as Annexure - 3

STATION CODE	LOCATIONS	Geographical Location
N1	In Terminal Gate	13º 16' 25" N 80º 20' 0" E
N2	RMU Building	13º 16' 25" N 80º 20' 16" E
N3	Port operating building	13 ⁰ 16' 12" N 80 ⁰ 20' 5" E

DETAILS OF NOISE MONITORING LOCATIONS

Fig - 4. Noise Level Sampling Locations



	Location		PORT	OPERATI	NG BUILD	NG				RMU BUI	LDING		
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
	Parameter & Unit	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq	Leq
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
S.No	Time of Sampling												
1	06.00 – 07.00 (Day)	66.5	63.6	56.8	63.1	59.1	62.4	66.4	63.4	57.7	61.7	66.5	60.6
2	07.00 -08.00	64.3	66.1	60.7	64.5	58.6	60.3	64.3	64.0	57.1	60.3	62.1	56.4
3	08.00 - 09.00	61.4	63.1	56.7	63.9	61.2	58.9	67.4	64.9	56.7	61.9	59.7	61.7
4	09.00 - 10.00	60.6	63.0	60.4	62.7	57.9	61.5	64.6	62.1	55.4	63.4	59.5	63.0
5	10.00 - 11.00	61.9	65.6	60.4	64.2	60.3	57.0	65.8	60.7	61.5	60.5	61.6	59.4
6	11.00 - 12.00	63.2	61.2	58.3	64.9	58.9	60.8	63.1	64.3	59.2	62.5	64.3	62.6
7	12.00 - 13.00	63.7	67.8	59.5	65.7	59.5	62.2	64.7	62.6	58.8	60.8	59.8	61.3
8	13.00 - 14.00	60.6	61.9	56.6	64.5	60.0	57.7	66.6	61.8	62.1	63.1	59.9	62.5
9	14.00 - 15.00	65.5	65.0	58.2	63.2	62.4	58.5	63.9	64.3	62.5	59.7	63.0	60.9
10	15.00 - 16.00	67.6	64.9	57.7	63.8	65.0	62.2	65.1	60.9	60.3	58.6	65.1	61.1
11	16.00 - 17.00	68.2	59.3	56.6	61.7	64.2	58.0	67.9	63.5	58.4	61.0	60.2	57.7
12	17.00 - 18.00	69.3	59.7	55.8	62.0	57.4	55.9	63.2	64.7	59.8	57.5	60.8	58.4
13	18.00 - 19.00	61.8	60.3	55.5	60.8	62.2	60.3	66.1	58.5	60.8	58.3	63.3	56.2
14	19.00 - 20.00	60.9	60.1	56.7	60.5	63.1	54.2	62.0	57.2	58.1	57.4	62.7	58.0
15	20.00 - 21.00	56.9	62.0	56.9	57.3	58.9	57.6	61.1	61.0	61.6	58.1	57.0	54.3
16	21.00 - 22.00	60.7	57.0	58.2	58.4	60.3	56.1	60.3	62.8	57.6	58.9	55.4	54.6
17	22.00 – 23.00 (Night)	61.4	54.3	53.1	54.7	58.9	54.7	62.0	55.8	56.7	52.5	52.0	53.4
18	23.00 - 00.00	61.5	55.6	54.0	53.4	58.4	52.5	63.8	54.5	56.3	53.1	53.2	51.8
19	00.00 - 01.00	61.4	54.0	54.2	53.0	56.3	47.6	62.6	56.7	57.6	51.8	54.2	52.0
20	01.00 - 02.00	62.7	51.9	53.3	52.8	47.5	52.8	60.4	53.4	57.8	52.0	53.0	51.2
21	02.00 - 03.00	60.8	52.4	50.4	53.2	48.9	53.2	62.7	52.8	55.2	51.7	55.2	56.7
22	03.00 - 04.00	64.6	53.6	53.2	54.9	52.4	50.0	63.1	52.3	55.7	54.3	49.8	52.3
23	04.00 - 05.00	63.0	54.8	53.5	55.7	54.9	52.6	64.7	56.4	53.3	53.9	53.5	50.5
24	05.00 - 06.00	65.9	55.0	53.0	58.0	54.5	57.4	64.2	58.1	58.0	56.4	57.2	55.9

Annexure - 3





Page **26** of **35**

	Location	IN TERMINAL GATE							
	Month & Year		PORT	OPERATII	NG BUILDIN	IG			
	Parameter & Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22		
S.No	Time of Sampling	Leq	Leq	Leq	Leq	Leq	Leq		
		dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)		
1	06.00 – 07.00 (Day)	70.8	62.4	64.1	62.4	64.0	66.8		
2	07.00 - 08.00	69.4	68.2	65.6	63.6	65.9	63.7		
3	08.00 - 09.00	70.6	69.1	66.4	62.3	64.2	65.1		
4	09.00 - 10.00	70.4	68.6	63.7	62.3	65.6	66.3		
5	10.00 - 11.00	70.0	65.2	64.2	62.0	64.7	60.8		
6	11.00 - 12.00	70.1	67.9	67.0	62.3	56.3	63.4		
7	12.00 - 13.00	69.0	60.3	68.4	62.4	62.8	64.0		
8	13.00 - 14.00	68.5	68.9	65.6	65.2	63.2	65.9		
9	14.00 - 15.00	66.1	59.5	63.3	66.1	65.0	61.2		
10	15.00 - 16.00	61.0	60.0	61.9	65.5	64.3	58.6		
11	16.00 - 17.00	67.2	56.3	62.5	64.3	64.4	60.5		
12	17.00 - 18.00	69.4	63.0	63.0	65.3	63.1	57.3		
13	18.00 - 19.00	58.4	58.9	60.9	65.2	60.3	61.8		
14	19.00 -20.00	60.2	58.4	63.8	64.8	62.8	55.0		
15	20.00 - 21.00	58.1	59.5	62.4	65.1	64.3	59.2		
16	21.00 - 22.00	62.6	59.4	61.2	59.0	62.9	58.4		
17	22.00 – 23.00 (Night)	63.4	60.3	62.0	62.2	57.5	55.0		
18	23.00 - 00.00	62.2	58.6	60.8	56.5	55.8	57.9		
19	00.00 - 01.00	64.0	62.1	63.5	60.6	54.0	56.2		
20	01.00 - 02.00	65.7	58.7	61.9	56.7	56.4	58.5		
21	02.00 - 03.00	59.8	60.5	62.7	60.2	59.6	59.1		
22	03.00 - 04.00	62.6	61.3	64.3	63.6	58.2	57.4		
23	04.00 - 05.00	63.4	63.7	65.1	62.8	60.1	61.3		
24	05.00 - 06.00	65.3	57.9	67.0	62.2	62.8	60.7		



Amisient Air Quality Standards in respect of Noise

Code	Category of Area / Zone	Limits in dB(A) Leq*			
0009		Day Time	Night Time		
(A)	Industrial area	75	70		
(B)	Commercial area	65	-55		
(C)	Residential area.	55	45		
(D)	Silence Zone	60	40		

Note:- 1.

Day time shall mean from 6.00 a.m. to 10.00 p.m. Night time shall mean from 10.00 p.m. to 6.00 a.m. 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 estimation 2.3.

Mixed categories of areas may be declared as one of the four above mentioned categories by the competent authority. 42

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

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

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

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

iv. DG SET EMISSIONS

Sampling of Flue gas emission of 1500 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

STATION CODE	LOCATIONS	Geographical Location
SM - 1	DG - 1 1500 KVA	13º 16' 12" N
SM - 2	DG - 2 1500 KVA	80 ⁰ 20' 5" E
SM - 3	DG 125 KVA	13°16'13.33" N 80°20'6.64" E

DETAILS OF EMISSION MONITORING LOCATIONS

Annexure - 4

		1.00			STACK N	ONITORIN	IG						
	Location			DG	1500KVA -	- 3				DG 1500	KVA -1		
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.N	Parameters												
1	Stack Temperature, °C		220	214				229		230	241	253	240
2	Flue Gas Velocity, m/s		22.17	21.23				22.92		22.58	23.26	24.08	24.86
3	Sulphur Dioxide, mg/Nm3		8.1	7.1				7.6		8.2	7.5	7.9	7.4
4	NOX (as NO2) in ppmv		127	120				134		131	136	142	135
5	Particular matter, mg/Nm3		9.6	10.4				11		92	11	9.6	8.2
6	Carbon Monoxide, mg/Nm3		35	33	_	-		40	-	40	38	40	38
7	Gas Discharge, Nm3/hr		6050	5796				6143		5606	6124	6159	6520



					STACK N	IONITORIN	G						
	Locatio DG 1500KVA - 2 DG 125KVA												
	Month	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.N	Paramet												
1	Stack Temperature, °C	223		235	230			-	126	122		129	121
2	Flue Gas Velocity, m/s	21.49		23.06	21.98			-	12.05	12.91		12.46	12.04
3	Sulphur Dioxide, mg/Nm3	7.2		7.8	7.1			-	4.9	5.3		4.0	4.2
4	NOX (as NO2) in ppmv	131		127	130			-	67	60		56	50
5	Particular matter, mg/Nm3	10		8.8	9.6				4.6	5.3		4.9	4.5
6	Carbon Monoxide, mg/Nm3	42		36	35				23	21		21	17
7	Gas Discharge, Nm3/hr	5830		5755	5879			-	571	571		586	578



Paran	neter	Area	Total engine rating of	Generator	sets commis	sioning date
		Category	the plant (includes existing as well as new generator sets)	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
		В	Up to 150 MW	CHARGEST	PERMIT	NOWSER
		A	More than 75 MW	1100	710	360
		В	More than 150 MW		04.047	10052828
NMHC (a O2), mg/N	s C) (at 15% m 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	1	00
CO (at mg	15% O ₂), g/Nm ³	Both A and B		150	I	50

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.

• 25 KLD Treated Water Outlet

DETAILS OF STP WATER LOCATIONS

STATION CODE	LOCATIONS	Geographical Location
		13º 16' 12" N
STP - 1	25 KLD	80° 20' 8" E

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

Annexure - 5

						STP W	ATER						
	Location			STP	INLET					STP OUTLE	T (25 KLD)		
	Month & Year	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No	Parameters								×				
1	pH @ 25°C	6.85	6.56	7.17	7.72	7.08	6.98	7.53	7.28	7.40	8.22	7.61	7.32
2	Total Suspended	98	83	73	68	55	64	21	23	14	22	18	24
3	BOD at 27°C for 3	64	62	60	82	70	86	14	17	12	13	9.2	17
4	Fecal Coliform	670	610	510	610	690	810	280	250	160	240	180	280
5	COD	435	401	372	196	196	342	58	73	36	46	32	84
6	Oil & Grease	6.2	5.6	5.0	6.4	5.1	7.4	BDL	BDL	BDL	BDL	BDL	BDL
/	Total Dissolved Solids	1284	1184	1268	1352	1246	1318	1156	1042	1144	1274	1098	1012
8	Chlorides (as Cl)	430	408	310	350	304	352	398	375	248	232	196	318
9	Sulphates (as SO4)	72	64	38	42	35	70	63	40	22	30	24	66

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:-

 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:-----

SI. No.	Industry	Parameters	Standards	-
1	2	3	4	
	22.2	Effluent discharge stand	lards (applicable to all mode of disposal)	
"105	Sewage Treatment		Location	Concentration not to exceed
	Plants		(a)	(b)
	(STPs)	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 Vadesh, Uttarakhand, Jammu and	20

	Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	
3	Areas/regions other than mentioned above	:30
Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Protesh, Assam, Manipur, Meghalaya Mizocan, Nagaland, Tripura Sikkim, Hirnachal Pradesh, Uttarakhasd, Jammu and Kashmir and Unson territory of Andaman and Nicobar Jalanda, Dadar and Nagar Haveti Daman and Diu and Lakchadweep	<50
	Areas/regions other than mentioned above	<100
Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100mi	Anywhere in the country	<1000

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.

			DRINKI	NG WATER				
	Month & Year	Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No.	Parameters							
1	pH @ 25°C	-	6.76	7.23	7.07	8.20	6.97	6.86
2	Total Hardness as CaCo3	mg/L	4.0	8.0	14	12	16	10
3	Chloride as Cl	mg/L	14	17	21	14	20	14
4	Total Dissolved Solids	mg/L	32	44	72	44	68	48
5	Calcium as Ca	mg/L	0.8	1.2	2.5	4.8	5.2	1.6
6	Sulphate as SO4	mg/L	BDL	BDL	BDL	BDL	BDL	2.5
7	Total Alkalinity as CaCo3	mg/L	21	26	36	30	36	25
8	Magnesium as Mg	mg/L	0.48	1.2	1.88	BDL (0.24)	0.73	1.5
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)					
15	Total Residual Chlorine	mg/L	BDL(DL 0.1)					
16	Copper as Cu	mg/L	BDL(DL 0.05)					
17	Manganese as Mn	mg/L	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 C6H5OH	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)					
23	Arsenic as As	mg/L	BDL(DL 0.01)					
24	Lead as Pb	mg/L	BDL(DL 0.01)					
25	Zinc as Zn	mg/L	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)					
28	Phenolphthalein Alkalinity as CaCO3	mg/L	Nil	Nil	Nil	Nil	Nil	Nil
29	Aluminium as Al	mg/L	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)	0.37	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 - 6

vii. 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 - 7 & 8.

STATION CODE	LOCATIONS	Geographical Location
		13º 16' 25" N
MW - 1 / MS - 1	Bollard	80º 20' 16" E

DETAILS OF MARINE WATER AND SEDIMENT LOCATIONS

Fig - 5. Water and Marine Sampling Locations



					MA	RINE WA	TER							
S.NO	PARAMETER	UNITS	Jan	- 22	Feb -	- 22	Mar	- 22	Apr	- 22	May	- 22	Jun	- 22
			Bolla	rd - 07	Bollaro	d - 16	Bollar	rd - 26	Bolla	rd - 19	Bollar	d - 02	BERTH	I AREA
P	hysicochemical Paramet	ters	Surface	Bottom	Surface	Bottom								
1	Colour	Hazan	20	45	25	40	25	35	20	30	15	35	15	35
2	Odour	-					ι	Jnobjectio	onable					
3	рН @ 25°С	-	8.14	8.47	8.13	8.36	8.22	8.37	8.09	8.41	7.86	8.24	8.08	8.21
4	Temperature	°C	29	29	28	28	29	29	30	30	31	31	30	30
5	Turbidity	NTU	7.5	18	8.3	16	9.8	17.3	8.1	15.4	9.5	17.8	7.8	21
6	Total Suspended Solids	mg/L	12	25	14	23	18	24	14	26	11	29	10	33
7	BOD at 27 oC for 3	mg/L	4.6	4.7	4.5	4.9	4.6	4.4	4.8	4.6	4.5	4.3	4.6	4.4
8	COD	mg/L	152	165	140	161	134	152	120	138	106	126	118	135
9	Dissolved oxygen	mg/L	2.6	2.4	2.7	2.5	2.5	2.7	2.6	2.8	2.7	2.6	2.9	3.0
10	Salinity at 25 °C	ppt	34.2	35.6	34.7	35.1	31.4	30.1	32.8	31.9	36.8	38.1	39.6	40.2
11	Oil & Grease	mg/L	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL :	BDL (DL :	BDL (DL :	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL :	BDL (DL : 1.0)
			210)		Nutrie	ent Paran	neters	2.0,	2.07	210)	210,	210)	2.0,	1.0,
12	Nitrate as No3	mg/L	4.91	6.18	4.10	6.73	4.91	6.05	5.56	6.72	4.12	5.80	4.98	4.12
13	Nitrite as No2	mg/L	1.85	2.96	1.52	2.39	2.13	2.48	1.94	2.05	2.43	2.98	2.05	2.54
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)							
15	as N Total Nitrogen	mg/L	BDL (DL :	BDL (DL : 1.0)	BDL (DL : 1.0)	BDL (DL :	BDL (DL :							
16	Inorganic phosphates	mg/L	5.87	6.71	4.64	6.10	4.27	5.73	3.86	5.18	5.03	6.72	5.98	4.12
17	as PO4 Silica as SiO2	mg/L	8.03	9.86	8.57	9.14	5.26	7.29	6.05	8.12	7.18	8.84	9.15	8.07
18	Particulate Organic	μgC/L	10	14	11	16	14	18	17	20	13	21	10	17
19	Carbon Pertoleum	μg/L	BDL (DL :	BDL (DL :										
	Hydrocarbons		0.01)	0.01)	0.01)		0.01)	0.01)	0.01)	0.01)	0.01)	0.01)	0.01)	0.01)
		mg/L	BDL (DL :	BDL (DL	BDL (DL :	BDL (DL								
20	Cadmium as Cd		0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)	0.003)	:0.003)
21	Copper as Cu	mg/L	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)
22	Total Iron as Fe	mg/L	0.48	0.62	0.53	0.64	0.57	0.78	0.63	0.81	0.67	0.78	0.64	0.72
23	Zinc as Zn	mg/L	BDL (DL : 0.01)	BDL (DL : 0.01)										
24	Lead as Pb	mg/L	BDL (DL :	BDL (DL :										
25	Mercury as Hg	mg/L	0.01) BDL (DL :	0.01) BDL (DL	0.01) BDL (DL :	0.01) BDL (DL								
		mg/l	0.001) BDL (DL :	:0.001) BDL (DL :	0.001) BDL (DL :	:0.001) BDL (DL :								
26	Nickel as Ni		0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)	0.05)
27	Total Chromium as Cr	mg/L	BDL (DL : 0.05)	BDL (DL : 0.05)										
					Bacterio	logical Pa	rameters							
28	Escherichia Coli (ECLO)	cfu/ml	Absence	Absence										
29	Faecal Coliform (FCLO)	cfu/ml	Absence	Absence										
30	Pseudomonas aeruginosa (PALO)	cfu/ml	Absence	Absence										
31	Streptococcus faecalis (SFLO)	cfu/ml	Absence	Absence										
32	Shigella (SHLO)	cfu/ml	Absence	Absence										
33	Salmonella (SLO)	cfu/ml	Absence	Absence										
34	Total Coliform (TC)	cfu/ml	Absence	Absence										
35	Total Viable Count (TVC)	cfu/ml	Absence	Absence										
36	Vibrio cholera (VC)	cfu/ml	Absence	Absence										
37	Vibrio	cfu/ml	Absence	Absence										
34 35 36 37	Total Coliform (TC) Total Viable Count (TVC) Vibrio cholera (VC) Vibrio	cfu/ml cfu/ml cfu/ml cfu/ml	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Absence Absence Absence Absence	Abse Abse Abse Abse

Annexure – 7

	Month & Year		Jar	- 22	Feb	- 22	Mar	- 22	Apr	- 22	May	- 22	Jun	- 22
			Bolla	rd - 07	Bolla	rd - 16	Bollar	d - 26	Bollar	d - 19	Bollar	d - 02	BERTH	AREA
S.N	Parameters	Unit	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom	Surface	Bottom
38	Primary Productivity	mg C/m3 /hr	10.71	11.63	10.85	11.93	9.14	10.21	8.67	10.84	9.41	10.23	8.21	10.78
39	Chlorophyll a	mg /m3	6.27	6.96	6.78	7.05	6.39	6.85	6.12	6.07	5.60	6.37	4.73	6.06
40	Phaeopigment	mg /m3	2.60	3.74	2.91	3.09	2.27	2.93	2.41	3.12	2.78	3.91	2.15	3.40
41	Total Biomass	ml /100 m3	2.14	2.81	2.77	3.02	1.65	2.07	1.96	2.68	1.73	2.19	1.96	2.73
	1				PH	YTOPLAN	KTON							
42	Bacteriastrum hyalinum	nos/ml	12	15	10	8	14	17	18	21	15	19	10	16
43	Bacteriastrum varians	nos/ml	13	17	15	19	11	15	15	17	11	14	16	18
44	Chaetoceros didymus	nos/ml	8	11	12	14	8	11	10	13	16	11	8	5
45	Chaetoceros decipiens	nos/ml	14	19	16	11	15	18	12	16	7	13	9	11
46	Biddulphia mobiliensis	nos/ml	7	8	13	16	10	7	8	10	12	8	17	15
47	Ditylum brightwellii	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
48	Gyrosigma sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
49	Cladophyxis sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
50	Coscinodiscus centralis	nos/ml	17	18	19	21	14	16	7	11	10	15	13	19
51	Coscinodiscus granii	nos/ml	15	25	18	20	9	13	13	18	17	20	21	24
52	Cylcotella sps	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
53	Hemidiscus hardmanianus	nos/ml	11	9	14	12	8	10	11	14	6	9	12	17
54	Laudaria annulata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
55	Pyropacus horologicum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
56	Pleurosigma angulatum	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
57	Leptocylindrus danicus	nos/ml	16	14	10	11	16	20	19	22	14	18	11	14
58	Guinardia flaccida	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
59	Rhizosolenia alata	nos/ml	10	17	13	19	17	21	21	23	20	25	18	20
60	Rhizosolena impricata	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
61	Rhizosolena semispina	nos/ml	21	26	17	23	20	24	14	18	12	16	17	21
62	Thalassionema nitzschioide	es nos/ml	8	13	7	10	13	15	16	19	9	12	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
-			NII		70	OPLANK	TONS		NI			INII		NII
68	Acrocalanus gracilis	nos/ml	11	14	10	13	13	17	10	12	15	17	10	14
69	Acrocalanus sp	nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	17 Nil	Nil	Nil
70	Paracalanus parvus	nos/ml	0	15	12	17	10	12	0	10	11	7	16	12
71	Futintinus sps	nos/ml	12	15	14	1/	10	15	10	10	12	15	10	21
72	Centronages furcatus	nos/ml	10	10	-14	15	11	10	13	17	12	10	10	21
73	Corvcaeus dana	nos/ml	NU	15	0	15	11	10 Nil	14	17	10 Nil	19	13	25 Nil
74	Oithona brevicornis	nos/ml	1/	17	16	10	12	17	0	12	14	16	1111 Q	10
75	Futernina acutifrons	nos/ml	-14	1/	10	13	14	10	0	21	-14	14	0	10
75	Metacalanus aurivilli	nos/ml	/	9	10	13	14	13	10	21	9	14	13	12
70	Coninod naunlii				NII 44		NII	NII					NII 44	NII
70			15	20	14	18	19	21	14	18	7	10	11	15
78		nos/ml	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
/9	Divalve veliger	nos/ml	8	6	6	9	15	18	17	20	18	23	14	20
80	Gastropod veliger	nos/ml	17	21	11	23	22	25	15	22	11	17	18	22

			SE	A SEDIMENT				
	Location			1	Sea Sediment			
	Month & Year	Unit	Jan - 22	Feb - 22	Mar - 22	Apr - 22	May - 22	Jun - 22
S.No.	Parameters		Bollard - 07	Bollard - 16	Bollard - 26	Bollard - 19	Bollard - 02	BERTH AREA
1	Total organic matter	%	0.79	0.72	0.67	0.61	0.68	0.73
2	% Sand	%	10	11	12	14	15	17
3	%silt	%	31	33	30	33	31	28
4	%Clay	%	59	56	58	53	54	55
5	lron (as Fe)	mg/kg	29.2	27.5	23.9	25.1	19.6	21.3
6	Aluminium (as Al)	mg/kg	8947	9012	9426	9784	9053	9579
7	Chromium (as cr)	mg/kg	31	34	30	37	32	27
8	Copper (as cu)	mg/kg	124	120	92	55	64	61
9	Manganese (as Mn)	mg/kg	47	49	45	41	37	30
10	Nickel (as Ni)	mg/kg	29	25	19.7	18.1	19	22
11	Lead (as Pb)	mg/kg	24	22	21.2	19.5	21	20
12	Zinc (as Zn)	mg/kg	198	190	184	178	185	156
13	Mercury(as Hg)	mg/kg	0.36	0.37	0.33	0.31	BDL(DL 0.1)	BDL(DL 0.1)
14	Total phosphorus as P	mg/kg	121	125	116	120	139	131
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	0.72	0.76	0.71	0.73	0.81	0.70
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. Nem	atoda							
28	Oncholaimussp	nos/m ²	15	13	15	18	15	12
29	Tricomasp	nos/m ²	10	16	11	13	10	17
II. Fora	minifera							
30	Ammoniabeccarii	nos/m ²	16	11	19	15	19	15
31	Quinqulinasp	nos/m ²	18	15	13	11	14	10
32	Discorbinellasp.,	nos/m ²	17	10	23	20	23	19
33	Bolivinaspathulata	nos/m ²	21	24	10	14	17	13
34	Elphidiumsp	nos/m ²	14	17	18	12	11	10
35	Noniondepressula	nos/m ²	11	8	14	16	18	23
III. Mo	lluscs-Bivalvia					1.0		1
36	Meretrixveligers	nos/m ²	24	20	16	19	22	25
37	Anadoraveligers	nos/m ²	26	19	21	24	20	22
	Total No. of individuals	nos/m ²	172	153	160	162	169	166
	Shanon Weaver Diversity Index		2.26	2.25	2.27	2.28	2.27	2.25
L								

Annexure - 8

Form-V

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

Environmental Statement for the financial year ending 31st March 2021

PART - A

0	Name and Address of the owner / occupier of the industry operation or process		Mr. Jai Singh Khurana Chief Executive Officer Adani Ennore Container Terminal Private Limited C/O Kamarajar Port Limited Vallur Post, Ennore Thiruvallur District- 600 120 Tamil Nadu, Indía
11)	Industry Category		Primary : Red Secondary : 1065 - Ports and Harbour, Jetties and Dredging Operations.
(iii)	Production Capacity	:	Cargo Handling Capacity : 11.68 MMTPA of Container cargo
iv)	Year of establishment	5	2016
v)	Date of the last environmental statement		Vide our Letter No. AECTPL/TNPCB/2020-21/28 dated 21.09.2020



* 1|Page

PART - B

WATER AND RAW MATERIAL CONSUMPTION

(i) Water Consumption

S. No	Water Consumption (m ³ /Calendar Day)	2019-2020	2020-2021
1	Domestic	10.93	13.8

(ii) Raw Material Consumption

S. No.	S. Name of Raw No. Material	Name of Products	Consumption of Raw Material per Unit of output					
			During the previous financial year (2019-20)	During the current financial year (2020-21)				
1	Not Applicable	Not Applicable	NIL	NIL				

1870

817 20.0

PART - C

POLLUTION DISCHARGE TO ENVIRONEMENT/ UNIT OF OUTPUT

(Parameters as specified in the consent issued)

Pollutants	Quality of Pollutants Discharged (Mass/day)	Concer Poll disc (mass	ntration of lutants harges /volume)	Percent prescr	age of variation from ibed standards with reason
a) Water	STP Treated Wa	ter Charac	teristics: -		
	Parameter		Consent Limit	Actual	% Variation with prescribed standard
	рН		5.5-9	7.48	-Nit-
	Total Suspende (mg/l)	d Solids	30	20.45	-Nil-
	BOD (3 days at (mg/l)	27°C)	20	13.86	-Nii-
b) Air	DG sets are provi failure only. The the monitored pa	ided as sta Height of arameters	ndby power DG stacks a: are within si	source and s per CPCB/ tandards.	are used during powe TNPCB Standards, A
Particulate Matter (mg/Nm3)					
Sulphur Dioxide (mg/Nm3)	DG stack emissio	in report is	s enclosed as	s Annexure	1
Nitrogen Oxide (ppm)	-		-		

hit.

31-4.0

PART-D

HAZARDOUS WASTES

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

	Total Quantity (Kg)							
Hazardous Wastes	During the previous Financial Year (2019-20)	During the current Financial Year (2020-21)						
(a) From Process	 Used Oil (5.1) - 10 Tons Oil from Contaminated filter element (3.3) - 0.5 Tons Empty Oil barrel (33.1) - 0.5 Tons 	NII						
(b) From Pollution control facilities	NA	NA						

PARTIE

SOLID WASTES

		Burley the standard Firessist	Budden also average Brown
	Solid Waste	Year (2019-20)	Year (2020-21)
a)	From process	NIL	NIL
b)	From pollution control facilities- STP	57.28 kgs	63.42 kgs
	1. Quantity recycled or reutilized within the	57.28 kgs	63.42 kgs
c)	Unit 2. Sold	NIL	NIL
	3. Disposed	NIL	NIL

1.86

Ena,

Grupper?

419808

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 8 recover the materials and are handled as per 5R (Reuse, Recycle, Recover and Reprocess) principle.
- AECTPL has awarded with Zero Waste to Landfill Management System (ZWTL MS 2020) from TUV Rheinland India Pvt. Ltd (Annexure – 2).
- Hazardous wastes include Used oil, Filters contaminated with Oil and Empty barrels / containers contaminated with hazardous wastes. 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 Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 (As amended).
- The used batteries and E -waste are also stored in Integrated Waste Management Shed and disposed off through approved vendor in line to 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 & Trans boundary Movement) Rules, 2016.
- E-waste returns in Form 3 was submitted in line with the E-waste Management Rules, 2016.
- 100% utilization of STP sludge for greenbelt maintenance as manure.
- AECTPL certified as "Single Use Plastic (SUP) Free" site from Cll –ITC Centre of Excellence for Sustainable Development (Annexure – 3)
- Plastic free Drive:
 - AECTPL has displayed stickers at various places at the facility, spreading awareness as plastic are prohibited now.

STPAGE

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

PART-G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production

- Adani Ennore Container Terminal Private Limited is having electrified cranes only and hence the diesel consumption by the cranes is totally eliminated.
- All the domestic wastewater being generated at port is treated at existing sewage treatment plant and the treated water is being reused within port premises for gardening/horticulture purpose.
- Sewage Treatment Plant (STP) is in continuous operation and the treated effluent water quality is meeting the TNPCB norms. The total cost spent on STP operation during the year 2020-21 is Rs. 4.39 Lakhs.
- Regular Environmental monitoring is being carried out through NABL accredited laboratory. All the monitored environmental parameters are well within the prescribed norms & the details of monitored data is being submitted regularly to
 TNPCB, CPCB, MoEF&CC and other concerned authorities.
- Unit is continuously developing and maintaining Greenbelt within port premises.
- Implemented Integrated Waste Management System (IWMS) for managing all types of wastes in line with 5R principle.

PART-H

Additional measures/investment proposal for_Environmental protection including abatement of pollution, prevention of pollution.

Regular Expenditure (Cost in INR lakhs/year)					
5. IO.	Description 1	Cost			
i	Environmental monitoring of MOEF recognized third party	7.22			

610500

	Green beit 8 Harticulture development	4.87
3	Annual maintenance contractor of STP operation	4.39
4	Operation & Maintenance of Integrated Waste Management System	1.88

PART-I

ANY OTHER PARTICULARS IN RESPECT TO ENVIRONMENT

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

Date: 23,09.2021

fourt?

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

Name : Jai Khurana Designation: Chief Executive Officer

Address : Adani Ennore Container Terminal Pvt Ltd C/O Kamarajar Port Limited Vallur post, Ennore Thiruvallur District- 600 120.

719408

KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

"CONSTRUCTION OF GENERAL CARGO BERTH AT ENNORE PORT CARGO TERMINAL PROJECT"

Point wise compliance report on Ministry's guidelines for the CRZ and Environmental clearance for the construction of General Cargo Berth at Ennore port cargo terminal project.

Ref: MoEF Letter No. 11-21/2009-IA-III dated 23.7.2009

Back ground information

MoEF had accorded environmental clearance vide letter No. 11-21/2009–IA-III dated 23rd July, 2009 for the development of a general cargo berth. The length of the berth is 250m length and 35m width to handle about 2 lakh cars per year and project cargoes & finished cargo of 0.5 million tons per year.

Status of the project:

A General Cargo Berth with Car parking area was developed for the export of automobiles and handling project cargo, etc. The terminal is under operational.

S.No.	Specific Conditions	Compliance Status
(i)	As the Ennore expressway is very busy. It is suggested to examine the details of traffic analysis and incorporate necessary improvement study the impact of additional traffic due to the proposed development	Complied with . The copy of report on traffic analysis carried out by M/s. Wilber Smith Association Pvt. Ltd., was sent to MoEF vide our letter dated 17.2.2010.
(ii)	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Complied. No construction works other than those permitted in the Coastal Regulation Zone Notification are carried out in Coastal Regulation Zone area.
(iii)	Oil spills if any shall be properly collected and disposed as per the Rules.	Noted for compliance.
(iv)	The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	Complied. Port is equipped with HSE division which is a part of the Marine Services department headed by General Manager (MS). The HSE division is exclusively headed by an officer in the rank of Chief Manager(HSE). At present, the Environmental Cell comprises of the following officers.

	(i) Chief Manager(HSF)
	(i) Chief Manager(HSE),
	(ii) SI. Manager(HSE) and
	(iii) Executive.
	Port is monitoring the environment Port
	has engaged M/s Hubert Enviro Care
	Systems But Itd Chennei (MoFF & CC/
	NADI contified) for compling and testing
	NABL certified) for sampling and testing
	of various environmental parameters.
	The details of expenditure incurred
	towards Environmental management for
	the period of July to December 2021 by
	KPL is furnished herewith as below:
	1. Environmental Monitoring =
	Rs. 7,85,320/- (excluding GST).
	2. Solid Waste Management =
	Rs. 7,42,595/- (excluding GST).
	3. Green belt maintenance= Rs. $8,80,472$
(v) The project proponent shall take ur	At present port is having a green belt
mangrove plantation/green helt in	which includes a green belt (planted) of
the project area wherever possible	210.74 acres green cover natural 349.26
Adequate budget shall be provided	acres and manaroves in an area of 76 14
in the Environment Management	acres and mangroves in an area of 70.14
Den for such management	acres.
Plan Ioi Such Inaligiove	However, KPL has proposed to utilize the
development.	existing operational area in the custom
	bound area for future development
	projects/infrastructure activities.
	KPL has appointed a consultant for
	"Preparation of Bio-Diversity Management
	"Preparation of Bio-Diversity Management Plan" for the port and the report along
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio-
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No.
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209 for validation and approval. As per the
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209 for validation and approval. As per the plan, port has planned for the
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209 for validation and approval. As per the plan, port has planned for the development of green belt of 68.66Acres
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209 for validation and approval. As per the plan, port has planned for the development of green belt of 68.66Acres inside the custom bound area and 621.91
	"Preparation of Bio-Diversity Management Plan" for the port and the report along with the green belt development plan was submitted to Tamil Nadu State Bio- diversity Board vide KPL letter No. KPL/MS/HSE/BD/2019 dated 17.01.209 for validation and approval. As per the plan, port has planned for the development of green belt of 68.66Acres inside the custom bound area and 621.91 Acres outside the custom bound area.

		total green belt area of the port will be 690.77Acres.
(vi)	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	The expenditure incurred towards Environmental Management for the period July 2021 to December 2021 by KPL is as follows: The details of expenditure incurred towards Environmental management for the period of July to December 2021 by KPL is furnished herewith as below: 1. Environmental Monitoring = Rs. 7,85,320/- (excluding GST). 2. Solid Waste Management = Rs. 7,42,595/- (excluding GST). Green belt maintenance= Rs. 8,80,472 (till 31.07.2021).

~ 1	a 11.1
General	Conditions:

S No.	General Conditions	Compliance Status
(i)	The construction of the structures should be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and Central rules and regulations including the provisions of Coastal Regulation Zone Notification dated 19.02.1991 and the approved Coastal Zone Management Plan of Tamil Nadu.	Complied with. All constructions and plans are approved by port itself as port is a regulatory authority by itself.
(ii)	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Complied with. Local labors were engaged during the construction and the labour camps were located outside the CRZ area.
(iii)	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water	Complied with. Digging activities were carried out during the construction of berth.

	quality.	Marine water quality was monitored
		to notice any degradation of water
		quality.
(iv)	Borrow sites for each quarry sites for road	construction material and dump sites
	must be identified keeping in view the follou	ving:
	a. No excavation or dumping on priv property is carried out without writ	ate Complied with.
	consent of the owner.	No excavation was carried out in the project area or any material dumped in any private property. Concrete structure on pile foundation was carried out.
	 b. No excavation or dumping shall allowed on wetlands, forest areas other ecologically valuable or sensit locations. 	be No excavation or dumping was or carried out on wetlands or any ecologically sensitive areas during the development of the project.
	c. Excavation work shall be done in cl	ose Complied with.
	consultation with the Soil Conservat and Watershed Development Agenc working in the area, and	ion No excavation work was carried in the project area.
	 d. Construction spoils includ bituminous material and ot hazardous materials must not allowed to contaminate water cour and the dump sites for such materia must be secured so that they shall leach into the ground water. 	ing Complied with. her be ses als not Construction spoils or any other hazardous materials such as bituminous were generated during the construction process.
(v)	The construction material shall be obtain	ned Complied with.
	only from approved quarries. In case r quarries are to be opened, specific approv from the competent authority shall obtained in this regard.	be Construction material does not involve any quarry materials other than blue granite. Only iron & metal steel are used for RCC.
(vi)	Adequate precautions shall be taken dur	ing Complied with.
	transportation of the construction material that it does not affect the environm adversely.	so ent Adequate measures like covering the material etc. were undertaken during the transportation of construction

		material.
(vii)	Full support shall be extended to the officers of this Ministry/ Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Being complied.
(viii)	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted.
(ix)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry	Noted.
(x)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment and Forests.	Noted.
(xi)	The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied with. KPL has informed MoEF&CC and RO of MoEF&CC vide its letter No. EPL/MS/Env/GCB/1/ 08, dated 07.12.2009.
(xii)	Tamil Nadu State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/ Tehsildar's Office for 30 days.	Complied with.
7	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment	KPL is enforcing the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981 and the

	(Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Environment (Protection) Act, 1986. With regard to the Public Liability Insurance, Port has obtained Public Liability Insurance through Oriental Insurance Company Ltd.' vide Policy No:411400/22/2021/1, valid till 05/05/2022.
8	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wild (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied with. The terminal is exclusively for export/import of brand new assembled automobiles; hence the said clearances are not applicable to this terminal.
9	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Tamil Nadu State Pollution Control Board and may also be seen on the website of the Ministry of Environment and Forests at <u>http://www.envfor.nic.in</u> . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional Office of this Ministry at Bangalore.	Complied with. The receipt of the environment and CRZ clearance was advertised in two local news papers on 6.8.2009. The copies of the advertisements were forwarded to MoEF, RO, Bangalore vide our letter No.EPL/MS/Env/GCB/01/2008 dated 25.8.2009. 1. 'The Dinamani dated: 06.08.2009 2. The New Indian Express' Dated: 06.08.2009.
10	Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted.

11	Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.	There is no appeal against this EC was made with National Environment Appellate.
12	A copy of the Clearance letter shall be sent by the proponent to concerned Panchayat, ZillaParishad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied with. No public hearing was conducted as the same was not recommended by MoEF & CC in the ToR. No suggestions / representations were received while processing the proposal. The clearance letter was put on the KPL website.
13	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO2, NOx (ambient levels as well as stack emissions) or critical sect oral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Complied with. Only brand new cars (Green Cargo) are handled in this terminal. The status of compliance of the stipulated EC conditions and the results of the monitored data are being sent to Regional office of MoEF. The result of the monitoring data carried out by the Port is uploaded in the company's website.
14	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Complied with. The reports are regularly submitted to Regional Office of MoEF & CC. The same is being uploaded in MoEF & CC and KPL websites also.

15	The environmental statement for each	Complied with.
	financial year ending 31st March in Form - V	
	as is mandated to be submitted by the project	
	proponent to the concerned State Pollution	The environmental statement
	Control Board as prescribed under the	(Form-V) is enclosed herewith as
	Environment (Protection) Rules, 1986, as	Annexure-I.
	amended subsequently, shall also be put on	
	the website of the company along with the	
	status of compliance of EC conditions and	
	shall also be sent to the respective Regional	
	Offices of MoEF by e-mail.	

Point wise compliance report on the conditions issued by Tamil Nadu State Coastal Zone Management vide Letter No. 151/EC3/2009-1 dated 24.02.2009

1	There should not be any extraction of ground water in Coastal Regulation Zone	Complied with. No ground water is extracted in the CRZ area. Open dug wells are provided beyond the CRZ area in the port exclusively for watering of plants.
2	The project activity should not affect the coastal ecosystem including marine flora and fauna	Complied with. Only automobiles (green cargo) are handled in the project. No sewage or wastes are dumped in the port waters. KPL is monitoring marine water quality inside the port. Monitoring reports are regularly submitted to R.O of MoEF&CC. Port waters conform to SW Class IV standards.
3	The composition of the dredged materials should be duly analyzed and examined to find out the availability of any toxic contents.	 Port has carried out a study through Institute of Ocean Management, Anna University, Chennai entitled "Assessment of Water, Sediment & Biota in Ennore Port" during January 2009. The study revealed that the toxic heavy metals are found to be well within the safety limits and as

		 such do not pose any problem to the marine environment. Sediment quality is also continuously monitored during dredging operations. Port is also monitoring monthly marine water quality for various physio-chemical parameters including heavy metals.
4	Based on the analysis, a suitable methodology for the disposal of dredging material has to be evolved out.	National Institute of Ocean Technology (NIOT), Chennai has carried out EIA and Risk assessment for the second phase expansion proposals, which is inclusive of Modelling studies and identified a marine disposal area (5 KM x 5 KM area) for disposal of dredged material. The study has identified a location for the safe disposal of dredged material with a holding capacity of 18.0 million cubic meters.
5	No blasting activities in Coastal Regulation Zone is permissible	Complied with. No blasting activity was carried out during the construction phase. Berth constructions are made up of RCC super structure on pile foundation.
6	The proponent shall not undertake any activity, which is violative of the provisions of Coastal Regulation Zone Notification 1991 and the subsequent amendments.	Noted. No activity in violation of the provisions of CRZ Notification will be carried out.
7	The coastal Regulation Zone clearance will be revoked if any of the condition stipulated is not complied with	Noted.

KAMARAJAR PORT LIMITED - GENERAL CARGO BERTH (GCB) ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31ST MARCH-2021

S. No	Description	Remarks
1.	Name and address	Kamarajar Port Limited,
		Vallur Post, Near NCTPS, Chennai-120.
2.	Type of Cargo handled	Auto mobiles (green cargo) & Project
		cargo
3.	Industry category Primary (STC Code)	Major port under the administrative
	Secondary (SIC Code)	control of Ministry of shipping, GOI.
4.	Cargo handling capacity as per CTO	2Lakh cars/year and project/finished
		cargo of 0.5 MTPA. All these cargo are
		green cargo.
5.	Date of start of commercial operation	28.01.2011

PART – A

PART – B

(1) Water and Raw Material Consumption

Water consumption m3/d: 2KL per Day for this terminal.

Process/ sprinkling: Nil. Only brand new and assembled automobiles (green cargo) are handled (export/import) in this terminal.

Cooling: Not applicable.

Domestic: 2KLD

Any other: Nil

Name of Cargo handled	Process water consumption per unit of product output.(per
	Annum)
	DuringthepreviousDuring the Current financialfinancial year (2019-20)year (2020-21)
Auto mobiles	Only brand new assembled automobiles (green cargo) are handled in this terminal.

(2) Raw Material Consumption (if applicable)

*Name of raw	Name	of	Consumption of raw material per Unit of output				
materials	Products						
			During	the	financial	During the financial Year	

			year 2019-20	2020-21
Auto mobiles &	Auto	mobiles	1,99,561	95,400
Project cargo & Project cargo				

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

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

	•						
Pollutants	Quantity of	Concentrations of	Percentage of				
	pollutants discharged	pollutants in discharges	variation from				
	(mass/day)	(mass/volume)	prescribed standards				
			with reasons				
Water	Not Applicable. Only 1	orand new assembled auto	omobiles (green cargo)				
	are handled (export/in	nport) in this terminal. No	wastes are discharged				
	into the marine/surfa	ce water bodies. Port is r	nonitoring the surface				
	and marine water qua	ality through M/s. Hubert	Enviro Care Systems				
	Pvt. Ltd. Chennai (Mol	EF & CC/ NABL certified la	aboratory) on quarterly				
	basis. The results of a	nalysis are found to be wel	l within the prescribed				
	standards by the CP	CB. The reports are sub	omitted to Tamilnadu				
	Pollution Control Board	d.					
Air	Not Applicable. Only 1	orand new assembled auto	omobiles (green cargo)				
	are handled (export/in	mport) in this terminal. N	o stacks are there in				
	port.						
	-						
	KPL is monitoring the	various environmental par	ameters through M/s.				
	Hubert Enviro Care S	Systems Pvt. Ltd. Chennai	(MoEF & CC/ NABL				
	certified labaoratory).	The ambient air quality	is monitored at eight				
	different locations insid	le the port area. The result	s of analysis are found				
	to be well within the	prescribed standards by th	e CPCB. The monthly				
	monitoring reports are	submitted to Tamilnadu Po	ollution Control Board.				

PART – D

Hazardous Wastes

(As specified under Hazardous and other wastes Transboundary Rules, 2016)

Hazardous Wastes	Total Quantity (Kg.)
	During the previous During the Financial year
	Financial Year 2020-21 2020-21
Source of Hazardous waste	Only brand new assembled automobiles (Green
generation	Cargo) are handled (export/import) in this
	terminal. No hazardous wastes are generated.
Disposal procedure	Not Applicable.
Quantity disposed	Not Applicable.

Any other details	Port has formulated 'Waste Oil, Sewage & Other
	Wastes Disposal Policy, 2019'. The Policy is
	uploaded in the KPL website for the easy access of
	the port users. The ship generated oily wastes are
	being disposed off through CPCB/SPCB approved
	recyclers. The list of empanelled recyclers is made
	available in 'swchh sagar' portal of Director General
	of Shipping and KPL website.

Solid Wastes	Total Quantity (M ³)				
	During the Financial Year During the Financial Yea				
	period Apr'19 to Mar'20	Apr'20 to Mar'21			
Quantity collection	The total collected quantity	The collected total quantity			
	from the terminal and ships	from the terminal and ships			
	calling at the terminal is	calling at the terminal is about			
	about 150.2 Cu.M (Apr 19 to	port and snips is about 141.4 (Apr'_2) to Mor'_2			
	Mai 20).	Cu.m (Api 20 to Mai 21).			
a) Source of solid	Solid waste generated in the	port is of domestic wastes likes,			
waste generation	paper, packing material, wat	er bottles, etc. Ship generated			
	wastes include paper, plastic	c cans, metal drums, e-wastes,			
	food waste, ropes, wooden packing material, etc.				
Disposal procedure	As per MARPOL regulation	s, every port has to provide			
	reception facility for the disp	oosal of ship generated wastes.			
	Accordingly port has engaged a contractor for the collection				
	of wastes from the ships. The collected wastes are segregated				
	into different species and sent to various recyclers for further				
	beneficial use.				
Quantity disposed	The disposed quantity from	The disposed quantity from			
	port and ships is 150.2	port and ships is 141.4 Cu.M			
	Cu.M (Apr'19 to Mar'20).	(Apr'20 to Mar'21).			
Any other details	NIL				

PART – E Solid Wastes

$\mathbf{PART} - \mathbf{F}$

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

Port has Waste Oil, sewage & Other Wastes Reception Facilities Policy, 2019. The generated oily wastes from the ships are disposed off through CPCB/SPCB approved recyclers.

No hazardous wastes are generated. Solid waste generated in the terminal is of domestic wastes like paper, packing material, water bottles, etc. and ship generated wastes including paper, plastic cans, metal drums, e-wastes, food waste, ropes, wooden packing material, etc.,

As per MARPOL regulations, reception facility port has facilitated for the collection and disposal of ship generated wastes. The collected waste are segregated into different categories and sent to various recyclers for further beneficial use.

PART – G

Impact of pollution abatement measures taken towards conservation of natural resources and the cost of production

Only brand new assembled automobiles (Green Cargo) are handled (export/import) in this terminal. Therefore, there is no pollution generated from the operations in this terminal.

Moreover, Port has developed a green belt of 636.14 acres inside and outside the custom bound areas which acts as barrier for dust emissions and pollutants.

PART – H

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

Port's Environmental Management Plan (EMP) is aimed at mitigating the possible adverse impacts of projects and for ensuring to maintenance of the existing environmental quality. Port has facilitated the ships with reception facilities as per MARPOL regulations for ships for disposal of wastes under Annexure- I (oil) and Annexure- V (Garbage). Port generated domestic wastes are disposed off at approved dumping yards. The domestic sewage wastes are disposed through septic tank & soak pits.

Workers are provided with ear protection devices, masks and helmets. Emergency/Crisis Response Plan that covers situations such as cyclones, marine accidents, bomb threats, fire, explosion and accidents is in place. Port is having oil spill contingency plan prepared in line with National Oil Spill Disaster Contingency plan (NOS-DCP).

PART – I Any other particulars for improving the quality of the environment.

Nil



TAMILNADU POLLUTION CONTROL BOARD District Environmental Laboratory, Manali

AMBIENT AIR QUALITY SURVEY - Report of Analysis

Date: 23.03.2021

Report No. 63 /AAQS/2020-21

1. Name of the Industry		M/s. Kamarajar Port Ltd., (Cargo)
2 Address of the Industry	4	Vallur Post, Chennai – 120.
3. Date of Survey		17.03.2021
4. Duration of Survey	4	8 Hours / 24 hours No. 1 / Oceanor / Green - Large / Medium / Small
5. Category	1	Red / Orange / Oreen - Darge / Mesidential / Sensitive
Land use classification	12	Industrial / Commercial / Resident

Meteorological Conditions

			The Lating	Min	Max
Ambient	Min	Max	Relative	59	74
Temperature (⁰ C)	27.	31	Humidity (%)	20	14
Weather Condition	Partially Cloudy		Rain Fall (mm)	ISU	
Predominant Wind	SSE	NNW	Mean Wind Speed (km/hr)	10	

		Ambient Air	Ouality S	Survey Res	ults			
		E	8 *	55	Pollutants Concentration (microgram / m ³)			
Sl. No.	Location	Directi	Distan (m)	Heig Form (m)	PM 2.5	PM 10	SO2	NO ₂
1	On top of Platform near Car Parking	N	500	3	-	62	8	9
2	On top of Platform Car Berth Area	SE	900	3	11	57	7	10
3	On top of Platform near Chettinad SS.	S	900	3		73	12	14
4	On top of Platform near Main Gate (CISF)	SW	1000	4	75	77	14	16
5	On top of Platform near	NW	500	3	2.5	86	15	18

Note: * With respect to major emission sources. The analytical results are restricted to the sampling period of 8 hrs/24hrs



23/3/21 2.0

Chief Scientific Officer, **District Environmental Laboratory** Tamil Nadu Pollution Control Board Manali

	Test Method
Test Performed	2006
DM10	IS 5182 : (Part 23) - 2000
PMIO	Modified West - Gaeke / IS 5182 : (Part 2) - 2001 KA: 2012
SO2	Incohe Hochheiser / IS 5182 : (Part 6) - 2006 RA:2012
NO2	Jacobs Tritemenser Tig The

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TAMILNADU POLLUTION CONTROL BOARD

District Environmental Laboratory, Manali

AMBIENT AIR QUALITY SURVEY

Schematic Diagram Showing Location of Sampling

Report No. 63 /AAQ/SM/2020-21

Name and Address of the Industry

M/s. Kamarajar Port Ltd., (Cargo)
 Vallur Post, Chennai – 120.

Date of Survey :

17.03.2021



Note: All the values are expressed in µg/m3 and restricted to sampling period of 8 hrs/24hrs

Meteorologic	cal Conditions:
Predominant Wind Direction	SSENNW
Wind Sneed (Km/hr)	10
Weather Condition	Partially Cloudy
Rainfall	Nil

2313121

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Board Manali

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TAMILNADU POLLUTION CONTROL BOARD

District Environmental Laboratory, Manali

AMBIENT/SOURCE NOISE LEVEL SURVEY - Report of Analysis

Date: 23.03.2021

kepo L	Name of t	he Industry	M/s. J	Kamarajar Port Ltd., (Cargo)	
2.	Address o	f the Industry	Vallu	r Post, Chennai – 120.	
3.	Date of S	urvey	17.03	.2021	
		DI	-	Land use Classification	Industrial
Cate	gory	KL Ambient/S	Source	Time of Survey	Day
Type of Survey Amblenous		Jourse	Calm/Windy/Rainy Win		

				Logg	mg	Taraneters	T242107
Landana and Lie	In	C	ESVA Model SC3	10	Se	erial No	1245105
Instrument Us	eu		10 Minutes each n	oint	M	leasuring Range	50-110 dB(A)
Logging Inter	val	_	to Minutes each p	Luc	1	Time Weighting	FAST
Weighting	** /	۸	Peak	(250.	Time weighting	N 707 780 80
			weighting	_		1911 Inc. Inc. Incom	14.00 - 15.00
Sound Incidence		RANDOM		Time in hrs		1.0.00	
				_	_		

Report of Noise Level Monitoring

alaa Daramaters

SL No	Location	ration min)	ance (m)	rection	Sound Level -dB(A)		
930		Du	Dist	Di	Leq	Min	Max
1	Near Car Parking	10	500	N	60.1	53,4	69.6
2	Near Car Berth Area	10	900	SE	55.5	50.3	70.4
3	Near Chettinad SS	10	900	S	57.6	51.2	73.1
4	Near Main Gate (CISF)	10	1000	sw	61.6	50.3	69.8
5	New Fire Station	10	500	NW	63.3	54	74.7

Note: Leq value is the average energy for the measured period.

3/21

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Board Manali



TAMILNADU POLLUTION CONTROL BOARD

District Environmental Laboratory, Manali

INFERENCE REPORT ON A.A.Q.S./ S.M.

1. Name of Industry	1	M/s. Kamarajar Port Ltd., (Cargo) Vallur Post, Chennai – 120.
2, Pollution Category	;	Red Large
3. Date of A.A.Q. Survey	3	17.03.2021
4. Predominant Wind Direction	;	SSE- NNW
5. Weather condition	а	Partially Cloudy
		THE ROLLIT ANTE LEVEL

STATUS OF POLLUTANTS LEVEL

1. AMBIENT AIR QUALITY :=

- Total No. of A.A.Q. stations monitored : 5
- No. of A.A.Q. stations in which Pollutants Level exceeded the Boards standards ; Nil

¢1	Maxin	Values in m	icrogram/m ³	BOARD's STANDARD
No	POLLUTANT	Maximum	Minimum	(As per consent order)
1. 2.	PM10 PM.2.5 GASEOUS POLLUTANTS:-	86 25	57 11	100 60
	(i) SO2	15	7	80
	(ii) NO2	18	9	80

Maximum and Minimum values of Pollutants Level observed:

- II. STACK MONITORING:-
- 1. Total No. of Stacks Monitored
- No. of Stacks in which Pollutants level Exceeded the Boards standards

332

: Nil

Chief Scientific Officer, District Environmental Laboratory Tamil Nadu Pollution Control Boar Manali

Page 5 of 6
KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

"EXPANSION AND MODERNIZATION OF EXISTING HANDLING OF MULTICARGO CONTAINER TERMINAL AT KAMARAJAR PORT, TAMIL NADU"

Expansion and modernization of existing handling of Multicargo container terminal at Kamarajar Port, Tamil Nadu by M/s. Kamarajar Port Limited- Environmental and <u>CRZ Clearance.</u>

Ref: MoEF's Notification No. 10-28/2005-IA-III dated 24.12.2014

KPL has awarded the development of Multi Cargo Terminal on DBFOT basis for a capacity of 2MTPA with an estimated cost of Rs.151 crores to M/s Chettinad International Bulk Terminal Pvt. Ltd. Concession agreement was signed on 28.03.2014. Award of Concession was granted to the Concessionaire from 27.02.2015. The Concessionaire has completed the berth construction, utility, back yard etc. and started operation.

Cargoes to be handled

Development of multi cargo container terminal is to handle Project clean cargoes like Granite, timber logs, Grains, bagged cargoes including sugar, cobble stone, steel cargoes, project cargo and small quantity of containers of about 2 Million tonnes per annum.

Development of Container Terminal at KPL on DBFOT basis was awarded to M/s. Adani Ennore Container Terminal Private Limited (AECTPL). The quantity handled will be 11.68 MTPA.

S.No	Specific Conditions	Compliance Status
1	"Consent for Establishment" for the present project, shall be obtained from State Pollution Control Board under Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974.	Kamarajar Port has obtained "Consent to Establish" from Tamilnadu Pollution Control Board (TNPCB) for handling container cargo of 16.8 MMTPA vide consent order No. 170126235691 (Air Act) and 170116235691 (Water Act) dated 21.04.2017 valid till 31.03.2024. TNPCB has accorded renewal of Consent To Operate for the terminal vide their orders nos. 2108136876855 & 2108236876855 under Water and Air Acts. vide till 31.03.2026
		With regard to M/s Ennore Bulk Terminal (EBTPL), TNPCB accorded Consent To Establish vide order No. 15012566008 & 15011566008, dated 25.05.2015. TNPCB accorded Consent to operate vide Order No.1808212438509 (Air) and

		1808112438509 (Water) dtd 20.09.2018,
		valid upto 31.03.2023.
2	Quantity of cargo should be handled	Complied with.
	provided in the Form-1	
3	All the recommendations and	Complied with
0	conditions stipulated by Tamil Nadu	
	Coastal Zone Management Authority	
	dated 06.12.2005, shall be complied	
	with.	
4	All the conditions as prescribed in the	Complied with.
	28/2005-IA-III dated 19.05.2006 and	
	10.09.2007, shall be complied.	
5	All the recommendation of the	EIA/EMP report in a matrix format is
	EIA/EMP & Risk Assessment and Disaster Management Report shall be	enclosed as Annexure -I.
	complied with letter and spirit. All the	
	mitigation measures submitted in the EIA report shall be prepared in a	
	matrix format and the compliance for	
	each mitigation submitted in the EIA report shall be submitted to	
	MoEF&CC along with half yearly	
	compliance report to MoEF&CC-RO	
6	The commitment made by the Proponent to the issue raised during	No direction was given to conduct public
	Public Hearing shall be implemented	nearing for the project.
	by the Proponent.	
7	Corporate Environment	
	Responsibility:	
	a) The Company shall have a well laid down Environment Policy	With regard to M/s. AECTPL, the firm has QHSE policy.
	approved by the Board of	With regard to M/s EBTPL, the firm is in
	Directors.	the process of deriving the Environmental Policy. However, the firm

<u>ل</u> ا	The Environment Delieve shell	has Group Environmental Policy
D)	ne Environment Policy shall prescribe for standard operating process/producers to bring into focus any infringements/deviation/violati on of the environmental or forest norms/conditions.	M/s. AECTPL is having approved SOPs. With regard to M/s EBTPL, the firm is in the process of deriving the Environmental Policy.
c)	The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.	Noted.
d)	To have proper checks and balances, the company shall have a well laid down system of reporting of non- compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large	M/s. AECTPL is having Standard procedures to address corrective, preventive, deviations and violations.

General Conditions

S.No	Environmental Clearance Conditions	Compliance Status
(i)	Appropriate measures must be taken while understanding digging activities to avoid any likely degradation of water quality.	Complied with. Construction completed and the project is under operation.
(ii)	Full support shall be extended to the officers of this Ministry/Regional Office at Chennai by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and	Noted for compliance. Full supported is being extended to the officers of IRO, MoEF & CC, Chennai, CPCB & TNPCB during their inspection and site visits. During the compliance period, monthly visits were made by TNPCB officials and all

	other environmental protection activities.	necessary support were extended and same shall be continued in future also.
(iii)	A six-monthly monitoring report shall need to be submitted by the project proponent to the Regional Office of this Ministry at Chennai regarding the implementation of the stipulated conditions.	Complied with. The six-monthly compliance status report on the conditions stipulated vide Environmental clearance letters is being sent to Regional Office of MoEF & CC and Tamilnadu Pollution Control Board.
(iv)	Ministry of Environment, Forest & Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted for compliance.
(v)	The Ministry reserves the right to revoke this clearance if any of the condition stipulated are not complied with the satisfaction of the Ministry.	Noted.
(vi)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment, Forest & Climate Change.	Noted.
(vii)	The project proponent shall inform the Regional Office as well as the Ministry the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Noted.
(viii)	A copy of the clearance letter shall be marked to concern Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.	No suggestion / representation were received from the Panchayat/NGO while processing the proposal. However a copy of the clearance letter was forwarded to local Panchayat.
(ix)	The project proponent shall set up	Complied with.

	separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	With regard to M/s AECTPL, a separate EMC with suitable qualified staff has been put in place by AECTPL for taking care of various day to day environmental monitoring compliance and allied activities. Environmental Department headed by Senior Manager-Environment, who is well supported by Environmental Management Team at H.O. With regard to M/s. EBTPL, a separate environmental team at HO is taking care of all environmental activities.
(x)	The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any purposes.	Complied with.TheenvironmentalexpenditurecarriedoutbyM/sAECTPLduringthecomplianceperiodisRs.36.68Lakhs.Thebreakupdetailsareasfollows.S.DescriptionAmount(Rs.inLakhs)1Environmental12.611Environmental12.6112.612Greenbelt2.0533STP-O&M2.3144Housekeeping18.3355IWMS1.381.38Total36.68EnvironmentalExpenditurecarriedoutbyM/sBTPLduring2019-20 issRs.5,44,440/-and2020-21isRs.5,10,086/SSS
5	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and	Noted.

	EIA Notification 1994, including the amendments and rules made thereafter.	
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 authority.	Noted. Approvals shall be obtained as applicable. M/s EBTPL has obtained Fire Service License from Tamil Nadu Fire & Rescue Service under Section 13 of the Tamil Nadu Fire Services Act 1985 and in accordance with Tamil Nadu Fire service Rules 1990 Appendix III) Lic.No.3589/2019 dt.30.10.2019.
7	The project proponent shall advertise in atleast two local Newspaper widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ clearance and copies of clearance letters are available with the Tamil Nadu State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest & Climate Change at http://www.envfor.nic.in. The advertisement should be made within Seven 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.	The advertisement was given in the local Tamil newspaper Dinamani & New Indian Express paper on 04.02.2015 intimating the accordance of Environmental & CRZ clearance for the project. The copy of the same was forwarded to MoEF&CC.
8	This clearance is subject to final order of the Hon'ble Supreme court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted.
9	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.

10	Status of compliance to the various	M/s AECTPL has uploaded the status
	stipulated environmental conditions and	of compliance in its website.
	environment safeguards will be uploaded	-
	by the project proponent in its website.	
11	A copy of the clearance letter shall be	Complied with.
	sent by the proponent to concerned	
	Panchayat, Zilla Parisad /Municipal	The copy of the clearance letter was
	Corporation, Urban Local Body and the	forwarded to local Panchayat.
	Local NGO, if any, from whom	
	suggestions/representations, if any, were	
	received while processing the proposal.	
	The clearance letter shall also be put on	
	the website of the company by the	
	proponent.	
12	The proponent shall upload the status of	Complied with.
	compliance of the stipulated Clearance	
	conditions, including results of monitored	
	data on their website and shall undate	
	the same periodically It shall	
	simultaneously be sent to the regional	
	Office of MoFF the respective Zonal	
	Office of CPCB and the SPCB	
10		
13	The project proponent shall also submit	Port is submitting the bi-annual
	six monthly reports on the status of	compliance report to Regional Office
	compliance of the stipulated Clearance	of MoEF & CC.
	conditions including results of monitored	
	data (both in hard copies as well as by e-	
	mail) to the respective Regional Office of	
	MoEF, the respect Zonal of CPCB and	
	SPCB.	
14	The environment statement for each	Noted and will be complied with.
	financial year ending 31st March in	
	Form-v as is mandated to be submitted	
	State Pollution Control Board as	The environmental statement (Form-
	prescribed under the Environment	V) is enclosed as Annexure-III.
	(Protection) Rules, 1986, as amended	,
	subsequently, shall also be put on the	
	website of the company along with the	
	status of compliance of Clearance	
	conditions and shall be sent to the	
	respective Regional Office of MoEF&CC by	
	C-111a11.	

			Annexure -I
	Envi	ronmental Mitigation Measures in	n Matrix format
S.No	Component	Impact	Mitigation Measures
Const	ruction Phase		
1.	Land	 Change in topography of inner dock basin, which will be dredged and converted into marine berthing area. Land pollution due to discharge of sewage and solid waste onto land. 	 Use of removed soil (top soil only) for green belt development. No change in land use land cover as the proposed project site is located within the existing break waters. Disposal of solid waste through authorized recyclers/ contractors. Local labours are engaged.
2.	Water	• Water pollution due to disposal of sewage and construction waste into water body.	• No construction waste is disposed off into the water body.
3.	Air	• Generation of PM2.5, PM10,CO, SO2, NO2	 Raw materials for construction will be brought inside the port in trucks with proper covers. Regular servicing of vehicles and DG sets. Compulsory wearing of Personal Protective Equipment (PPE) like dust mask etc by workers.
4.	Noise and Vibration	 Increase in the noise level due to movement of vehicles and construction activities. Vibration due to movement of vehicles and construction activities. 	 Regular servicing and maintenance of construction Machineries, equipments and vehicles is carried out to control noise. Compulsory wearing of Personal Protective Equipment (PPE) like ear plugs or ear muff by workers. The impact due to vibration from vehicular movement is insignificant.
5.	Marine	• Increase in suspended solid	• Usage of silt curtains to

	Environment	concentration due to dredging	contain spread of suspended
		in the marine water body.	sediment in marine water
		Change in shoreline.	body.
			• Since, the construction of
			the berth is inside the
			breakwaters hence no changes
			in shoreline.
6.	Biological	• Site clearance.	• The activities do not create
	• Flora	• Disturbance due to increase	any disturbance to flora and
	• Fauna	in noise.	fauna.
			• No operations of heavy
			machinery.
7.	Socio-	• Employment generation.	• Local people were engaged
	Economic		by the contractors during
			construction.
Opera	tion Phase		
8.	Land	• Pollution due to discharge of	• Sanitation facilities were
		sewage.	provided.
		• Generation of ship and port	• Sewage will be collected in
		generated solid wastes	septic tank, which will be
			emptied regularly by
			contractor.
			• Port has facilitated the
			ships with reception facilities
			for the disposal of solid wastes
			as required under MARPOL
			regulations.
9.	Water	Consumption of water.	• Water consumption is only
		• Contamination of water body	for domestic purpose. No
		by discharge of untreated	process or manufacturing is
		sewage.	taking place.
		• Contamination of water body	• Sewage will be collected in
		due to discharge of	septic tank, which will be
		contaminated storm water	emptied regularly by
		runoff.	contractor.
			• Storm water drainage
			system.
10.	Air	• Emission of air	• Cargo is handled in closed
		pollutantslike CO, SO2,	containers. In the Multi cargo
		NOx from vehicles, heavy	berth only green cargo are
		machineries and DG	handled.
		sets.	• Regular servicing and

11.	Noise and Vibration	 Operation of heavy machineries will result in generation of noise and vibration 	 maintenance of DG set and vehicles are carried out. Air quality is regularly monitored. Ear muffs are provided for workers.
12.	Marine Environment	Contamination of marine water and bottom sediment due to discharge/ disposal of untreated sewage/garbage from the ships/port area into the marine environment.	• No garbage is disposed off into the sea. The same is collected by the port and disposed off.
13.	Biological • Flora • Fauna	• Disturbance due to increase in noise.	 The activities do not create any disturbance to flora and fauna. No operations of heavy machinery.
14.	Socio- Economic	Employment opportunity.	• Generation of Employment opportunity.
15.	Occupational Health and Safety	• Storage of materials and handling.	 Materials are stored in either closed shed or in closed containers. Usage of personal protective equipment like dust mask and safety goggle. Safety training.

FORM-V

(See rule 14 of Environment (Protection) Rules, 1986) Environmental Statement for the financial year ending with 30th June 2022.

PART - A

1	Name and Address of the owner/occupier of the Industry operation or process	11	Mr. K. Sameer Bhatnagar Director, S.F. 143, Puzhidhivakkam Village, Near NCTPS Quarters, Vallur - Post, Chennai -600 120
ü	Industry Category	2	Primary : Red Secondary : 1065-Ports and Harbour, Jetties and Dredging Operations.
iii	Year of Establishment	:	2017
iv	Date of the last environme		

PART- B

Water and Raw Material Consumption:

i	Water consumption in m3/d			
	Process	1	NIL	
	Cooling	1	-	

SI.	Name of Brodusto	Process water con	sumption per unit of products (KL/MT)
No.	Name of Products	During the previous	During the current financial Year
1	Coal (Handling Only) (Unloading, transfer, storage and loading of Coal)	0.003 KL	0.002KL

II Raw Material consumption

Name of Materials*	Name of the Products	Consumption of raw ma	aterial per unit of output
N/A	N/A	N/A	N/A

The unit does not undergo any manufacturing process. The water consumed is mainly for Firefighting, greenbelt development, domestic and maintenance, etc.,

PART- C

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

Pollutants	Quantity of pollutants discharged (mass/day)	Concentration of Pollutants discharged (mass/volume)	Percentage of variation from prescribed standards with reasons.
(a) Water	ZERO DISCHARGE	ZERO DISCHARGE	ZERO DISCHARGE
b) Air	DG 500 KVA – 1 Nos. (Used for Lighting)	3 6	

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

244		Total Quantity (Kg)	
SI. No.	Hazardous Wastes	During the previous financial year	During the current financial year
1	From Process	N/A	N/A
2	From Pollution Control Facilities	N/A	N/A

PART- E SOLID WASTES

ct	0	Total Quantity (Kg)	
No.	Solid Wastes	During the previous financial year	During the current financial year
a	From Process	N/A	N/A
b	From Pollution Control Facilities	N/A	N/A
с	Quantity recycled or re-utilised within the unit.	N/A State	N/A

PART-F

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

PART-G

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

 All the domestic wastewater being generated is treated at existing sewage treatment plant and the treated water is being re-used for gardening/horticulture purpose.

Sewage Treatment Plant (STP) is in continuous operation and the treated effluent water quality is * meeting the TNPCB norms. The total cost spent on STP operation during the year 2021-22 is Rs. 4,71,064/-

* The unit is continuously developing and maintaining Greenbelt within the coal stack yard.

PART-H

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

PART-I

MISCELLANEOUS:

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

-

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

ci.		Total Quantity (Kg)	
SI. No.	Hazardous Wastes	During the previous financial year	During the current financial year
1	From Process	N/A	N/A
2	From Pollution Control Facilities	N/A	N/A

PART- E SOLID WASTES

ci		Total Quantity (Kg)	
No.	Solid Wastes	During the previous financial year	During the current financial year
a	From Process	N/A	N/A
b	From Pollution Control Facilities	N/A	N/A
с	Quantity recycled or re-utilised within the unit.	N/A	N/A

PART-F

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

PART- G

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

 All the domestic wastewater being generated is treated at existing sewage treatment plant and the treated water is being re-used for gardening/horticulture purpose.

Sewage Treatment Plant (STP) is in continuous operation and the treated effluent water quality is * meeting the TNPCB norms. The total cost spent on STP operation during the year 2021-22 is Rs. 4,71,064/-

* The unit is continuously developing and maintaining Greenbelt within the coal stack yard.

PART-H

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

PART-I

MISCELLANEOUS:

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

KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

Development of additional Coal Berths (CB3 and CB4) at Kamarajar Port, Tamil Nadu by M/s. Kamarajar Port Limited – Environmental and CRZ clearance Point wise compliance report on Ministry's guidelines for the Kamarajar Ports project "Development of additional coal berths (CB3 and CB4) at Kamarajar Port, Tamil Nadu by M/s. Kamarajar Port Limited (Formerly known as Ennore Port Limited)- Environmental and CRZ clearance-reg.

Ref: MoEF's Notification F.No.11-51/2012-IA.III dated 12th March 2015

Construction of Coal Berth No. 3

Construction of Coal berth No 3 for TNEB was planned for a capacity of 9 MTPA at an estimated cost of 209.68 crores. The agreement was signed between M/s ITD Cementation India Ltd., on 20th January 2015, and the work was commenced on 02nd June 2015 and completed on 13.12.2017. Though the berth construction was completed on 13.12.2017, since the other berth infrastructure being constructed, the terminal is yet to commission.

Construction of Coal Berth No. 4

Construction of Coal berth No 4 for TNEB was planned for a capacity of 9 MTPA at an estimated cost of 255.79 crores. The agreement was signed between M/s Afcons Infrastructure Ltd., on 20th July 2015, and the work was commenced on 19th August 2015 and completed on 31.05.2018. Though the berth construction was completed on 31.05.2018, since the other berth infrastructure being constructed, the terminal is yet to commission.

S.No	Specific Conditions	Compliance Status
A (i)	"Consent for Establishment" shall be	Complied with.
	obtained from State Pollution Control	
	Board under Air (Prevention and	Tamil Nadu Pollution Control Board
	Control of Pollution) Act, 1981 and	has accorded consent to Establish for
	Water (Prevention and Control of	the project vide Consent Order No.
	Pollution) Act, 1974.	15061355540 dated 31.8.2015 and
		Proceedings No. T6/TNPCB/
		F.0044AMB/RL/AMB/W/2015 dated
		31.8.2015 for Water and Proceedings
		No. T6/TNPCB/F.0044AMB/RL/AMB
		/A/2015 dated 31.8.2015 for Air.
(ii)	Dust screens shall be provided with a	Will be complied during operation
	height of 2 meter above the maximum	phase.
	stack height. Water sprinkling shall be	
	carried out for settling dust. Three	
	layers of green belt of all growing trees	
	shall be provided on all sides.	

(iii)	Water sprinkler should be provided in	Noted.
	the area of coal loading and unloading,	
	storage and vehicle path/roads.	
(iv)	Energy conservation measures shall be	Complied with.
	provided which may include use of	
	solar panels, wind mill etc.	At present, port has installed solar
		panels with a total capacity of 20 KV.
(v)	There shall be no washing of conveyor belt.	Noted for compliance.
(vi)	All the conditions stipulated by Tamil	Noted for compliance.
	Nadu Coastal Zone Management	
	Authority (INCZMA) vide letter No.	
	25107/EC.3/2014-1, ualed	
(V11)	All the recommendation of the	Noted for compliance.
	EIA/EMP, Disaster Management Plan	
	shall be strictly complied within letter	
	submitted in the FIA report shall be	
	prepared in a matrix format and the	
	compliance for each mitigation plan	
	shall be submitted to MoEF & CC along	
	with half yearly compliance report to	
	MoEF & CC - RO.	
(viii)	Cargo shall be unloaded directly into	The project is yet to be
. ,	hopper from the ship and	commissioned. Cargo shall be
	transportation of coal shall be through	unloaded directly into hopper from
	covered/closed trucks/ rail only.	the ships and transported through
	Closed conveyor belt shall be used for	elevated closed conveyor systems to
	loading the product in the barges.	the stack yard/thermal power plant.
(ix)	The dredge material shall be reused for	Noted.
	low level rising wherever possible and	
	excess shall be dumped into sea at the	Portion of the dredged material was
	designated dumping areas identified	dumped in the sea.
	based on mathematical model studies.	
(x)	To prevent discharge of sewage and	Noted for compliance.
	other liquid waste including ballast	
	into marine environment, adequate	
	system for collection, treatment and	
	disposal of liquid waste must be	
	provided.	

(xi)	Necessary arrangements for the	Noted for compliance.
	treatment of the effluents and solid	
	waste must be made and it must be	
	ensured that the untreated effluents	
	and solid wastes are not discharged	
	into the water or on the beach: and no	
	effluent or solid waste shall be	
	discharged on the beach	
(vii)	The quality of treated effluents solids	Being complied with
(2311)	wastes emission and noise levels and	Doing complica with.
	the like from the project area must	Monitoring of ambient air marine
	conform to the standards laid down by	woter noise levels were corried out
	the component outbouilds laid down by	water, noise levels were carried out
	the competent authorities including the	during construction phase. The same
	Central or State Pollution Control	will be continued during operation
	Board and under the Environment	phase too.
	(Protection) Act, 1986.	
(X111)	The project proponent shall set up	Port is equipped with HSE division
	separate Environmental management	which is a part of the Marine Services
	cell for effective implementation of the	department headed by General
	stipulated environmental safeguards	Manager (MS). The HSE division is
	under the supervision of a Senior	exclusively headed by an officer in the
	Executive.	rank of Chief Manager(HSE). At
		present, the Environmental Cell
		(i) Of is (Manager (HOE))
		(1) Chief Manager(HSE),
		(ii) Sr. Manager(HSE) and
		(iii) Executive.
		Port has engaged M/s Hubert Enviro
		care Systems Pyt. Ltd. Chennai
		(MoEF &CC/NABL certified) to carry
		out regular environmental
		monitoring.
(xiv)	The commitment made by the	Noted for compliance.
	proponent to the issues raised during	
	Public Hearing shall be implemented	
	by the Proponent.	
(xv)	Corporate Environment Responsibility:	Kamarajar Port Limited is having an
		Environmental Management System
		Policy.
	a) The Company shall have a well	
	laid down Environment Policy	Noted.

approved by the Board	1 of
Directors.	
b) The Environment Policy	shall
prescribe for standard oper	rating Noted.
process/producers to bring	; into
focus any infringement	s /
deviation / violation of	the
environmental or t	forest
norms/conditions.	
c) The hierarchical system	or Noted.
Administrative Order of	the
company to deal	with
environmental issues and	l for
ensuring compliance with	the
environmental clear	rance
conditions shall be furnishe	a.
To have proper checks and halo	nces
the company shall have a well	laid
down system of reporting of	non-
compliances/violations	of
environmental norms to the Boa	rd of
Directors of the company ar	nd/or
shareholders or stakeholders at la	rge.

B. General conditions

S.No	General Conditions	Compliance Status	
(i)	Appropriate measures must be taken while understanding digging activities to avoid any likely degradation of water quality.	Noted. Port is regularly monitoring the marine water quality during the construction activities.	
(ii)	Full support shall be extended to the officers of this Ministry/Regional Office at Chennai by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	Noted. Full support will be extended to the officers of the Ministry/Regional office at Chennai.	

(iii)	A six-Monthly monitoring report shall	Complied with.
	need to be submitted by the project	-
	proponent to the Regional Office of this	
	Ministry at Chennai regarding the	
	implementation of the stipulated	
	conditions.	
(iv)	Ministry of Environment Forest &	Noted.
(1)	Climate Change or any other	
	component authority may stipulate	
	any additional conditions or modify the	
	existing ones, if necessary in the	
	interest of environment and the same	
	shall be complied with	
(v)	The Ministry reserves the right to	Noted
(•)	revoke this clearance if any of the	
	condition stipulated are not complied	
	with the satisfaction of the Ministry	
(vi)	In the event of a change in project	There is no change in the project
(*1)	profile or change in the	profile.
	implementation agency, a fresh	P-01-01
	reference shall be made to the Ministry	
	of Environment, Forest & Climate	
	Change.	
(vii)	The project proponent shall inform the	Construction of Coal Berth No. 3
()	Regional Office as well as the Ministry	Coal berth No 3 for TNEB was
	the date of financial closure and final	planned for a capacity of 9 MTPA at
	approval of the project by the	an estimated cost of 209.68 crores.
	concerned authorities and the date of	The agreement was signed with M/s .
	start of land development work.	ITD Cementation India Ltd
		,
		Date of financial closure- internal
		resources:
		Date of final approval of the project by
		concerned authorities- KPL Board
		approved it on 9.6.2015
		Date of start of land development
		works- 2.6.2015.
		Construction of Coal Berth No. 4
		Construction of Coal berth No 4 for
		TNEB was planned for a capacity of 9

		MTPA at an estimated cost of 255.79
		crores The agreement was signed
		between M/s Afcons Infrastructure
		I +d
		Ltd.,
		Date of financial closure - internal
		<u>resources:</u>
		Date of final approval of the project by
		concerned authorities-
		KPL Board approved it on 21.2.2015
		Date of start of land development
		works-19.8.2015.
(viii)	A copy of the clearance letter shall be	Complied with.
	marked to concern Panchayat/local	
	NGO, if any, from whom any	KPL has advertised in two local
	suggestion/ representation has been	Newspapers informing that the project
	made received while processing the	has been accorded with
	proposal.	Environmental and CRZ clearance.
	P. OP COM	The copy of the clearance letter was
		forwarded to the local Panchavat vide
		letter dated 26.3 2015
(izz)	Full support should be extended to the	Full support will be extended to the
(1X)	full support should be extended to the	Full support will be extended to the
	officers of this Ministry's Regional	
	Office at Chennal and the offices of the	Forests.
	Central and Iamil Nadu State	
	Pollution control Board 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.	
(x)	The funds earmarked for	Noted for compliance.
	environmental protection measures	
	shall be kept in separate account and	
	shall not be diverted for other purpose.	
	Year-wise expenditure shall be	
	reported to this Ministry and its	
	concerned Regional Office.	
5	These stipulations would be enforced	KPL is enforcing the provisions of
Ĩ	among others under the provisions of	Water (Prevention and Control of

	Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	 Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981 and the Environment (Protection) Act, 1986. With regard to the Public Liability Insurance, Port has obtained Public Liability Insurance' through Oriental Insurance Company Ltd., vide Policy No:411400/22/2023/1, valid till 05/05/2023.
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 authority.	Presently, no diesel is stored inside the project area. Clearances from Fire Department, Chief Controller of explosives, Civil Aviation Department, Forest conservation Act are not applicable for the above project.
7	The project proponent shall advertise in at least two local Newspaper widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ clearance and copies of clearance letters are available with the Tamil Nadu State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest & Climate Change at http://www.envfor.nic.in. The advertisement should be made within Seven 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 with. It was advertised in the vernacular Tamil and English newspapers on 25.3.2015 in the New Indian Express and Tamil Paper Dinamani.
8	This clearance is subject to final order	Noted.

0	of the Hon'ble Supreme court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Complied with	
9	stipulated environmental conditions and environment safeguards will be uploaded by the project proponent in its website.	Complied with.	
10	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	I There is no appeal against this E0 f was made with National Green Tribunal. However, a case was file before the Hon'ble National Green Tribunal [NGT] (SZ) vide application nos. 8/2016, 152/2016 & 198/2010 regarding dumping of dredged soil debris in the CRZ area. The proceedings on the case are in	
11	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZillaParisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	Complied with. The copy of the clearance letter was forwarded to local body. The copy of the clearance letter was also uploaded in KPL website.	
	of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Regional office of MoEF&CC, O/o of District Environment Engineer, TNPCB and Member Secretary, TNPCB.	
13	The environment statement for each	Noted for compliance.	

financial yea	r ending 31 st March in	
Form-V as	is mandated to be	
submitted by	the project proponent to	
the concerne	d State Pollution Control	
Board as	prescribed under the	
Environment	(Protection) Rules, 1986,	
as amended	subsequently, shall also	
be put on th	e website of the company	
along with th	e status of compliance of	
Clearance con	nditions and shall be sent	
to the respe	ective Regional Office of	
MoEF&CC by	e-mail.	

Point wise compliance report to the conditions given in the Tamil Nadu Coastal Zone Management Authority letter No. 23187/EC.3/2014-1, dated 16.12.2014 for additional coal berths (CB3 & CB4), which are under construction.

1	There should not be any sea water intrusion or erosion on the adjacent coastal areas due to the proposed construction of two additional berths, dredging and also due to the dumping of dredged material.	Complied with. There is no seawater intrusion. The berths are constructed inside the already existing two break waters.
2	Dredged material should be dumped on the landward side and should not be dumped into sea (CRZ IV)., intertidal area (CRZIB) of the Buckingham canal and also in the salt pan areas as the salt pan areas are declared as CRZ-IB (intertidal zone) as per approved coastal Zone management plan of Tamil Nadu.	KPL has dumped a quantity of 73000 cum of dredged materials at the south side of NCTPS road and at the west of Port Access Road. A case was filed before the Hon'ble National Green Tribunal [NGT] (SZ) vide application nos. 8/2016, 152/2016 & 198/2016 regarding dumping of dredged soil/ debris in the CRZ area. After hearing, Hon'ble NGT directed KPL to remove the dumped earth in the above said areas. KPL has removed the dumped material and informed the same to the Hon'ble NGT. However, the petitioner has raised objection before the Hon'ble NGT that KPL has not removed the materials fully. National Green Tribunal (NGT) vide

		order dated 20.05.2019 had constituted a committee to inspect and ascertain the present status of the unit (north Chennai Thermal Power station) in respect of fly ash disposal, the damage caused to the environment. The committee inspected the dredged material dumped area and submitted an assessment report to NGT on 17.01.2020. Based on assessment report of the committee, NGT vide orders dated 20.01.2020 had imposed the environmental compensation to KPL to the tune of Rs.8,34,60,000/- (Rupees Eight Crores Thirty Four Lakhs and Sixty Thousand only). KPL filed a petition for reviewing the above order dated 20.01.2020. Hon'ble NGT vide order dated 06.11.2020 reviewed and imposed an interim compensation of Rs.4,00,00,000/- (Rupees Four Crore only) instead of Rs.8,34,60,000/- and directed to deposit the amount within a period of 2 (Two) months with the Central Pollution Control Board (CPCB). KPL has filed a civil appeal before the Hon'ble Supreme Court of India. After subsequent hearings and progress, the Hon'ble NGT adjourned the case to 08.02.2022 for consideration of Committee's report.
3	There should not be any impact of dispersal of dredged material on the adjacent L&T shipyard area especially the navigational channels of that shipyard.	National Institute of Ocean Technology (NIOT) had conducted modelling study to identify the marine disposal area for Ennore Port in 2004. NIOT had re-validated the impact of dredged material for further development in 2010. Outcome of the 2010 Re-validation

		Study is as below.
		'The effect of dredge spoil is in line with earlier model with the plume moving in NNE-SSW direction and generally parallel to the coast line. The boundaries of L&T shipyard are sufficiently away from the path of modeled plume drift'.
		The modeled sedimentation rate is 0.3m at dumping site and 0.1m after spreading at 11km away from dump site.
4	A continuous proper air quality monitoring station should be under taken around the project area to implement corrective, mitigate measures immediately on the noticing of any adverse impact.	Noted for compliance during operation phase.
5	Necessary adequate preventive measures should be undertaken to maintain the air quality PM10 level at Ennore Port within the standards and it should not cross the prescribed limit and suitable plan on handling of coal in the project area shall be implemented.	Adequate pollution control measures will be implemented during the operational stage.
6	Necessary measures should be taken to control the noise level within the prescribed standard levels.	Adequate pollution control measures will be implemented during the operational stage.
7	Closed conveyor system with latest technology should be established for coal handling as indicated in the report.	Noted for compliance.
8	Green belt development shall be implemented.	Complied with.

9	There shall be no extraction of ground water	Complied with.
		No ground water is extracted inside the port for construction or for operational purpose. Only open dug well are made for horticulture purpose.
10	As indicated in the revised report sufficient allocation of funds should be made to carryout outdoor Environment Social welfare activities.	Noted.

			Annexure-I
	Enviro	onmental Mitigation Measures in	Matrix format
S. No	Component	Impact	Mitigation Measures
Cor	struction Phase		
2.	Land	 Change in topography of inner dock basin, which will be dredged and converted into marine berthing area. Land pollution due to discharge of sewage and solid waste onto land. Water pollution due to 	 Use of removed soil (top soil only) for green belt development. No change in land use land cover is done as the proposed project site is located within port area, adjacent to the existing coal berths CB 1 and CB2. Disposal of solid waste through authorized recyclers/ contractors. Local labours are engaged. No construction waste is
		disposal of sewage and construction waste into water body.	disposed off into the water body.
3.	Air	• Generation of PM2.5, PM10, CO, SO2, NO2	 Use of water sprinklers. Covering of construction and with sheets while transportation and storage. Low sulphur content diesel for DG sets. Regular servicing of vehicles and DG sets done. Compulsory wearing of Personal Protective Equipment (PPE) like dust mask by workers ensured.
4.	Noise and Vibration	• Increase in the noise level due to movement of vehicles	• Regular servicing and maintenance of construction

		and construction activities.	machineries, equipments
			and vehicles done to control
			noise
			• Compulsory wearing of
			Demonal Protective
			Fersonal Protective
			Equipment ensured.
			PPE like ear plugs or ear
			muff by workers ensured.
		• Vibration due to movement	• The impact due to
		of vehicles and construction	vibration from vehicular
		activities.	movement is insignificant.
			• Anti-vibration gloves
			made of visco-elastic
			material will be
			compulsorily worn by
			workers exposed to hand
			vibration due to continuous
			hammering etc.
5.	Marine	• Increase in suspended solid	• Usage of silt curtains to
	Environment	concentration due to	contain spread of
		dredging in the marine water	suspended sediment in
		body	marine water body
		Douy.	marme water body.
		• Change in shoreline.	Construction of coal
			berths are within the two
			breakwaters. Aspects
			relating to sediment cell
			and coastal erosion are not
			relevant.
			• No change in shoreline.
6.	Biological	• Site clearance.	• Green belt development.
	• Flora	• Disturbance due to increase	• No operations of heavy
	• Fauna	in noise.	machinery.
7.	Socio-	• Employment generation.	Local people were
	Economic		engaged by the contractors
			during construction.
Ope	ration Phase:		
8.	Land	• Pollution due to discharge of	Sanitation facilities will be
		sewage.	provided.
			• Sewage will be collected in
			sentic toply and will be
			septie tank, and will be

			emptied regularly by the
			contractor.
9.	Water	 Consumption of water. Contamination of water body by discharge of untreated sewage. Contamination of water body due to discharge of contaminated storm water runoff. 	 Water consumption is only for domestic purpose. No process or manufacturing is taking place. Sewage will be collected in septic tank, which will be emptied regularly by contractor. Storm water drainage system.
10.	Air	 Coal dust generation. Emission of air pollutants like CO, SO2, NOx from vehicles, heavy machineries and DG sets. 	 Installation of coal dust suppression mechanism. Transportation of coal in closed conveyor system. Dust masks for workers. Regular servicing and maintenance of DG set and vehicles. Air quality will be monitored.
11.	Noise and Vibration	• Operation of heavy machineries will result in generation of noise and vibration.	• Ear muffs for workers working near noisy environment.
12.	Marine Environment	 Contamination of marine water and bottom sediment due to discharge/disposal of untreated sewage/garbage from the ships/port area into the marine environment. Any spillage/ runoff from the coal unloading/handling area, windblown dust might also contaminate the marine water quality and sediment quality. 	 Coal will be transferred through elevated closed conveyer belt to the stack yard. Water sprinkler will be installed at the unloading points. No garbage will be disposed into the sea. The same will be collected by the port and disposed off.
13.	Biological • Flora	• Dust emission due to storage and handling of coal.	Coal dust suppression.Green belt development.

	• Fauna		
14.	Socio-	• Employment opportunity.	• Employment opportunity.
	Economic	• Increase in thermal power	• The coal is supplied to
		generation.	thermal power station for the
			generation of power.
15.	Occupationa	Generation of dust during	 Usage of personal
	1	handling and storage of coal	protective equipment like
	Health and	leading to respiratory	dust mask and safety goggle.
	Safety	ailments.	 Safety training.
		• Fire hazard due to coal	 Display of visible signages
		handling and storage.	at places of fire hazard.
			• Cordoning of coal handling
			area, transportation area and
			Storage area as No Smoking
			Zone.

KAMARAJAR PORT LIMITED



Compliance Report

On

Ministry's guidelines for

"DEVELOPMENT OF THE FACILITIES ENVISAGED IN THE PORT MASTER PLAN (PHASE III) BY M/S KAMARAJAR PORT LIMITED"

Point wise compliance report on Ministry's guidelines for Development of the facilities envisaged in the Port Master Plan(Phase III) by M/s Kamarajar Port Limited-Environmental clearance.

Ref: MoEF's Ltr No. F.No.11-51/2012-1A-111, dated 30.10.2018

Present expansion proposals- Phase III

Due to cargo demand and to effectively use the facilities already created, port proposed to develop the following projects (as shown in Table below) as envisaged in the Kamarajar Port master plan. The projects will be developed in a phased manner in line with the market requirements, well within the existing break waters and in the lands owned by Kamarajar Port.

Phase III projects

S.No	Description	Qty	Capacity
1	Automobile export/import terminal-	2Nos.	6 MTPA
2	Container terminal-1000m quay	1Nos.	24 MTPA
	length(3berths)		
3	Marine Liquid Terminal	1No.	5 MTPA
4	IOC captive jetty	1No.	5 MTPA
5	Bulk terminal (coal/ore/other type)	2Nos.	18 MTPA
6	Multi cargo berth	1No.	2 MTPA
7	Associated capital dredging for the	33.0 Million M ³	
	above projects		
	Total No. of Projects	8 Nos.	60 MTPA

Present status:

Port has obtained Consent To Establish for the following terminals:-

- 1. Automobile Export/Import Terminal-3MMTPA capacity-1Nos. (Consent Nos.2101138790505 & 2101238790505, dated 02.08.2021) under Air & Water Acts.
- 2. IOC captive jetty-5MMTPA-1Nos. (Consent Nos.2101131814699 & 2101231814699, dated 10.04.2021) under Air & Water Acts.

The consent To Establish for the above said terminal mentioned at Sl.No.1 is inclusive of the associated dredging of 33 million cubic meters for all the Master Plan Projects.

The preparatory works for the commencement of construction of the above said projects are being carried out. The terminals are expected to put in operation in the 2024.

Remaining projects as stipulated in the Environmental Clearance letter will be taken in phased manner.

Compliance report to the Conditions stipulated vide Ltr No. F.No.11-51/2012-1A-111, dated 30.10.2018

S.No	MoEF Guidelines	Compliance Status
A .	Specific Conditions	
(i)	The project is recommended for grant of Environmental and CRZ Clearance subject to final outcome of cases [Shri R. Ravimaran, Chennai (NGT Case No.8 of 2016) and Meena Thanthai K. R. Selvaraj Kumar, Chennai (NGT Case No.152 of 2016)] which are sub-judice in the Hon'ble National GreenTribunal (NGT) South Zone, Chennai, Tamil Nadu.	Noted. KPL has dumped a quantity of 73000 cum of dredged materials at the south side of NCTPS road and at the west of Port Access Road. A case was filed before the Hon'ble National Green Tribunal [NGT] (SZ) vide application nos. 8/2016, 152/2016 & 198/2016
		regarding dumping of dredged soil/ debris in the CRZ area. After hearing, Hon'ble NGT directed
		KPL to remove the dumped earth in the above said areas. KPL has removed the dumped material and informed the same to the Hon'ble NGT. However, the petitioner has raised objection before the Hon'ble NGT that KPL has not removed the materials fully.
		National Green Tribunal (NGT) vide order dated 20.05.2019 had constituted a committee to inspect and ascertain the present status of the unit (north Chennai Thermal Power station) in respect of fly ash disposal, the damage caused to the environment. The committee inspected the dredged material dumped area and submitted
		an assessment report to NGT on 17.01.2020. Based on assessment report of the committee, NGT vide orders dated 20.01.2020 had imposed the environmental compensation to KPL to the tune of Rs.8,34,60,000/- (Rupees Eight Crores Thirty Four Lakhs and Sixty Thousand only). KPL filed a petition for reviewing the above order dated 20.01.2020. Hop'ble NGT vide

		order dated 06.11.2020 reviewed and imposed an interim compensation of Rs.4,00,00,000/- (Rupees Four Crore only) instead of Rs.8,34,60,000/- and directed to deposit the amount to Central Pollution Control Board (CPCB) within a period of 2 (Two) months. KPL has filed a civil appeal before the
		After subsequent hearings, the Hon'ble NGT adjourned the case to 08.12.2022 for consideration of Committee's report.
(ii)	Construction activity shall be carried out strictly according to the provisions of the CRZ Notification, 2011. No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Noted.
(iii)	All the recommendations and conditions specified by the Tamil Nadu Coastal Zone Management Authority who has recommended the project vide letter No. 12311/EC.3/2017-1 dated 20.07.2017 shall be complied with.	Please find enclosed the compliance report as Annexure-1
(iv)	The project proponent shall ensure that the project is in consonance with the new CZMP prepared by the State Government under the provisions of CRZ Notification, 2011.	Noted.
(v)	Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Noted. Consent To Establish for the following terminals were obtained from TNPCB. 1. Automobile Export/Import Terminal-3MMTPA capacity- 1Nos. (Consent No.2101138790505,

		dated 02.08.2021)
		 IOC captive Jetty-5MMTPA-1Nos. (Consent No.2101231814699, dated 10.04.2021)
		The consent To Establish for the above said terminal mentioned at Sl.No.1 is inclusive of the associated dredging of 33 million cubic meters for all the Master Plan Projects.
(vi)	As per the latest map no development zone shall be maintained 100m on either side of the Kosasthalaiyar river. Besides 50m buffer zone shall be maintained from the mangrove boundary as marked in the combined map indicating the actual field position taking into consideration both the maps i.e. CRZ Map of Anna University prepared for KPL in 2016 and draft CZMP of TNCZMA 2018.	Noted
(vii)	Though the area including the portion of Kosasthalaiyar river has been transferred to KPL, no activity shall be carried out in this zone by maintaining a buffer of 100m since water bodies and wet lands are more important than the development activity.	Noted and will be complied with.
(viii)	The area in the southern side meant for Commercial building, office and parking terminal shall be relocated to some other area on the northern side (within the existing port limit where sufficient land is available).	Noted.
(ix)	The referred Culverts i.e. C1 to C6 as marked in the combined map indicating the actual field position taking into consideration both the	Noted.
(y)	maps i.e. CRZ Map of Anna University prepared for KPL in 2016 and draft CZMP of TNCZMA2018 shall be widened to facilitate the free flow of water.	Noted
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	no creeks or rivers are blocked due to any activities at the project site and free flow of water is maintained.	Noteu.
(xi)	Dredging shall not be carried out during the fish breeding season.	Noted.
(xii)	Dredging, etc shall be carried out in the confined manner to reduce the impacts on marine environment including turbidity.	Noted.
(xiii)	Dredged material shall be disposed safely in the designated areas.	Noted. Port has identified an area of 6000m x 6000m in the open sea through mathematical modeling studies for the disposal of dredged material.
(xiv)	Shoreline should not be disturbed due to dumping. Periodical study on shoreline changes shall be conducted and mitigation carried out, if necessary. The details shall be submitted along with the six monthly monitoring report.	Noted.
(xv)	While carrying out dredging, an independent monitoring shall be carried out by Government Agency/Institute to check the impact and necessary measures shall be taken on priority basis if any adverse impact is observed.	Noted.

(xvi)	The fresh water requirement (1000 KLD) for the present project will be met from Chennai Metro water supply. However if additional quantity is required the same will be met through outsourced external agency. However Rain water harvesting shall be followed as per local byelaw and harvested water shall be stored, treated and reused to reduce the additional water requirement since Chennai is a water deficient area, besides use of water efficient appliances.	Noted.
(xvii)	The concerns expressed during the public hearing held by the Kamarajar Port Limited needs to be addressed during the project implementation. These would also cover socio-economic and ecological and environmental concerns, besides commitment by the management towards employment opportunities.	Noted
(xviii)	Marine ecological studies as carried out by the accredited consultant (Indomer Coastal Hydraulics Pvt Ltd), Chennai and its mitigation measures for protection of phytoplankton, zooplanktons, Macrobenthos etc as given in the EIA-EMP Report shall be complied with in letter and spirit.	Noted.
(xix)	A copy of the Marine and riparian biodiversity management plan duly validated by the State Biodiversity Board shall be submitted before commencement of implementation.	KPL has prepared Bio-Diversity Management Plan for Kamarajar Port Limited" through M/s L&T Infrastructure Engineers Ltd., and submitted to Tamilnadu Biodiversity Board (TNBB) for validation and approval. TNBB has accorded the approval vide their letter dated 31.12.2021. The Bio-Diversity

		Management Plan will be implemented
		as per the timelines indicated.
(xx).	A continuous monitoring programme	Being carried out.
	covering all the seasons on various	
	aspects of the coastal environs need to	The same will be continued for the
	be undertaken by a competent	present project also during
	organization available in the State or by	construction and operation.
	entrusting to the National	
	Institutes/renowned	
	Universities/accredited Consultant	
	with rich experiences in marine science	
	aspects. The monitoring should cover	
	various physicochemical parameters	
	coupled with biological indices such as	
	microbes, plankton, benthos and fishes	
	on a periodic basis during construction	
	and operation phase of the project. Any	
	deviations in the parameters shall be	
	given adequate care with suitable	
	measures to conserve the marine	
	environment and its resources.	
(xxi)	Continuous online monitoring of for air	Noted and will be complied with once
	and water covering the total area shall	the projects are implemented.
	be carried out and the compliance	
	report of the same shall be submitted	
	along with the 6 monthly compliance	
	report to the regional office of	
	MOEF&CC.	
(xxii)	Effective and efficient pollution control	Noted and the same will be complied
	measures like covered conveyors/	with.
	stacks (coal, iron ore and other bulk	
	cargo) with fogging/back filters and	
	water sprinkling commencing from ship	
	unloading to stacking to evacuation	
	shall be undertaken. Coal and iron ore	
	stack yards shall be bounded by thick	
	two tier green belt with proper drains	
,	and wind barriers wherever necessary.	
(xxiii)	Marine ecology shall be monitored	Noted and will be complied with.
	regularly also in terms of sea weeds,	
	sea grasses, mudflats, sand dunes,	KPL has prepared Bio-Diversity KPL

	fisheries, echinoderms, shrimps,	has prepared Bio-Diversity
	turtles, corals, coastal vegetation,	Management Plan for Kamarajar Port
	mangroves and other marine	Limited" through M/s L&T
	biodiversity components as part of the	Infrastructure Engineers Ltd., and
	management plan Marine ecology shall	submitted to Tamilnadu Biodiversity
	be monitored regularly also in terms of	Board (TNBB) for validation and
	all micro macro and mega floral and	approval TNBB has accorded the
	faunal components of marine	approval vide their letter dated
	biodiversity	31 12 2021 The Bio Diversity
	biourversity.	Management Plan will be implemented
		management Fian win be implemented
(:)		as per the uniennes indicated.
(XXIV)	The project proponents would also	will be complied with.
	draw up and implement a management	
	plan for the prevention of fires due to	
	handling of coal.	
		NT . 4 . 1
(XXV)	Spillage of fuel / engine oil and	Notea.
	lubricants from the construction site	
	are a source of organic pollution which	
	impacts marine life, particularly	
	benthos. This shall be prevented by	
	suitable precautions and also by	
	providing necessary mechanisms to	
	trap the spillage.	
(xxvi)	Necessary arrangements for the	Being carried out and the same will be
	treatment of the effluents and solid	extended to the other projects also
	wastes/facilitation of reception facilities	during construction and operation.
	under MARPOL must be made and it	
	must be ensured that they conform to	
	the standards laid down by the	
	competent authorities including the	
	Central or State Pollution Control	
	Board and under the Environment	
	(Protection) Act, 1986. The provisions	
	of Solid Waste Management Rules,	
	2016. E- Waste Management Rules,	
	2016, and Plastic Waste Management	
	Rules, 2016 shall be followed.	
(xxvii)	Compliance to Energy Conservation	Noted
	Building (ECBC-2017) shall be ensured	
	for all the building complexes.	

	Solar/wind or other renewable energy shall be installed to meet energy demand of 1% equivalent.	
(xxviii)	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	Noted.
(xxix)	Measures should be taken to contain, control and recover the accidental spills of fuel and cargo handle.	Noted.
(xxx).	Necessary arrangement for general safety and occupational health of people should be done in letter and spirit.	Noted.
(xxxi)	All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to the RO, MoEF&CC along with half yearly compliance report.	Noted and will be complied with.
(xxxii)	KPL will strengthen their Environmental Management Cell.	Port is equipped with HSE division which is a part of the Marine Services department headed by General Manager (MS). The HSE division is exclusively headed by an officer in the rank of Chief Manager(HSE). At present, the Environmental Cell comprises of the following officers. (i) Chief Manager(HSE), (ii) Sr. Manager(HSE) and (iii) Executive. Port is monitoring the environment. Port has engaged M/s. Hubert Enviro Care Systems Pvt. Ltd. Chennai (MoEF & CC/ NABL certified) for sampling and testing of various environmental parameters.

		The details of expenditure incurred towards Environmental management during the compliance by KPL is furnished herewith as below: 1. Environmental Monitoring =
		Rs. $9,56,840/-$ (excluding GST).
		2. Solid Waste Management =
		Rs. 4,53,758/- (excluding GST).
(xxxiii)	KPL Shall consider more employment opportunities to the local people.	Noted.
(xxxiv)	As per the Ministry's Office Memorandum F.No. 22-65/2017-IA.III dated 1stMay 2018, and proposed by the project proponent, an amount of Rs. 15 Crore (@0.25% of project Cost) shall be earmarked under Corporate Environment Responsibility (CER) for the activities such as strengthening of environmental cell by new recruitments, development of green fields, environmental monitoring surveys, solid waste management, sanitation and sewage facilities, widening of culverts etc. The activities proposed under CER shall be restricted to the affected area around the project. The entire activities proposed under the CER shall be treated as project and shall be monitored. The monitoring report shall be submitted to the regional office as a part of half yearly compliance report, and to the District Collector. It should be posted on the website of the project	Noted and will be complied with.
(xxxv)	The project is recommended for grant	Noted.
	of Environmental and CRZ Clearance	
	subject to final outcome/legal opinion	

on the order dated 22nd November,	
2017 of Hon'ble NGT in the Original	
Application No. 424 of 2016 (Earlier	
O.A.No. 169 of 2015) and Original	
Application No. 11 of 2014 in the	
matter of M/s. Mehdad & Anr. Vs.	
Ministry of Environment, Forests &	
Climate Change & Ors. and	
Shamsunder Shridhar Dalvi & Ors. Vs.	
Govt. of India & Ors.	

B. General Conditions:

(i)	Appropriate measures must be taken	Noted.
	while undertaking digging activities to	
	avoid any likely degradation of water	
	quality.	
(ii)	Full support shall be extended to the	Will be complied with.
. ,	officers of this Ministry/ Regional Office	-
	at Chennai by the project proponent	
	during inspection of the project for	
	monitoring purposes by furnishing full	
	details and action plan including action	
	taken reports in respect of mitigation	
	measures and other environmental	
	protection activities.	
(iii)	A six-Monthly monitoring report shall	Will be complied with.
()	need to be submitted by the project	
	proponents to the Regional Office of	
	this Ministry at Chennai regarding the	
	implementation of the stipulated	
	conditions.	
(iv)	Ministry of Environment, Forest and	Will be complied.
· /	Climate Change or any other competent	-
	authority may stipulate any additional	
	conditions or modify the existing ones,	
	if necessary in the interest of	
	environment and the same shall be	
	complied with.	
	1	

(v) (vi)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry. In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment, Forest	Noted. Noted.
(vii)	and Climate Change. The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Noted.
(viii)	A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.	Complied with. It was Advertised in two local Newspapers informing that the project has been accorded Environmental and CRZ clearance. the Commissioner, Minjur panchayat unio, Ponneri taluk, vide KPL letter dated 22.11.2018.
(ix)	A copy of this clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The Clearance letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.	Noted.
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	Presently, no diesel is stored inside the project area. Clearances from Fire Department, Chief Controller of explosives, Civil Aviation Department, Forest conservation Act are not applicable for the above project.

	be obtained, as applicable by project proponents from the respective competent authorities.	
7	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental and CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at http://www.envfor.nic.in. The advertisement should be made within Seven 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 with. It was advertised in the vernacular Tamil and English newspapers on 14.11.2018 in the Indian Express and Tamil paper Dinamani.
8	This clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted.
9	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
10	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Noted.

11	A copy of the clearance letter shall be	Complied with.
	sent by the proponent to concerned Panchayat, Zilla Parisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	The copy of the clearance letter was forwarded to the Commissioner, Minjur panchayat union, Ponneri Taluk vide KPL letter dated 22.11.2018.
12	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.	Noted. The compliance reports shall be sent to Regional office of MoEF & CC, O/o District Environment Engineer, TNPCB and Member Secretary, TNPCB.
13	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.	Noted.
14	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Office of	Noted.

	MoEF&CC by e-mail.	
15	The above stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 1994, including the amendments and rules made thereafter.	Port has obtained Public Liability Insurance through 'The Oriental Insurance Company Ltd.', vide PolicyNo:411400/22/2023/1, valid till 05/05/2023.
16	These issues with the approval of the Competent Authority.	Noted.

2	It should be ensured that the proposed construction of Truss does not affect free flow of water.	Noted and the same will be complied with.
3	No interference of any kind to be done in Mangroves and Salt marsh areas, including construction of coal conveyor belt.	Noted.
4	Area under wetlands as elaborated by the EIA report need to be considered and managed as wetlands, and not reclaimed or built up in future.	Noted.
5	In addition to the mangroves, the existing patch of sand dune/beach vegetation within the Kamarajar Port Limited (KPL) premises needs to be scientifically studied, covering aspects such as checklist of flora and fauna, diversity, representativeness, population trends, regeneration and recruitment trends, percentage coverage of invasive alien species and presence of breeding populations. The proposed afforestation/greenbelt programme needs to be based on the above assessment, with habitat specific greening plans being developed and implemented.	KPL has prepared Bio-Diversity Management Plan for Kamarajar Port Limited" through M/s L&T Infrastructure Engineers Ltd., and submitted to Tamilnadu Biodiversity Board (TNBB) for validation and approval. TNBB has accorded the approval vide their letter dated 31.12.2021. The Bio-Diversity Management Plan will be implemented as per the timelines indicated.
6	The afforestation/greenbelt programme needs to be representative of the typical vegetation of the Ennore estuary, covering all the major habitat types including salt marshes. It is further recommended that a set of biological indicators be identified based on the scientific assessment and be used for monitoring the efficiency of the afforestation/greening programme.	KPL has prepared Bio-Diversity Management Plan for Kamarajar Port Limited" through M/s L&T Infrastructure Engineers Ltd., and submitted to Tamilnadu Biodiversity Board (TNBB) for validation and approval. TNBB has accorded the approval vide their letter dated 31.12.2021. The Bio-Diversity Management Plan will be implemented as per the timelines indicated.

7	It is also recommended that impact assessment studies be commissioned that cover a select number of species as also the different phases of project execution. The Kamarajar Port Limited shall develop and implement ecological restoration programme with the support of the Tamil Nadu Forest Department, especially addressing wetlands and wetland bio-diversity.	KPL has prepared Bio-Diversity Management Plan for Kamarajar Port Limited" through M/s L&T Infrastructure Engineers Ltd., and submitted to Tamilnadu Biodiversity Board (TNBB) for validation and approval. TNBB has accorded the approval vide their letter dated 31.12.2021. The Bio-Diversity Management Plan will be implemented as per the timelines indicated.
8	In view of the location of the project within the landscape that encompasses a perennial river and its estuarine complex, it is recommended that a dedicated programme be developed and implemented on the hydrological services of the landscape, notably flood mitigation.	Noted.
9	The concerns expressed during the public hearing that was held by the kamarajar Port need to be addressed during the project implementation. These would cover socio-economic as also ecological and environmental concerns.	Noted.
10	Oil Spill Contingency Plan should be prepared and a team of trained men formed to be available 24 X 7 to tackle any disasters.	KPL has prepared an Oil Spil Contignecy plan in line with NOS-DCP. Port is also having a team of trained manpower available on 24 x 7 being to tackle any disasters.
11	A detailed plan for the source segregation and disposal of solid waste(Bio-degradable/non- degradable etc.,) generated shall be formulated. Further solid wastes such as plastics may be collected and disposed as per rules. ETP should be provided and	Kamarajar Port has engaged a contractor for collection, segregation and disposal of solid wastes. Solid waste including plastic generated from the port and ships are being collected, segregated and sent to various approved recyclers for further

treatment done meticulously.	beneficial	use.	ETP/STP	shall	be
	provided as per the requirements i				in
	accordance with TNPCB norms.				