



ನವ ಮಂಗಳೂರು ಬಂದರು ಮಂಡಳಿ
ನವ ಮಂಗಳೂರು ಪತ್ತನ ನ್ಯಾಸ
NEW MANGALORE PORT TRUST



ಭಾರತ ಸರ್ಕಾರ (ಪತ್ತನ, ಪೊತ ಪರಿವಹನ ಔರ ಜಲಮಾರ್ಗ ಮಂತ್ರಾಲಯ")
Govt of India (Ministry of Ports, Shipping and Waterways)
ಪಣಂಬೂರು ಪಣಮ್ಬೂರ Panambur / ಮಂಗಳೂರು ಮಂಗಳೂರ Mangalore - 575 010

3/11/EMP/CE(C)/2020-21/TS/01

06-09-2021

To:

K.P. SINGH
Regional Officer
Ministry of Environment & Forests,
Regional Office (South Zone), 4th Floor, E&F Wings,
Kendriya Sadan, 17th Main Road, II Block,
Koramangala,
BANGALORE – 560 034.

Sir,

Sub: Submission of half yearly Compliance report from October 2019 to March 2020 -Environmental Clearance issued by the Ministry of Environment Forests & Climate-intimation regarding-reg

Ref: Your Letter No. No. F. No. EP/12.1/122/KAR/466 dated 23-08-2021

With reference to the subject cited above, please find enclosed here with the revised half yearly Compliance report on stipulated environmental clearance terms and conditions along with tabulated test results on Air samples, Drinking water samples, Waste Water (STP), Noise level, DG stack emission from October 2019 to March 2020 for information.

The soft copy of same information is mailed to rosz.bng-mef@nic.in and roszmon@yahoo.in on 06-09-2021. The half yearly Compliance report from October 2019 to March 2020 is uploaded in Port website www.newmangaloreport.gov.in on 06-09-2021.

Thanking you,

Encl: As above

Yours faithfully,

Chief Engineer (Civil)

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An ISO 9001:2015, 14001:2015 & ISPS Compliant Port

**Stipulated Environmental Clearances Report as per as per the Letter No. F. No.
EP/12.1/122/KAR/466 dated 23-08-2021**

Sl. No	Specific Conditions:	Remarks
1	All construction design/drawings relating to construction activities must have the approval of the concerned State Govt. Departments/Agencies. Ground water should not be tapped for construction activities.	Statutory approval were obtained and work completed
2	Adequate provision for all infrastructural facilities such as water supply, fuel, sanitation etc. must be extended for labourers during the construction period in order to avoid damage to the environment.	During the project work provision for all infra structural facilities like water supply, Sanitation etc., was provided.
3	Dredging operations, if any, should be undertaken in consultation with either the Central Water and Power Research Station, Pune or the National Institute of Oceanography, Goa to ensure that dredging operations do not cause adverse impact on water quality and marine productivity in the vicinity. Dredging operation as far as possible should be kept to the minimum for avoiding any adverse impact on marine life.	Capital dredging operations conducted during the project work in consultation with CWPRS, Pune and all necessary precautions were taken to avoid any adverse impact on marine life
4	Disposal sites for excavated material should be so designed that the revised land use after dumping and changes in the land use pattern do not interfere with the natural damage.	The excavated material of the project work was used for Reclamation of Tannirbhavi beach and didn't interfere with natural damage
5	To meet any emergency situation, adequate foam containers should be kept ready with supporting fire fighting system and water pipeline.	Fire fighting system & water pipeline was provided at construction area Annexure-I
6	The staff posted in sensitive areas should be trained in implementation of the Crisis Management Plan already drawn by the authorities. Mock drill(s) for this purpose should be conducted on a regular basis. Provisions of Dock Safety Act and the guidelines issued by the DG,FASLI/CLI, Bombay for the safety and health of the dock workers should be followed.	During the project work safety and health of the dock workers was considered. In-house Medical facility was provided and regularly Mock drills for different situations was provided
7	For development of green buffer including mangroves wherever feasible, the authorities should start growing large nursery of multipurpose species such as Eucalyptus, Casurine, Dalbergia, Terminalia etc. The norm of about 2000-2500 trees per hectare maybe adopted for raising of green	The Port developed 250 acre land near kudupu and Bondel quarry area for plantation Port has developed its own Nursery and many species such as Eucalyptus, Casurine,

	belt.	Dalbergia, Terminalia etc were planted near beach side Port has developed 30% Green belt area Annexure-II
8	To prevent discharge of sewage and other liquid wastes including ballast into marine environment, adequate system for collection, treatment and disposal of liquid wastes must be provided to the satisfaction of Karnataka Pollution Control Board.	Sewage Treatment Plant with 1.2 MLD capacity was constructed to treat the sewage and other liquid waste including ballast as per the KSPCB Annexure-III
9	Adequate noise control measures must be provided to maintain noise level at various workplaces within the standard prescribed by the competent authorities. If need be, ear plugs and ear muffs should be provided to the workers in the port area.	Acoustic DG sets were used for the project work and the Noise level was maintained within the standard as per KSPCB
10	The quality of treated effluents, solid wastes and emissions must conform to the standards laid down by the competent authority including Central/State Pollution Control Boards.	Environmental Monitoring was conducted regularly through Third party and the reports were submitted to KSPCB & MOEF&CC
11	An Environmental Cell should be immediately made operational with adequate laboratory facilities, equipments and a mobile van for collecting air samples. The record and the data should be submitted with proper analysis and corrective measures required, if any, for maintaining the levels within the prescribed limits to the Regional Office of the ministry of Environment & Forests at Bangalore, which shall be monitoring these conditions stipulated for according the Environment approval. The Environmental Cell should coordinate and monitor environmental mitigative measures executed in the New Mangalore Port area.	An Environmental cell is functioned effectively to mitigate the Environmental pollution. Port is submitting the air and water quality reports to MOEF&CC and KSPCB Annexure-IV
12	Necessary leakage detection devices with early warning system must be provided at strategic locations.	Complied
13	Standby DG sets must be provided to ensure uninterrupted power supply to the pump house and the fire fighting system.	Acoustic DG sets were used for the project work to supply power
14	Third party inspection should be ensured during construction and operation phases with adequate insurance cover. The project authorities should confirm on regular intervals of six months to the Ministry about the implementation of the suggested safeguard measures and the data/report should be opened for inspection by the Team which would be constituted by the Ministry, if found necessary.	KSPCB and Director, MOEF&CC, Bangalore inspected the Port and verified the compliance reports maintained by the Ports From 26-11-2021 to 30-11-2020 a performance audit on conservation of Marine Ecosystems was conducted by

		Mr. Bala Ravi Senior audit officer, Accountant General AMG-I, Bangalore & Verifies MOEF&CC compliance report
15	Full support should be extended to the Regional Office of the Ministry of Environment & Forests at Bangalore during inspection of the project monitoring purposes by the project proponents by furnishing full details and action plans including action taken report on mitigative measures.	Complied
16	Adequate funding provisions, year-wise and item-wise, must be made for implementation of the above mentioned safeguard measures.	Complied
17	No other chemical product save those mentioned in the Annex III appended to Govt. of India Notification in the Ministry of Environment & Forests, S.O. No.494 (E) dated July 9, 1997 will be allowed to handle/store in any port area.	Complied
18	The project authorities would ensure that safety regulations and guidelines issued by Oil Safety Directorate in the Govt. of India, Ministry of Petroleum & Natural Gas are implemented.	Complying with all the stipulations
19	The approval of the Chief Controller of Explosives (CCO & E) shall be obtained for operational purpose before undertaking any storage/handling activity.	Complying with all the stipulations

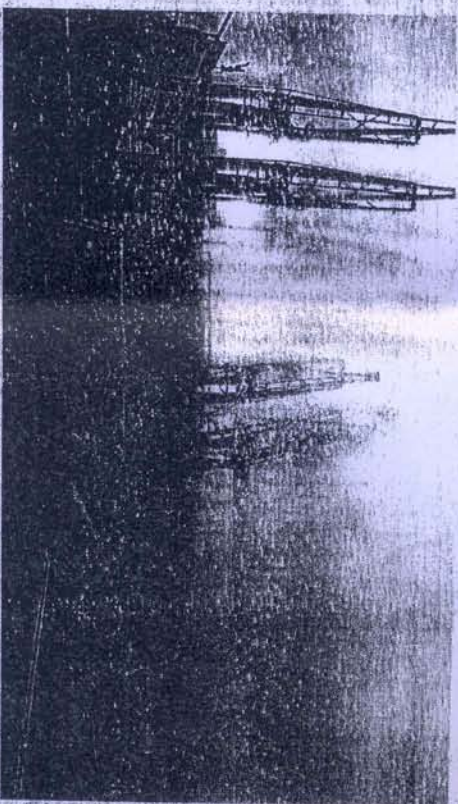
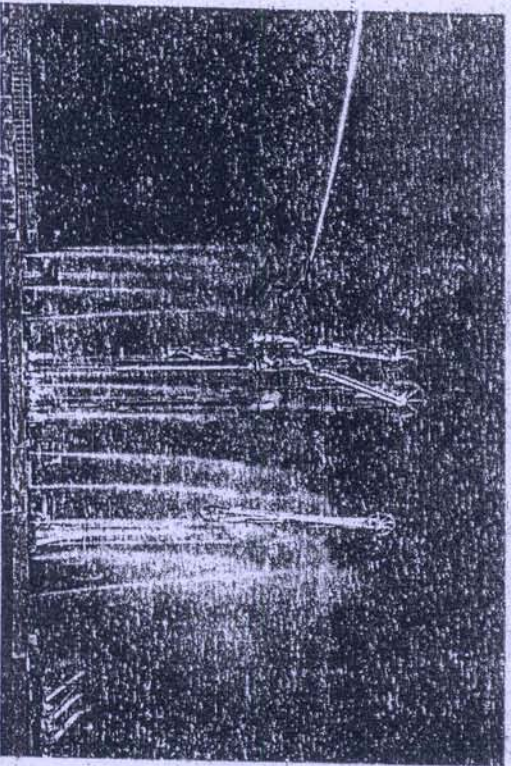
Pnepl
(Dy Manager Environment)

FIRE FIGHTING SYSTEM DETAILS AT OIL BERTHS AT NMPT

Description	OISD Requirement	Berth 10	Berth 11	Berth 12	Berth 13
Fire water design requirement	600 m3/ hrs for water/ foam monitors (2 tower monitors X 5000 lpm)	Tower monitors (2 nos. x 5000 LPM) provided. 900 m3/hr pump is provided which is adequate and meets the OISD 156 requirement	Tower monitors (2 nos. X 6000 LPM) provided. 900 m3/hr pump is provided which is adequate and meets the OISD 156 requirement	Tower monitors (2 nos. X 6000 LPM) provided. 900 m3/hr pump is provided which is adequate and meets the OISD 156 requirement	Tower monitors (4 nos. X 6000 LPM) provided. 820 m3/hr pump is provided which is adequate and meets the OISD 156 requirement
	600 m3/ hrs for hydrant & water curtains (2 Jumbo nozzles X 5000 lpm)	8 x 1.5" (690 LPM each) and 9 x 1" (362 LPM each) 8778 LPM in all 900 m3/hr pump is provided which is adequate but the nozzle output is lesser by 1222 lpm as per the OISD 156 requirement	18 x 1" (362 LPM each) 6516 LPM in all. 900 m3/hr pump is provided which is adequate but the nozzle output is lesser by 3484 lpm as per the OISD 156 requirement	16 x 1" (362 LPM each) 5792 LPM in all 900 m3/hr pump is provided which is adequate but the nozzle output is lesser by 4208 lpm as per the OISD 156 requirement	6 x 1" (362 LPM) 820 m3/hr pump is provided which is adequate as per the OISD 156 requirement
Jockey pump capacity		25 m3/ hr	54 cu.m/hr	54 cu.m/hr	54 cu.m/hr
Foam System	2 X 5000 lpm Tower foam monitor + 2 X 2400 lpm base foam monitor Foam calculation = 14800 X .03X 60 = 26640 litre	Tower monitors (2 nos. x 5000 LPM) Ground monitor (1 No.x5000 LPM) As per calculation requirement is (15000 X .03 X 60) =27000 litre Available = 15 cu.m tank which is lesser by 12 cu.m as per OISD 156	Tower monitors (2 nos. X 6000 LPM) Ground monitor (1 No.x 3000 LPM) As per calculation requirement is (15000 X .03 X 60) =27000 litre Available = 30 cu.m tank which meets OISD 156 requirement	Tower monitors (2 nos. X 6000 LPM) Ground monitor (1 No.x 3000 LPM). As per calculation requirement is (15000 X .06 X 60) =54000 litre(since 6% foam is available) Available = 2 X 30 cu.m tank which meets OISD 156 requirement	Tower monitors (4 nos. X 6000 LPM) Ground monitor (2 No.x 3000 LPM) As per calculation requirement is (15000 X .03 X 60) =32400 litre. Available = 35 cu.m tank which meets OISD 156 requirement
Foam Pump Capacity		54 Cu.m /hr @ 18 kg/cm2 X 2 nos pumps available Adequate	27 Cu.m /hr @ 17 kg/cm2 X 2 nos pumps available Adequate	54 Cu.m /hr @ 17 kg/cm2 X 2 nos pumps available Adequate	28 Cu.m /hr @ 17 kg/cm2 X 2 nos pumps available Adequate
Extinguishers	6x10 kg. DCP extinguisher 4x75 wheeled DCP	1 X 5 kg, 2 X 10 kg, 2 X 20 Kg 4 X 25 kg, 2 X 50 Kg	2 X 10 Kg, 2 X 20 Kg 4 X 25 Kg, 2 X 50 kg	4 X 10 kg, 2 X 20 4X 25 Kg, 5 X 75 kg	12 X 10 Kg, 4 X 5 Kg 4 X 75 Kg
Jockey pumps / Booster Pumps		2	2	2	2
International shore connection	minimum 1 per berth	1 No.	1 No.	1 No.	1 No
Hydrant	Single headed Double headed	2 16	3 16	3 12	9 16
Fixed water spray system	To be provided for all jetties handling more than 20,000 DWT		2 No.	2 No.	2 no.
Gas Detectors	as per requirement	4	4	4	4
Flame Detectors	as per requirement	10	10	10	10

Trials & Mock drills

- Weekly trials of the fire fighting facilities is being carried out on a regular basis to ensure the system readiness for emergency.
- Mock drills are being carried out regularly with the participation of the user departments.



Green Belt at NMPT

Port in its Endeavour to develop Green Belt has already provided a green cover of more than 33% with 95% survival of plants. Even though the Port is categorized as a service oriented organization, it has complied with the stipulations of an industry. The initiative for the greenery in the estate, include the operational and non operational area within the Port limits to control pollution mitigate emission of dust , air and water contamination. The Port, in its Endeavour has planted more than 2lakhs saplings of both endemic and non-endemic species .

The Ports a generally associated with cargo. It is unbelievable that New Mangalore Port Trust apart from its thriving business is also a natural heaven for the bird population. The species existing in the Port varies from Peacocks to Plovers and Pythons to Flower Peckers, Jackals, Mongoose, Jungle Fowls etc. At present, the bird population has increased to nearly 100 varieties. The relentless efforts taken by the Management has ushered the growth of butterflies also. Butterflies are the indicators of best ecological system. New Mangalore Port Trust houses immovable butterflies. At present, New Mangalore Port Trust is the only Port in the country that maintain the best ecological balance in the midst of its business activity without compromising its Environment.

The presence of beautiful garden and parks indicate the maturity of civilized society. They are not only provide soothness to the eyes , but act as bio-diversity engines. New Mangalore Port Trust has more than 10 beautiful parks, three inside the colony area and rest inside the wharf. Each park is distinct in supporting the environment with endemic species and exotic sapplings. These parks are under 24/7 supervision and they are well maintained. All the parks exhibit different hue during the spring time to invoke the colours of rainbow.

Green Belt at NMPT



1.2 MLD Sewage Treatment Plant at NMPT

New Mangalore Port Trust has commissioned 1.2 MLD Sewage Treatment Plant with SBR Technology, it consumes 329 KW power/day for treating 0.75 MLD water/day.

The domestic sewage emanated from the NMPT township containing floating matter and solids both inorganic and organic matter will be treated in the STP and reused for irrigating the Green Belt after ensuring its suitability. Periodic inspection and maintenance is carried out by Engineers and monitored by the Environment Cell of the Port.

NMPT has achieved the Zero Discharge as NMPT is re using the entire quantity of treated water for **green belts** created inside the Port in order to reduce the burden on water resources. Besides, it is also used for sprinkling inside the wharf to suppress the dust emanating out of cargo handling.

There is a scientific monitoring system in place in the Port. The monitoring process is carried out through established NABL and MOEF&CC certified laboratory regularly and taken both preventive and corrective actions which results in very low BOD and Zero Turbidity. The Port has been fully complying with the statutory requirements.



Annexure-IV

Environmental Monitoring System: There is a scientific monitoring system in place in the Port. The monitoring process is carried out through NABL aggregated established laboratories having resources and spare capacity. NMPT monitors air and water qualities through third party authorised from KSPCB, MOEF&CC, regularly and taken both preventive and corrective actions. This Environmental Management System improves the environmental conditions in general and public health of its employees in particular. The treated water out of Sewage Treatment Plant is used for the green belts created inside the Port in order to reduce the burden on water resources. Besides, it is also used for sprinkling inside the wharf to suppress the dust emanating out of cargo handling.

The Port is an ISO 14001:2015 certified since 2011 and it demands various Compliances to protect the Environment. The Port has successfully complied the standards



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• Table No.-4.5.12: Marine Water Quality monitoring; Location Name: At Dumping Area

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37927	37935	37941	—
2	Total Suspended Solids	mg/l	207	218	226	—
3	Nitrates as N	mg/l	0.58	0.62	0.65	—
4	Nitrites as N	mg/l	BDL	BDL	BDL	—
5	Turbidity	NTU	5.8	6.3	6.7	—
6	Sodium as Na	mg/l	10159	10166	10173	—
7	Potassium as K	mg/l	435	441	447	—
8	Magnesium as Mg	mg/l	1005	1014	1020	—
9	Calcium as Ca	mg/l	374	378	381	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38134	38153	38168	—
13	Sulphates as SO ₄	mg/l	1166	1166	1179	—
14	pH	-	8.3	8.3	8.3	6.5 – 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.69	6.64	6.60	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.02	0.02	0.02	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	271	275	232	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

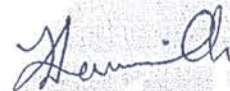
Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



Verified by

S. SRI RENGANATHAN
Technical Manager





Authorized Signatory
P. KAVITHA

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Table No.-4.5.11:

Marine Water Quality monitoring Location Name: 2500M West of Baseline & 1000M South of CIL

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37888	37897	37907	—
2	Total Suspended Solids	mg/l	208	217	225	—
3	Nitrates as N	mg/l	0.45	0.48	0.52	—
4	Nitrites as N	mg/l	0.02	0.02	0.03	—
5	Turbidity	NTU	5.5	5.7	5.9	—
6	Sodium as Na	mg/l	10684	10691	10699	—
7	Potassium as K	mg/l	416	423	427	—
8	Magnesium as Mg	mg/l	1005	1012	1019	—
9	Calcium as Ca	mg/l	364	369	374	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38096	38114	38132	—
13	Sulphates as SO ₄	mg/l	1036	1043	1048	—
14	pH	-	8.30	8.30	8.30	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.58	6.54	6.5	3 mg/l or 40 %saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.02	0.02	0.03	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	271	281	283	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



Verified by

S. SRI RENGANATHAN
Technical Manager





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Technical Manager

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Table No.-4.5.10:

Marine Water Quality monitoring Location Name: 800M West of Baseline & 1000M South of CIL

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37820	37838	37847	—
2	Total Suspended Solids	mg/l	202	209	217	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.02	0.02	0.03	—
5	Turbidity	NTU	5.52	5.8	5.9	—
6	Sodium as Na	mg/l	10196	10206	10216	—
7	Potassium as K	mg/l	411	417	423	—
8	Magnesium as Mg	mg/l	1043	1052	1060	—
9	Calcium as Ca	mg/l	363	367	371	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38021	38041	38063	—
13	Sulphates as SO ₄	mg/l	985	994	1000	—
14	pH	-	8.30	8.3	8.2	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.7	6.6	6.6	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.02	0.03	0.03	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	296	277	269	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



Verified by

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Table No.-4.5.9:

Marine Water Quality monitoring Location Name: 2500M West of Baseline & 1000M North Of CIL

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37930	37939	37951	—
2	Total Suspended Solids	mg/l	198	208	218	—
3	Nitrates as N	mg/l	0.62	0.66	0.69	—
4	Nitrites as N	mg/l	0.02	0.02	0.02	—
5	Turbidity	NTU	5.0	5.5	5.9	—
6	Sodium as Na	mg/l	10260	10270	10277	—
7	Potassium as K	mg/l	431	438	446	—
8	Magnesium as Mg	mg/l	1015	1023	1031	—
9	Calcium as Ca	mg/l	354	357	360	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38128	38147	38169	—
13	Sulphates as SO ₄	mg/l	1055.0	1063.0	1068.0	—
14	pH	-	8.3	8.3	8.3	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.6	6.5	6.5	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.023	0.025	0.027	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	285	279	301	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No. 4.5.8:

Marine Water Quality monitoring Location Name: 800M West of Baseline & 1000M North of CIL

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	38316	38328	38341	—
2	Total Suspended Solids	mg/l	208	216	224	—
3	Nitrates as N	mg/l	0.63	0.67	0.72	—
4	Nitrites as N	mg/l	0.04	0.04	0.05	—
5	Turbidity	NTU	5.2	5.5	5.8	—
6	Sodium as Na	mg/l	10208	10217	10226	—
7	Potassium as K	mg/l	601	602	613	—
8	Magnesium as Mg	mg/l	1104	1110	1117	—
9	Calcium as Ca	mg/l	383.	389.	392	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38524	38544	38565	—
13	Sulphates as SO ₄	mg/l	1110	1117	1124	—
14	pH	-	8.3	8.2	8.2	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.6	6.5	6.5	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.027	0.030	0.032	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	279	276	257	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No.-4.5.7: Marine Water Quality monitoring; Location Name: 2500M West of Baseline

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	38330	38340	38352	—
2	Total Suspended Solids	mg/l	207	216	224	—
3	Nitrates as N	mg/l	0.52	0.56	0.59	—
4	Nitrites as N	mg/l	0.03	0.03	0.05	—
5	Turbidity	NTU	5.7	6.1	6.4	—
6	Sodium as Na	mg/l	10185	10192	10199	—
7	Potassium as K	mg/l	523	534	541	—
8	Magnesium as Mg	mg/l	1206	1216	1225	—
9	Calcium as Ca	mg/l	417	419	425	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38537	38556	38576	—
13	Sulphates as SO ₄	mg/l	1188	1195	1205	—
14	pH	-	8.3	8.3	8.2	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.5	6.5	6.4	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.024	0.028	0.03	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	249	255	263	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No.-4.5.6: Marine Water Quality monitoring; Location Name: 800M West of Baseline

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW -- IV
1	Total Dissolved Solids	mg/l	38266	38280	38292	—
2	Total Suspended Solids	mg/l	198	207	218	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.03	0.03	0.03	—
5	Turbidity	NTU	6.2	6.7	7.1	—
6	Sodium as Na	mg/l	10500	10515	10529	—
7	Potassium as K	mg/l	592	599	606	—
8	Magnesium as Mg	mg/l	1165	1174	1181	—
9	Calcium as Ca	mg/l	407	410	414	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38464	38487	38510	—
13	Sulphates as SO ₄	mg/l	1341	1330	1359	—
14	pH	-	8.3	8.2	8.2	6.5 – 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.6	6.6	6.5	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.025	0.027	0.03	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	267	283	279	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No.-4.5.5: Marine Water Quality monitoring; Location Name: In Front of Old Dock Arm

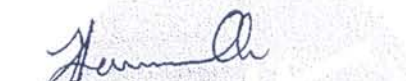
S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37531	37545	37555	—
2	Total Suspended Solids	mg/l	178	188	198	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.013	0.015	0.017	—
5	Turbidity	NTU	5.1	5.4	5.7	—
6	Sodium as Na	mg/l	10474	10485	10494	—
7	Potassium as K	mg/l	446	448	455	—
8	Magnesium as Mg	mg/l	1118	1128	1135	—
9	Calcium as Ca	mg/l	382	387	391	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	37709	37733	37753	—
13	Sulphates as SO ₄	mg/l	1175	1182	1188	—
14	pH	-	8.3	8.2	8.2	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.4	6.4	6.4	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.023	0.025	0.026	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	253	256	271	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No.-4.5.4: Marine Water Quality monitoring; Location Name: Western Cornet of DDGB

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37852	37862	37874	—
2	Total Suspended Solids	mg/l	181	189	197	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.022	0.024	0.026	—
5	Turbidity	NTU	4.5	4.6	4.7	—
6	Sodium as Na	mg/l	10397	10407	10415	—
7	Potassium as K	mg/l	484	489	495	—
8	Magnesium as Mg	mg/l	1113	1123	1132	—
9	Calcium as Ca	mg/l	384	388	394	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	38033	38051	38071	—
13	Sulphates as SO ₄	mg/l	1000	1007	1014	—
14	pH	-	8.2	8.2	8.10	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.4	6.3	6.3	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.016	0.018	0.02	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	246	273	270	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.

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Table No.-4.5.3: Marine Water Quality monitoring; Location Name: In Front of KIOCL Berth No.9

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37417	37429	37439	—
2	Total Suspended Solids	mg/l	191	199	205	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.022	0.025	0.027	—
5	Turbidity	NTU	4.6	4.7	4.9	—
6	Sodium as Na	mg/l	10556	10564	9941	—
7	Potassium as K	mg/l	409	417	426	—
8	Magnesium as Mg	mg/l	1021	1030	1038	—
9	Calcium as Ca	mg/l	354	358	362	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	37608	37628	37644	—
13	Sulphates as SO ₄	mg/l	1037	1044	1051	—
14	pH	-	8.20	8.20	8.10	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.6	6.6	6.5	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.03	0.031	0.034	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	257	248	266	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

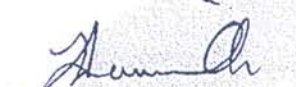
Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.



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Table No.-4.5.2: Marine Water Quality monitoring; Location Name: In Front of KIOCL Berth

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37395	37411	37427	—
2	Total Suspended Solids	mg/l	201	212	222	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.024	0.028	0.031	—
5	Turbidity	NTU	5.2	5.7	6.1	—
6	Sodium as Na	mg/l	10569	10580	10594	—
7	Potassium as K	mg/l	512	520	525	—
8	Magnesium as Mg	mg/l	1066	1074	1082	—
9	Calcium as Ca	mg/l	372	378	383	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	37596	37623	37649	—
13	Sulphates as SO ₄	mg/l	1038	1047	1056	—
14	pH	—	8.3	8.2	8.2	6.5 - 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.6	6.5	6.49	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.057	0.064	0.067	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	252	255	266	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter.


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4.5 MARINE WATER QUALITY

Marine Water quality data are presented for the period between October 2019 to March 2020

Table No.-4.5.1: Marine Water Quality monitoring; Location Name: Berth No.2 & 7

S. No	Parameters	Units	Surface (1m Below surface)	Middle (from surface 10m below)	Depth (20m from surface)	Tolerance Limit for harbour water class SW - IV
1	Total Dissolved Solids	mg/l	37233	37270	37290	—
2	Total Suspended Solids	mg/l	219	227	235	—
3	Nitrates as N	mg/l	BDL	BDL	BDL	—
4	Nitrites as N	mg/l	0.04	0.04	0.045	—
5	Turbidity	NTU	5.4	5.9	6.5	—
6	Sodium as Na	mg/l	10240	10279	10308	—
7	Potassium as K	mg/l	617	624	631	—
8	Magnesium as Mg	mg/l	1065	1091	1104	—
9	Calcium as Ca	mg/l	386	396	402	—
10	Phosphates as P	mg/l	BDL	BDL	BDL	—
11	Silicates as Si	mg/l	BDL	BDL	BDL	—
12	Total Solids	mg/l	37452	37497	37535	—
13	Sulphates as SO ₄	mg/l	1031	1038	1045	—
14	pH	-	8.30	8.20	8.20	6.5 – 9.0
15	Oil & Grease	mg/l	BDL	BDL	BDL	10
16	Dissolved Oxygen as O ₂	mg/l	6.5	6.5	6.5	3 mg/l or 40 % saturation value whichever is higher
17	Dissolved Iron as Fe	mg/l	0.02	0.022	0.024	—
18	Total Nitrogen as N	mg/l	BDL	BDL	BDL	—
19	Organic Nitrogen as N	mg/l	BDL	BDL	BDL	—
20	Coliforms	MPN/100ml	241	263	245	500/100ml(PAN) (Fecal Coliforms)
21	Total Phosphate as P	mg/l	BDL	BDL	BDL	—

Note:- NTU-Nephelometric Turbidity Unit; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter

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Table No.-4.3.12: Drinking Water Quality monitoring

S. No	Parameters	Units	Results		Desirable Limit As per IS 10500: 2012
			Fifth Avenue Open Well - II		
			Min.	Max.	
1	pH @ 25°C	-	6.6 (Mar. 20)	7.12 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Less than 1	Less than 1	5
4	Turbidity	NTU	Less than 0.5	Less than 0.5	5
5	Electrical Conductivity	µs/cm	120 (Nov. 19)	198 (Oct. 19)	--
6	Total hardness as CaCO3	mg/l	16.0 (Feb. 20)	92.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	84.0 (Jan. 20)	109 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	10.0 (Nov. 19)	20.0 (Oct. 19)	250 mg/l
9	Sulphates as SO4	mg/l	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	--
12	Phosphates as PO4	mg/l	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Oct. 19)	55 (Dec. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;

µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

It is concluded from the above test reports the water parameters are meeting the drinking water guidelines of IS: 10500:2012 norms.



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Table No.-4.3.11: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Wharf Open Well		Results CISF VGR Open Well		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.52 (Dec. 19)	7.15 (Oct. 19)	6.58 (Jan. 20)	7.23 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Less than 1	Less than 1	Less than 1	Less than 1	5
4	Turbidity	NTU	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	5
5	Electrical Conductivity	µs/cm	180 (Nov. 19)	220 (Oct. 19)	170 (Nov. 19)	225 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	25.0 (Mar. 20)	72.1 (Oct. 19)	22 (Mar. 20)	70 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	93 (Jan. 20)	132 (Oct. 19)	99.0 (Jan. 20)	135 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	18.0 (Dec. 19)	48.0 (Oct. 19)	20.0 (Dec. 19)	46.2 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Oct. 19)	65 (Feb. 20)	50 (Oct. 19)	65 (Dec. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

It is concluded from the above test reports the water parameters are meeting the drinking water guidelines of IS-10500:2012 norms.


Verified by

S. SRI RENGANATHAN
Technical Manager




Authorized Signatory

P. KAVITHA
Technical Manager

Chennai Mettex Lab Private Limited



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Table No.-4.3.10: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Marshaling Yard		Results Sump Tank		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.62 (Dec. 19)	6.91 (Oct. 19)	6.54 (Dec. 19)	7.11 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	180 (Mar. 20)	242 (Oct. 19)	174 (Mar. 20)	320 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	18.0 (Feb. 20)	72.0 (Oct. 19)	45.0 (Mar. 20)	106.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	98.0 (Jan. 20)	145.0 (Oct. 19)	97.2 (Feb. 20)	192.0 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	14.0 (Dec. 19)	28.0 (Oct. 19)	40.0 (Mar. 20)	55.0 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	10.0 (Dec.19)	20.0 (Oct. 19)	10.0 (Jan. 20)	24.0 (Oct. 19)	200 mg/l
10	Total Iron as Fe	mg/l	BDL	0.2 (Nov. 19)	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Oct.19)	55 (Jan. 20)	50 (Oct. 19)	60 (Jan. 20)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

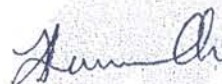
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Verified by

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Table No.-4.3.9: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Berth No-14		Results Berth No-9		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.56 (Feb. 20)	7.35 (Oct. 19)	6.58 (Dec. 19)	6.98 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	180 (Nov. 19)	232 (Oct. 19)	180 (Jan. 20)	248 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	22.0 (Feb. 20)	75.0 (Oct. 19)	26.0 (Dec. 19)	74.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	90.0 (Nov. 19)	139.0 (Oct. 19)	90.0 (Jan. 20)	148.1 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	12.0 (Dec. 19)	22.0 (Oct. 19)	16.0 (Dec. 19)	46.0 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Nov. 19)	60 (Mar. 20)	50 (Feb. 20)	60 (Oct. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

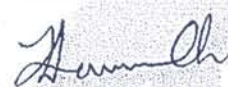
CONCLUSION:

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Technical Manager




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P. KAVITHA

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Table No.-4.3.8: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Fifth Avenue Open Well - I		Results Wharf Canteen		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.60 (Dec. 19)	7.12 (Oct. 19)	6.54 (Dec. 19)	6.85 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Less than 1	Less than 1	Less than 1	Less than 1	5
4	Turbidity	NTU	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	5
5	Electrical Conductivity	µs/cm	120 (Nov. 19)	198 (Oct. 19)	170 (Mar. 20)	326 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	16.0 (Feb. 20)	92.0 (Oct. 19)	24.0 (Dec. 19)	69.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	84.0 (Jan. 20)	109 (Oct. 19)	92.0 (Jan. 20)	195 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	10.0 (Nov. 19)	20.0 (Oct. 19)	12.0 (Jan. 20)	34.0 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	10.0 (Feb. 20)	22.0 (Oct. 19)	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Nov. 19)	55 (Mar. 20)	50 (Oct. 19)	55 (Feb. 20)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

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Table No.-4.3.7: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Administration Building		Results Traffic Building		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.62 (Dec. 19)	7.05 (Oct. 19)	6.58 (Dec. 19)	7.23 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Less than 1	Less than 1	Less than 1	Less than 1	5
4	Turbidity	NTU	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	5
5	Electrical Conductivity	µs/cm	148 (Dec. 19)	220 (Oct. 19)	130 (Nov. 19)	220 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	58.0 (Mar. 20)	85.0 (Oct. 19)	14.0 (Jan. 20)	94.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	83.0 (Feb. 20)	132 (Oct. 19)	80.0 (Jan. 20)	132 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	38.0 (Nov. 19)	50.0 (Feb. 20)	10.0 (Dec. 19)	26.0 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	13.2 (Oct. 19)	13.2 (Mar. 20)	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Jan. 20)	70 (Oct. 19)	50 (Nov. 19)	65 (Mar. 20)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

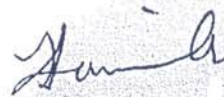
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Table No.-4.3.6: Drinking Water Quality monitoring

S. No	Parameters	Units	Results NMPT Canteen		Results NMPT Hospital		Desirable Limit As per IS 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.62 (Mar. 20)	6.85 (Oct. 19)	6.58 (Feb. 20)	6.82 (Nov. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Less than 1	Less than 1	Less than 1	Less than 1	5
4	Turbidity	NTU	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	5
5	Electrical Conductivity	µs/cm	170 (Mar. 20)	210 (Oct. 19)	164 (Mar. 20)	220 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	38.0 (Dec. 19)	85.0 (Oct. 19)	30.0 (Dec. 19)	90.0 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	92.0 (Dec. 19)	126.0 (Oct. 19)	93.0 (Jan. 20)	132 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	16.0 (Jan. 20)	48.0 (Oct. 19)	18.0 (Dec. 19)	44.0 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	6.00 (Dec. 19)	26 (Oct. 19)	8.00 (Mar. 20)	32.0 (Oct. 19)	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Nov. 19)	70 (Oct. 19)	50 (Nov. 19)	70 (Oct. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;

µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

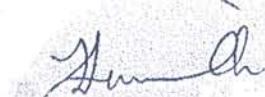
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Table No.-4.3.5: Drinking Water Quality monitoring

S. No	Parameters	Units	Results NMPT Guest House		Desirable Limit IS 10500: 2012
			Min.	Max.	
1	pH @ 25 ^o C	-	6.65 (Mar. 20)	6.82 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	165 (Mar. 20)	190 (Oct. 19)	-
6	Total hardness as CaCO ₃	mg/l	42 (Mar. 20)	80 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	93 (Feb. 20)	138 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	26 (Feb. 20)	52 (Oct. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	9.0 (Jan. 20)	22 (Nov. 19)	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	0.02 (Oct. 19)	0.02 (Oct. 19)	--
13	Bacterial count	cfu/ml	55 (Nov. 19)	70 (Oct. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

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Table No.-4.3.2: Drinking Water Quality monitoring

S. No	Parameters	Units	Results		Results		Desirable Limit As per IS 10500: 2012
			RCHW	Open well	NMPT School		
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.52 (Nov. 19)	7.12 (Oct. 19)	6.54 (Dec. 19)	7.36 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	161 (Mar. 20)	198 (Oct. 19)	110 (Nov. 19)	185 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	42 (Dec. 19)	86 (Oct. 19)	14 (Feb. 20)	68 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	86 (Feb. 20)	118 (Oct. 19)	80 (Nov. 19)	102 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	12 (Dec. 19)	32 (Oct. 19)	12 (Nov. 19)	24 (Sep. 19)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	55 (Jan. 20)	60 (Dec. 19)	50 (Jan 20)	60 (Dec. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;

µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml-Milliliter

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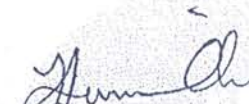
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Table - 3.3 DETAILS OF AMBIENT AIR QUALITY STATUS (October 2019-March 2020)

S.No	Locations	PM ₁₀		PM _{2.5}		SO ₂				NO ₂		CO	Pb	O ₃	NH ₃	C ₆ H ₆	B(a)P	As	Ni
		µg/m ³																	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max								
1	VTMS Port Control	38.2 (Oct.19)	50.6 (Nov.19)	21.8 (Feb.20)	28.3 (Nov.19)	6.3 (Oct.19)	9.4 (Mar.20)	13.2 (Mar.20)	20.8 (Oct.19)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2	I.M.C.	32.6 (Oct.19)	38.2 (Nov.19)	19.8 (Jan.20)	22.6 (Nov.19)	5.9 (Oct.19)	8.6 (Mar.20)	13.2 (Dec.19)	19.5 (Sep.19)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
3	Old Coastal Guard Office	35.9 (Oct.19)	41.0 (Nov.19)	18.2 (Oct.19)	22.3 (Mar.20)	4.4 (Oct.19)	7.8 (Mar.20)	12.8 (Nov.19)	16.8 (Dec.19)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
4	Main Gate	30.1 (Oct.19)	44.9 (Nov.19)	16.8 (Oct.19)	25.1 (Nov.19)	5.6 (Jan.20)	7.6 (Feb.20)	13.8 (Jan.20)	18.5 (Nov.19)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
5	NMPT Hospital	27.3 (Oct.19)	37.2 (Nov.19)	15.5 (Oct.19)	19.3 (Feb.20)	4.1 (Oct.19)	8.2 (Mar.20)	12.8 (Dec.19)	15.8 (Nov.19)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
NAAQs (2009)		100 [*]		60 [*]		80 [*]		80 [*]		2 ^{**}	1 [*]	100 ^{**}	400 [*]	5 ^{***}	1 ^{***}	6 ^{***}	20 ^{***}		

Note: ^{*}: 24 hours average; ^{**}: 8 hours average; ^{***}: Annual average

BDL=Below detection limit; DL - Detection Limit; PM_{2.5}-Particulate matter size less than 2.5 Micron, PM₁₀-Particulate matter size less than 10 Micron; SO₂ Sulphur dioxide; NO₂ - Nitrogen-di-oxide; CO - Carbon Mono Oxide(DL: 1.0 mg/m³); O₃-Ozone(DL: 20 µg/m³); NH₃-Ammonia (DL: 20 µg/m³); Pb-Lead (DL: 0.1 µg/m³); As-Arsenic (DL 1.0 ng/m³); Ni-Nickel (DL 1.0 ng/m³); Benzene-(DL 1.0 ng/m³); B(a)P- Benzo -a-pyrene (DL0.1 ng/m³); ng/m³: nanogram per cubic meter, µg/m³ - microgram per cubic meter



[Signature]
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P. KAVITHA

Technical Manager

Chennai Mettex Lab Private Limited

S. SRI RENGANATHAN
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Table No.-4.3.3: Drinking Water Quality monitoring

S. No	Parameters	Units	Results New VGR Open Well		Desirable Limit As per IS 10500: 2012
			Min.	Max.	
1	pH @ 25°C	-	6.58 (Mar. 20)	7.22 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	166 (Mar. 20)	205 (Oct. 19)	--
6	Total hardness as CaCO ₃	mg/l	40 (Dec. 19)	96 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	94.5 (Feb. 20)	123 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	38 (Mar. 20)	50 (Jan. 20)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Dec. 19)	55 (Feb. 20)	--
14	Coliforms	MPN/100ml	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;
µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

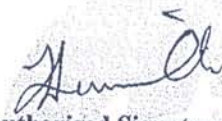
It is concluded from the above test reports the water parameters are meeting the drinking water guidelines of IS: 10500:2012 norms.



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Table No.-4.3.4: Drinking Water Quality monitoring

S. No	Parameters	Units	Results Thimmappayya Well		Results MCC Water		Desirable Limit 10500: 2012
			Min.	Max.	Min.	Max.	
1	pH @ 25°C	-	6.60 (Dec.19)	7.10 (Oct. 19)	6.58 (Dec. 19)	6.84 (Oct. 19)	6.5 to 8.5
2	Odour/Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Unobjectionable
3	Color	Hazen	Lessthan 1	Lessthan 1	Lessthan 1	Lessthan 1	5
4	Turbidity	NTU	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	Lessthan 0.5	5
5	Electrical Conductivity	µs/cm	140 (Mar. 20)	208 (Oct. 19)	154 (Dec. 19)	214 (Oct. 19)	-
6	Total hardness as CaCO ₃	mg/l	60 (Mar. 20)	92 (Oct. 19)	55 (Mar. 20)	90 (Oct. 19)	300 mg/l
7	Total Dissolved Solids	mg/l	83 (Feb. 20)	124 (Oct. 19)	88 (Jan. 20)	128 (Oct. 19)	500 mg/l
8	Chloride as Cl	mg/l	40 (Mar. 20)	56 (Feb. 20)	38 (Mar. 20)	52 (Feb. 20)	250 mg/l
9	Sulphates as SO ₄	mg/l	BDL	BDL	BDL	BDL	200 mg/l
10	Total Iron as Fe	mg/l	BDL	BDL	BDL	BDL	1.0 mg/l
11	Ammonical Nitrogen as N	mg/l	BDL	BDL	BDL	BDL	--
12	Phosphates as PO ₄	mg/l	BDL	BDL	BDL	BDL	--
13	Bacterial count	cfu/ml	50 (Nov. 19)	70 (Oct. 19)	50 (Dec. 19)	70 (Oct. 19)	--
14	Coliforms	MPN/100ml	Absent	Absent	Absent	Absent	Nil

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit;

µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; mL-Milliliter

CONCLUSION:

It is concluded from the above test reports the water parameters are meeting the drinking water guidelines of IS: 10500:2012 norms.

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4.6 Waste Water

Waste Water quality data are presented for the period between October 2019 to March 2020

SL No.	TEST PARAMETERS	UNIT						Tolerance Limit set by KSPCB
			Raw Sewage Inlet Tank	UV Outlet	UF Feed	UF Permeate	Treated Water in the outlet tank	
01	pH at 25°C	--	6.46	7.65	7.56	7.66	7.23	6.5 to 9.0
02	Conductivity @ 25°C	µS/cm	1065	895	943	917	975	--
03	Odour	--	Objectionable	Unobjectionable				Unobjectionable
04	Colour	Hazen	33.4	Colorless	8.5	Colorless	14.3	No visible color
05	Dissolved Oxygen	mg/l	2.90	5.0	4.9	5.0	4.7	Min. of 3
06	Oil & Grease	mg/l	13.30	BDL	BDL	BDL	3.9	10.0
07	Sludge Volume Index	mg/l	102	Nil	Nil	Nil	Nil	--
08	Total Suspended Solids	mg/l	366	BDL	8.3	BDL	17.8	<20.0
09	Total Dissolved Solids	mg/l	629	554	574	561	595	2100
10	Mixed Liquor Suspended solids	mg/l	357	BDL	7.8	BDL	26	--
11	Chemical Oxygen Demand	mg/l	372	4.2	8.4	6.0	17	< 50.0
12	BOD (3 days @ 27°C)	mg/l	174	BDL	4.0	BDL	5.8	< 10.0
13	Ammonical Nitrogen	mg/l	15.3	BDL	BDL	BDL	3.0	< 5.0
14	Total Nitrogen	mg/l	17.3	BDL	BDL	BDL	3.7	< 10.0
15	Phenolic Content as C6H6OH	mg/l	BDL	BDL	BDL	BDL	BDL	1.0
16	Faecal Coliform	MPN/100ml	1600	276	268	263	277	1000

Note: BDL: Below Detection Limit, DL: Detection Limit µs/cm, µS/cm : Micro Siemens per Centimeter, mg/l : Milligrams per liter, MPN : Most Probable Number.

Note:-BDL - Below Detection Limit; DL- Detection Limit; NTU-Nephelometric Turbidity Unit; µs/cm - Micro Siemens per centimeter; mg/l - Milligrams per Liter; MPN- Most Probable Number; ml - Milliliter

CONCLUSION:

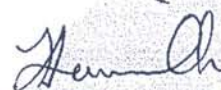
It is concluded from the above test reports that the treated water quality comply with the tolerance limit set by the KSPCB.



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5.0 MARINE SLUDGE QUALITY

The Marine Sludge quality data are presented for the period between October 2019 to March 2020

Table No. :-5.1 Marine Sludge Quality monitoring

S. No.	1	2	3	4	5	6
Location	Center of dock Arm and B. No. 2 & 7	In Front of KIOCL Berth	In Front of Berth No. 9	Western Cornet DDGB	In Front of Old dock arm	800 m West Of baseline
Water Content	44.5	43.9	43.9	43.5	43.8	44.0
Bulk Density	3.4	3.3	3.2	3.2	3.3	3.2
Dry Density	1.9	1.9	1.8	1.8	1.8	1.8
Specific Gravity	1.9	1.8	1.8	1.8	1.8	1.7
Particle Size Distribution						
Gravel (□)	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO
Sand (□)	8.0	6.0	7.2	7.6	7.2	6.2
Silt (□)	87.6	85.2	84.8	85.4	84.8	85.0
Clay (□)	4.4	8.8	8.0	7.0	8.0	8.8


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Table No. 7.2

STACK EMISSION MONITORING FOR October 2019 and March 2020- Summary

S. No	Sampling Location	Suspended Particulate Matter mg/Nm ³		Sulphur Dioxide as SO ₂ mg/Nm ³		Oxides of Nitrogen as NO _x mg/Nm ³	
		Min.	Max.	Min.	Max.	Min.	Max.
1	Hospital DG	0.06 (Jan. 20)	0.078 (Dec. 19)	BDL	BDL	0.487 (Feb.20)	0.63 (Oct.19)
2	Electrical Substation DG-1	0.078 (Jan. 20)	0.098 (Mar. 20)	BDL	BDL	0.518 (Jan.20)	1.288 (Oct.19)
3	Electrical Substation DG-2	0.072 (Dec. 19)	0.092 (Mar. 20)	BDL	BDL	0.594 (Jan.20)	0.790 (Nov.19)
4	33 KVA Main Entrance DG-I	0.106 (Nov. 19)	0.208 (Mar. 20)	BDL	BDL	1.289 (Feb.20)	1.722 (Nov..19)
5	33 KVA Main Entrance DG-II	0.08 (Jan. 20)	0.163 (Nov.19)	BDL	BDL	1.564 (Dec.19)	1.935 (Novl. 19)
6	VTMS. DG	0.059 (Mar.20)	0.078 (Dec.19)	BDL	BDL	0.592 (Oct., 19)	0.768 (Jan.20)
7	Electrical sub station	0.051 (Mar.20)	0.081 (Jan.20)	BDL	BDL	0.265 (Oct 19)	0.518 (Jan.20)
8	Oil Jetty Pump No-1	Under Maintenance					
9	Oil Jetty Pump No-2	26.6 (Oct.19)	29.2 (Feb.20)	BDL	BDL	105 (Oct.19)	129 (Feb.20)
10	Oil Jetty Pump No-3	29.5 (Oct. 19)	33.6 (Jan.20)	BDL	BDL	127 (Oct.19)	158 (Mar 20)
11	Oil Jetty pump-4	25.3 (Nov.19)	32.6 (Feb.20)	BDL	BDL	102 (Mar.20)	120 (Jan.20)
12	Hydrate Pump	19.8 (Feb.20)	23.6 (Nov. 19)	BDL	BDL	68 (Oct. 19)	85 (Dec. 19)
13	Monitor Pump	25.2 (Oct. 19)	30.8 (Mar.20)	BDL	BDL	70.4 (Jan. 20)	85 (Nov. 19)

Note: mg/Nm³ - milligrams per cubic meter

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7.0 STACK MONITORING STATUS

The Stack monitoring data are presented for the period between October 2019 and March 2020.

Table No. 7.1: STACK EMISSION MONITORING (AVERAGE LEVEL)

S. No.	Sampling Location	Suspended Particulate Matter	Sulphur Dioxide as SO ₂ mg per Nm ³ / g per kw-hr	Oxides of Nitrogen as NO _x
1	Hospital DG	0.069 g/kw-hr	BDL	0.54 g/kw-hr
2	Electrical Substation DG-1	0.088 g/kw-hr	BDL	0.748 g/kw-hr
3	Electrical Substation DG-2	0.083 g/kw-hr	BDL	0.679 g/kw-hr
4	33 KVA Main Entrance DG-I	0.144 g/kw-hr	BDL	1.475 g/kw-hr
5	33 KVA Main Entrance DG-II	0.118 g/kw-hr	BDL	1.720 g/kw-hr
6	VTMS DG	0.067 g/kw-hr	BDL	0.653 g/kw-hr
7	Electrical substation ADM. Building	0.061 g/kw-hr	BDL	0.413 g/kw-hr
8	Oil Jetty Pump No-1	34.2 mg/Nm ³	BDL	101 mg/Nm ³
9	Oil Jetty Pump No-2	27.6 mg/Nm ³	BDL	117 mg/Nm ³
10	Oil Jetty Pump No-3	31.8 mg/Nm ³	BDL	138 mg/Nm ³
11	Oil Jetty Pump No-4	29.2 mg/Nm ³	BDL	111 mg/Nm ³
12	Hydrate Pump	21.7 mg/Nm ³	BDL	76.2 mg/Nm ³
13	Monitor Pump	28.4 mg/Nm ³	BDL	78.3 mg/Nm ³

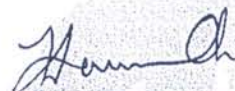
Note: mg/Nm³ - milligrams per cubic meter



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6.0 NOISE LEVEL STATUS

6.1 Data Presentation

The Noise Level quality data are presented for the period between October 2019 and March 2020.

AMBIENT NOISE MONITORING FOR October 2019 TO March 2020 –SUMMARY

Sl. No	Location	Noise Level in dB(A)					
		Day Time			Night Time		
		Min.	Max.	CPCB limit	Min.	Max.	CPCB limit
1	Malya Gate (Main Gate)	55.8 (Dec. 19)	60.4 (Jan. 20)	Industrial Area Day Time Avg. 75 dB (A)	49.7 (Dec.19)	54.8 (Jan.20)	Industrial Area Night Time Avg. 70 dB (A)
2	Wharf Berth (Inside)	53.8 (Mar. 20)	62.1 (Oct. 19)		49.2 (Feb.20)	57.0 (Oct.19)	
3	Administrative Office Building	50.8 (Dec. 19)	55.9 (Oct. 19)		46.6 (Dec. 19)	51.4 (Oct.19)	
4	J.N.C. Hall in the campus	48.8 (Dec. 19)	52.4 (Oct. 19)		40.6 (Jan.20)	48.7 (Oct.19)	
5	Wharf Canteen	56.5 (Oct. 19)	64.4 (Feb. 20)		52.9 (Oct. 19)	56.7 (Dec.19)	
6	Container Yard	60.2 (Oct. 19)	66.2 (Feb. 20)		55.3 (Oct. 19)	59.6 (Jan.20)	



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Table No. :-5.2 Marine Sludge Quality monitoring

S. No.	7	8	9	10	11	12
Location	2500 West of baseline	800 m West of Baseline and 1000m north of CIL	2500 West of baseline and 1000m north of CIL	800 m West Of baseline 1000m South of CIL	2500 m West Of baseline 1000m South of CIL	At Dumping Area
Water Content	43.6	44.1	43.7	43.7	44.1	43.7
Bulk Density	3.2	3.2	3.0	3.1	3.1	3.2
Dry Density	1.8	1.8	1.7	1.8	1.7	1.8
Specific Gravity	1.7	1.7	1.7	1.7	1.7	1.7
Particle Size Distribution						
Gravel (□)	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO
Sand (□)	7.6	7.6	6.8	6.4	7.4	6.4
Silt (□)	86.6	85.2	85.2	85.0	84.8	84.8
Clay (□)	5.6	7.2	8.0	8.6	7.8	8.4

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