## SIX MONTHLY CRZ COMPLIANCE REPORT (April – 2024 TO September – 2024)

CRZ Clearance No. 11-76/2007-IA-III dated 18/02/2008

FOR

# **Shipbuilding & Repairing facility**

OF

## LARSEN & TOUBRO LIMITED AT

A.M. Naik Heavy Engineering Complex, Surat, Gujarat.



Prepared By

## **Ecosystem Resource Management Pvt. Ltd.**

(NABL accredited certificate No. TC-11369) Office floor, Ashoka Pavilion–A, New Civil Road, Opp. Kapadia Health Club, Surat – 395001 Tel No: 0261-2231630 E mail: <u>eco@ecoshripad.com</u>

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#### INTRODUCTION

Larsen and Toubro Limited (L & T), Hazira Works is a heavy Engineering Work Complex situated on a 200 acres plot at Hazira, near Surat in Gujarat. It is state-of-the-art engineering workshop which is involved in designing and manufacturing of custom built fabricated equipment's, modules and systems required for the core sector industries of national importance viz., Nuclear, Defence and various process plants i.e. Refineries, Petrochemicals, Fertilizer etc. L & T is in the forefront of India's march towards globalization.

In the early eighties, leadership of L & T took the strategic decision to set up Heavy Engineering facilities with a waterfront. They could foresee the growing sizes and complexities of the core sector projects in India and abroad. This will involve design, manufacture and shipment of ever larger and heavier equipment to the project sites. Such green field projects sites were likely to be on or closer to the seaboard. The manufacturing facilities set up at Powai, Mumbai were land locked and hence could be inadequate to cater to these emerging businesses. Decision was taken to set up heavy engineering facilities at Hazira near Surat in South Gujarat. A 200-acre plot of government wasteland situated on the northern bank of river Tapi was purchased from government and construction was started in 1985.

Hazira Works was established in the year 1987. During initial period Hazira works lacked infrastructural facilities viz. power, water, roads, communication, housing for staff & workmen, etc. With advent of other major industries like Reliance Petrochemicals and Essar Limited and after declaration of Hazira as a notified area, the situations improved in all fronts gradually over 10 years. Construction of fabrication shops, jetty and installation of major equipment boosted the working capacity of Hazira works.

Today L & T has 65,000 m<sup>2</sup> of modern heavy shops and 3,00,000 m<sup>2</sup> of open fabrication facilities coupled with private jetties/load out facilities, modern offices, training centers, canteens and other industrial utilities and Hazira works is justifiably proud of the team of Workmen, Engineers and Managers developed over last 20 years.

From the past four decades, this division has been active in design, engineering and manufacturing of critical high tech plant and equipment for the core sectors such as Steel & Cement, Fertilizers, Oil & Gas, Petrochemicals & Refinery Equipment, Nuclear Power, Aerospace and Defense.

The project involves construction of Ship building and repairing facility at Village-Mora, Surat, Hazira Road, Dist.-Surat which includes, (i) Jetty (L shape with 100 m length and return 32 m), (ii) Slipway (150 m wide and 80 m long), (iii) Ship fabrication/ Repair facility activities includes Open area for ship building/repair, fabrication sheds/open area for smaller components and Fabrication shed for pipes. The smaller



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components and pipes are fabricated and transported to the main fabrication shed on the river side for assembling. On completion of the same, job is launched in to the river at a suitable high tide and towed to the fitting out jetty for fitting of balance machinery, accommodation and navigation systems. On completion of fitting of all systems, the job is taken to sea for sea trials and on successful completion of trials, it is being/will be handed over to owners. Layout map is attached in data sheet. The Gujarat SCZMA has recommended the project vide letter no. ENV-10-2006-182-P dated 03/10/2007 and CRZ clearance has been obtained from MoEF&CC for the vide letter no. No. 11-76/2007-IA-III dated 18/02/2008. The study has been carried out to comply with the CRZ condition and environment legislation for submission of sixmonthly compliance report for the same.



#### DATA SHEET

1.	Project type: River-Valley / Mining / Industry / Thermal / Nuclear, Other (specify)	:	Shipbuilding & Repairing facility along with shipbuilding and repairing yard and modification of Jetty.
2.	Name of the project	:	Larsen and Toubro Limited
3.	Clearance letter (s) O M No and date	:	11-76/2007-IA-III dated 18/02/2008.
4.	Location		
	a. District	:	Surat
	b. State	:	Gujarat
	c. Latitude / Longitude	:	Latitude: 21°09'31.99"N
			Longitude: 72°39'57.96"E
5.	Address for correspondence		
	a. Address of concerned project Chief engineer (with pin code & telephone /	:	Mahesh Joshi Head - Central Services
			ricau - Central Services



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b. telex/fax number)       Larsen & Toubro Limited,         A.M. Naik Heavy Engineering Complex         Post Batha - 394 510         Dist - Surat, Gujarat         Ph - 0261-2807642         E-Mail: mahesh_Joshi@larsentoubro.com         c. Address of Executive project engineer /Manager (with pin code /fax numbers)       :         6. Salient features       :         a. of the project       :         a. of the project       :         Village       Mora         Q. Particulars       Name         Aerial Distance from the project site         1.       Nearest Village         a. of the project       :         8.       Same as Above         1.       Nearest Village         1.       Nearest Village         1.       Nearest No.         2.       Nearest No.         3.       National Highway         4.       State Highway         6.       Nearest Airport         4.       State Airport         6.       Nearest Airport         7.       Nearest Airport         8. of the environmental management plans       :         Adequate environmental safeguards have been incorporated in EMP which was submitted to the    <		h toloy/fax number)		Larcor	& Toubro L	mitod	
Post Batha - 394 510         Dist - Surat, Gujarat         Ph - 0261-2807642         E-Mail: mahesh.Joshi@larsentoubro.com         c. Address of Executive project engineer         /Manager (with pin code /fax numbers)         6. Salient features         a. of the project         a. of the project         i. of the project         i. Nearest         Nearest         Village         Mora         @ 17.50 km in E         direction         i. Nearest         Nearest         Warest         Warest         Mearest         National         H-6         direction         iighway         B. of the environmental management plans				Larsen & Toubro Limited,			
b. of the environmental management plans       Dist - Surat, Gujarat Ph - 0261-2807642 E-Mail: mahesh.Joshi@larsentoubro.com         c. Address of Executive project engineer /Manager (with pin code /fax numbers)       :       Same as Above         6. Salient features       :       Same as Above         a. of the project       :       Sr. No.       Particulars Particulars       Name from the project site from the project site         1.       Nearest Village       Mora direction       @ 2.42 km in NW direction         2.       Nearest Town/city       Surat direction       @ 17.50 km in E direction         3.       National Highway       NH-6       direction         4.       State Highway       @ 2.000 km in NE direction         5.       Railway       Surat direction       @ 20.00 km in NE direction         6.       Nearest Airport       Surat direction       @ 20.00 km in SE direction         6.       Nearest Airport       Surat direction       @ 10.50 km in SE direction         7.       Nearest River       Tapi       @ 10.50 km in SE direction.					2	-	ig complex
Ph - 0261-2807642         E-Mail: mahesh.Joshi@larsentoubro.com         c. Address of Executive project engineer         /Manager (with pin code /fax numbers)         6. Salient features         a. of the project         i. No.         Particulars         No.         Village         Mora         Q. 2.42 km in NW         direction         2.         Nearest         J. Nearest         Wearest         Wearest         Wearest         Wearest         State         Bearest         State         Bearest         State         Bearest         State         Bearest         State         Bearest         State         Bearest         Station         Wearest         Station         Bearest         Station         Bearest         Station         Bearest         Station </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
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c. Address of Executive project engineer       :       Same as Above         6. Salient features       :       Sr. Name       Aerial Distance from the project site         a. of the project       :       Sr. Name       Aerial Distance from the project site         1.       Nearest Nor.       Name       Aerial Distance from the project site         2.       Nearest Town/city       Surat       @ 17.50 km in E direction         3.       National Highway       NH-6       @ 0.55 km in NW         4.       State Highway       NH-6       @ 0.55 km in NE         6.       Nearest State Highway       Surat       @ 20.00 km in NE         6.       Nearest State Highway       Surat       @ 20.00 km in NE         6.       Nearest State Highway       Surat       @ 10.50 km in SE         6.       Nearest State Highway       Surat       @ 10.50 km in SE         6.       Nearest State Highway       Surat       @ 10.50 km in SE         7.       Rearest River       Surat       @ 0.15 km in SE         7.       Nearest River       Tapi       @ 0.15 km in SE         9. of the environmental management plans       :       Adequate environmental safeguards have been				-			
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6.       Salient features         a. of the project       :       Sr. No.       Particulars       Name       Aerial Distance from the project site         1.       Nearest       Mora       @ 2.42 km in NW         2.       Nearest       Surat       @ 17.50 km in E         7.       Nearest       Surat       @ 0.55 km in NW         3.       National       NH–6       direction         4.       State       66       direction         4.       State       66       direction         5.       Railway       Surat       @ 20.00 km in NE         5.       Railway       Surat       direction         6.       Nearest       Surat       @ 20.00 km in NE         5.       Railway       Surat       direction         6.       Nearest       Surat       direction         6.       Nearest       Surat       direction         7.       Nearest		c. Address of Executive project engineer	:	Same	as Above		
a. of the project       :       Sr. No.       Particulars       Name       Aerial Distance from the project site         1.       No.       Particulars       Name       4erial Distance         2.       Nearest       Mora       @ 2.42 km in NW         2.       Nearest       Surat       @ 17.50 km in E         3.       National       NH-6       direction         3.       National       NH-6       direction         4.       State       SH-66       direction         1.       Nearest       SH-66       @ 10.50 km in SE         1.       Nearest       SH-66       @ 20.00 km in NE         1.       Station       0       0.50 km in SE         1.       Nearest       Surat       @ 10.50 km in SE         1.       Nearest       Surat       @ 10.50 km in SE         1.       Nearest       Surat       @ 10.50 km in SE         1.       Nearest       Surat       @ 0.15 km in SE         1.       Nearest       Surat       @ 0.15 km in SE         1.       Nearest       Surat       @ 0.15 km in SE         1.       Nearest       River       Tapi       @ 0.15 km in SE         1.		/Manager (with pin code /fax numbers)					
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2.Town/citySuratdirection3.NearestNearest@ 0.55 km in NW3.NationalNH-6directionHighwayNearestSH-direction4.StateSH-66Highway66direction5.RailwaySurat@ 20.00 km in NE5.RailwaySuratdirection6.NearestSuratdirection6.NearestSurat@ 10.50 km in SEdirection.7.NearestSuratb. of the environmental management plans:Adequate environmental safeguards have been				1.	Village	MOLA	direction
Image: bound in the environmental management plansImage: constructionImage: construction					Nearest		@ 17.50 km in E
b. of the environmental management plans       3.       National Highway       NH-6       direction         3.       National Highway       NH-6       direction         4.       State Highway       66       @ 7.94 km in SE direction         4.       State Highway       66       @ 20.00 km in NE direction         5.       Railway Surat Station       @ 20.00 km in SE direction         6.       Nearest Airport       Surat Surat Circuit         7.       Nearest River       Tapi Circuit         b. of the environmental management plans       :       Adequate environmental safeguards have been				2.	Town/city	Surat	direction
Image: bound of the environmental management plansImage: bound of the envi					Nearest		@ 0.55 km in NW
b. of the environmental management plansiii				3.	National	NH–6	direction
4.StateSH- 66directionHighwayNearest0005.RailwaySurat005.RailwaySurat006.Nearest AirportSurat010.50 km in SE direction.7.Nearest RiverTapi00.15 km in SE direction.b. of the environmental management plans:Adequate environmental safeguards have been					Highway		
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b. of the environmental management plans       :       Adequate environmental state       :       Adequate environmental state       :       :       Adequate environmental state       :					Highway	66	
b. of the environmental management plans       :       Adequate environmental safeguards have been         Adequate environmental safeguards have been					Nearest		@ 20.00 km in NE
b. of the environmental management plans       :       Adequate environmental safeguards have been				5.	Railway	Surat	direction
6.       Airport       Surat       direction.         7.       Nearest River       Tapi       @ 0.15 km in SE direction.         b. of the environmental management plans       :       Adequate environmental safeguards have been					Station		
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b. of the environmental management plans       :       Adequate environmental safeguards have been				_	Nearest	- ·	@ 0.15 km in SE
				7.	River	Гарі	direction.
incorporated in FMP which was submitted to the		b. of the environmental management plans	:	Adequ	ate environr	nental	safeguards have been
				incorp	orated in EN	IP whicl	n was submitted to the



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			Ministry	during grant of the CRZ.	
7.	Breakup of the project area	:	Total project area – 280 Acres		
	a. Submergence area: forest & non forest	:	NIL		
	b. Others	:	NIL		
8.	Break up of the project affected population with enumeration of those losing houses/dwelling units only agriculture land only, both dwelling units and agricultural land & landless laborers / artisan				
	a. SC.ST / Adivasis	:	NIL		
	b. Others	:	NIL		
9.	Financial details				
	<ul> <li>a. Project cost as originally planned &amp; subsequent revised estimates and the year of price reference</li> </ul>	:	Rs. 8,144	4 Lacs	
	b. Allocation made for environmental management plans with item-wise & year	:	Sr. No.	Particulars	For the Year 2024-25
	wise break up				(Rs. in Lacs)
			1.	STP Operation & Maintenance	
			2.	Air pollution control device	14.5
			3.	Monitoring Cost	
				Total	14.5
10	Forest Land requirement		NOT APP	PLICABLE	
	a. The status of approval for diversion of forest land and non-forestry use	:			
	b. The status of clearing falling	:			
	c. The status of compensatory afforestation, if any	:			
	d. Comments on the viability and	:			

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	sustainability of compensatory afforestation		
	Program in the light of actual field		
	experience so far		
11	The status of clear falling in non-areas (much	:	NOT APPLICABLE
	as submergence area of reservoir , approach		
	roads), if any with quantitative information		
12	The status of construction		
	a. Date of commencement (actual and / or planned)	:	1 <sup>st</sup> March, 2008
	b. Date of completion (actual) and/or planned	:	15 <sup>th</sup> November, 2008
13	Reasons for the delay if the project is yet to start	:	Unit is operational since 2008
14	Dates of site visits		
	a. The dates on which the project was monitored by the Regional office on previous occasion, if any	:	GPCB RO visit not done in during this period of April – September 2024.
	b. Date of site visit for this monitoring report	:	Dates of sampling are mentioned in respective analysis report.
15	Details of correspondence with project authorities for obtaining act on plans/ information on status of compliance to safeguards other than the routine letters for logistic support for site visits (The first manufacturing report may contain the details of all the letters issued so far, but the letter reports may cover only the letters issued subsequently)	:	Last six-monthly compliance report for the period of Jan-2024 to June - 2024 was submitted in August-2024 to RO, MOEFCC Bhopal.

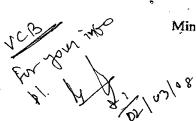


## COASTAL REGULATION ZONE (CRZ) CLEARANCE BY MoEF&CC

## F. No. 11-76/2007-IA-III dated: 18/02/2008



**ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.** Office Floor, Ashoka Pavillion–A, Opp. Kapadia Health Club, New Civil Road, Surat–395 001. Tele–No: 91–0261–2236223, E–mail: <u>eco@ecoshripad.com</u> Web: <u>www.ecosystemindia.com</u>



No.11-76/2007-IA-III Government of India Ministry of Environment and Forests (IA-III Division)

> Paryavaran Bhavan, C.G.O. Complex, Lodi Road, New Delhi-110003

Dated the 18th February, 2008

Sub: Coastal Regulation Zone clearance for shipbuilding and repairing facility alongwith shipbuilding and repairing yard and modification of jetty at village Mora, Surat -Hazira Road, District Surat by M/s Larsen & Tourbo Limited -regarding.

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Reference is invited to the letter No.ENV-10-2006-182-P, dated 3.10.2007 from Forests and Environment Department, Government of Gujarat and letter No.ADMN/BSJ/CRZ/13/2007, dated 7.1.2008 from M/s Larsen & Toubro Limited regarding the subject mentioned above. No Objection Certificate from the Gujarat Pollution Control Board has been obtained vide letter No.GPCB/CE/SRT-1736/10826, dated 10.4.2007. Gujarat Maritime Board has accorded 'No Objection Certificate' for creating facility for ship-building and ship-repairing yard, vide letter dated

The project involves construction of 4 numbers of ship each of 5000T per year. Ship building 2. and repairing facility at Village Mora, Surat, Hazira Road, District-Surat which includes,-

(i) Expansion of jetty (L shape with 100m length and return 32m)

(ii) Construction of Slipway (150m wide and 80 m long)

(iii) Ship Fabrication/ Repair facility & activities

(a) Open area for shipbuilding/ repair

(b) Fabrication sheds/open area for smaller components (Defence Ship/Vessels)

(c) Fabrication shed for pipes (shipbuilding).

The fabrication and shipbuilding yard will cover the total area of approximately 3,60,000 sq 3. m. The last two fabrication sheds to be located on the opposite side of the existing plant. The smaller components and pipes will be fabricated and transported to the main fabrication shed on the river side for hull assembling. On completion of hull the ship will be launched into the river at a suitable high tide and towed to the fitting out jetty for fitting of balance machinery, accommodation, and navigation systems. On completion of fitting of all systems trials of systems, the ship taken to sea for sea trials and on successful completion of sea trials, the ship will be handed over to owners. Area required for the project is 280 acres. Estimated cost of the project is Rs.81.44 crores. The major landuse for the proposed project is as follows:-

•	Fabrication Yard	:	3,25,000 m <sup>2</sup>
٠	Shipbuilding Yard	:	35,000 m <sup>2</sup>
•	Main Jetty	:	5,600 m <sup>2</sup>
٠	RO - RO jetty	:	$3,200 \text{ m}^2$
	Slipway	:	12,000 m <sup>2</sup>

Source of power supply is "Dakshin Gujarat Vij Co. Limited" and power will be around 2400 4. KVA. The unit will also install 1 number of DG set for use in case of power failure. Total manpower for the project is 180. The water requirement for the project is around 25,00 litres/day which will be

drawn from siganpore weir through a shared pipeline with Essar. Waste scraps are proposed to be disposed to the reusing units. And paints will be disposed to TSDF- MOU is required. Mitigation of Oil spillage is required. 15 - 20 KLD is proposed to met from Narmada Dam-Biological treatment is proposed. The proposed site falls in the intertidal area classified as CRZ-1 (ii) and CRZ III. For the project 115 acres of land would be required.

The proposal was considered by Expert Appraisal Committee at its meeting held 29th - 30th 5. November, 2007 and has recommended.

Keeping in view the above facts, the proposal has been examined in the Ministry of 6. Environment & Forests and environmental clearance from Coastal Regulation Zone Notification, 1991 as amended from time to time is hereby accorded to this project subject to effective implementation of the following conditions:-

## (A) Specific Conditions:

- (i) All the conditions stipulated by the Environment Department, Government of Gujarat vide their letter No.ENV-10-2006-182-P, dated 3.10.2007 should be strictly implemented and a comprehensive compliance letter to be provided to Environment Department, Government of Gujarat and to the Regional Office of this Ministry at Bhopal every quarterly.
- (ii) The project proponent should implement all the measures that have been suggested by them in the clarification letter No.ADMN/BSJ/CRZ/13/2007, dated 7.1.2008 provided to the Ministry of
- (iii) No mangroves should be destroyed during construction and operation of the project.

(iv) A programme for Mangrove Conservation and Development in the region should be taken by the Aproject proponent through a scientific/public spirited body for evolving sustainable and long term strategies. The detailed action plan alongwith fund allocation should be submitted to this Ministry as well as the Regional Office Bhopal within three months. The implementation of the conservation plan shall be monitored by the Environmental Cell of the company and a periodic report should be submitted to the Ministry's Regional Office at Bhopal.

(v) Sewage Treatment Plant should be included in the project and the details provided to the Regional Office of this Ministry within three months from the date of receipt of this letter.

- (vi) The recommendations of the Risk Assessment Report should be incorporated, and report
- Location of general cargo berth should be taken into consideration with regard to location of (vii) LNG terminal.
- The materials for the filling and pavement construction should be made available from (viii) approved quarries.
- (ix) Sufficient fixed and mobile fire fighting system should be provided exclusively for the terminal in consultation with the local statutory bodies and fire fighting authorities.
- (x) The project proponent should ensure that during construction and operation of the port there will be no impact on the livelihood of the fisherman. The fishermen should be provided free access to carry out the fishing activity.
- (xi) All necessary precaution while undertaking construction and operation of the port should be taken keeping in view the bathymetric changes caused due to cyclones.

- (xii) All development in the port should be carried out in accordance with the Coastal Regulation Zone Notification, 1991 and approved Coastal Zone Management Plan of Gujarat.
- (xiii) There should be no withdrawal of ground water in CRZ area, for this project. The proponent should ensure that as a result of the proposed constructions, ingress of saline water into ground water does not take place. Piezometers shall be installed for regular monitoring for this purpose at appropriate locations on the project site.
- (xiv) The project should not be commissioned till the requisite water supply and electricity to the project are provided by the PWD/Electricity Department.
- (xv)Specific arrangements for rain water harvesting should be made in the project design and the rain water so harvested should be optimally utilised. Details in this regard should be furnished to this Ministry's Regional Office at Bhopal within 3 months.
- (xvi) Green buffer zone should be provided all around the project area in consultation with local forest department and the report submitted to this Ministry's Regional Office at Bhopal.
- (xvii) No product other than those permissible in the Coastal Regulation Zone Notification, 1991 should be stored in the Coastal Regulation Zone area.

#### **B.** General Conditions:

- (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.
- (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.
- (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.
- (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 Gujarat State Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.
- (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.
- (vi) In order to carry out the environmental monitoring during the operational phase of the project, 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.
- (vii) The sand dunes and mangroves, if any, on the site should not be disturbed in any way.

- (viii) A copy of the clearance letter will be marked to the concerned Panchayat/local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.
- (ix) The Gujarat State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's Office/Tehsildar's Office for 30 days.
- (x) The funds earmarked for environment protection measures should be maintained, in a separate account and there should be no diversion of these funds for any other purpose. A year-wise expenditure on environmental safeguards should be reported to this Ministry's Regional Office at Bhopal and the State Pollution Control Board.
- (xi) Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and Sate Pollution Control Boards by the project proponents during their inspection for monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.
- (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.
- (xiii) This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.
- (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.
- (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 copies of clearance letters are available with the State Pollution Control Board and may also be seen at Website of the Ministry of Environment & Forests at http://www.envfornic.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 forwarded to the Regional Office of this Ministry at Bhopal.
- (xvi) The Project proponents should inform the Regional Office at Bhopal 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.

7. The above mentioned stipulations will be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (protection) Act, 1986, the Hazardous Chemicals (Manufacture, Storage and Import) Rules, 1989, the Coastal Regulation Zone Notification, 1991 and its subsequent amendments and the Public Liability Insurance Act, 1991 and the Rules made thereunder from time to time. The project proponents should also ensure that the proposal complies with the provisions of the approved Coastal Zone Management Plan of Gujarat State and the Supreme Court's order dated 18<sup>th</sup> April, 1996 in the Writ Petition No.664 of 1993 to the extent the same are applicable to this proposal.

(Dr. A. Senthil Vel) Additional Director

To

Manager (Corporate Affairs), Larsen & Toubro Limited, Gulab Bhawan, 2<sup>nd</sup> Floor, 6, Bahadur Shah Zafar Marg, New Delhi-110002.

## COMPLIANCE TO CONDITION STIPULATED IN CRZ CLEARANCE BY MoEFCC No. 11-76/2007-IA-III dated: 18/02/2008



**ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.** Office Floor, Ashoka Pavillion–A, Opp. Kapadia Health Club, New Civil Road, Surat–395 001. Tele–Fax: 91–0261–2231630, 2236223, 2233075, 6545050 E–mail: eco@ecoshripad.com Web: www.ecosystemindia.com

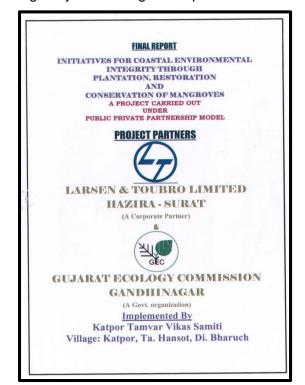
Sr.	Conditions	Compliance status				
No.	Conditions	Compliance status				
1.	Reference is invited to the letter No.ENV-10-2006-182-P, dated No.3.10.2007 from Forests and Environment Department, Government of Gujarat and letter No. ADMN/BSJ/CRV/13/2007, dated 7.1.2008 from <i>MIs</i> Larsen. & Toubro Limited regarding the subject mentioned above. No Objection Certificate from the Gujarat Pollution Control Board has been obtained vide letter No.GPCB/CE/SRT-1736/10826, dated 10.4.2007. Gujarat Maritime Board has accorded 'No Objection Certificate' for creating facility for shipbuilding and ship-repairing yard, vide letter dated 15.4.2006.	Noted & Agreed Unit has got the vide letter No. GPCB/CE/SRT- 1736/10826, dated 10.4.2007.				
2.	The project involves construction of 4 numbers of ship each of 5000T per year. Ship building and repairing facility at Village Mora, Burnt, Hazira Road, District-Surat which includes,	Noted & Agreed				
	(i) Expansion of jetty (L shape with 100m length and return 32m)	Noted & Agreed				
	(ii) Construction of Slip way (150 m wide and 80 m long)	Noted & Agreed				
	(iii)Ship Fabrication/ Repair facility & activities	Noted & Agreed				
	<ul> <li>(a) Open area for shipbuilding/ repair</li> <li>(b) Fabrication sheds/open area for smaller components (Defense Ship/Vessels)</li> <li>(c) Fabrication shed for pipes (shipbuilding).</li> </ul>					

3.	The fabrication and shipbuilding yard will cover the total area of approximately 3,60,000 sq. m, the last two fabrication sheds to be located on the opposite side of the existing plant. The smaller components and pipes will be fabricated and transported to the main fabrication shed on the river side for hull assembling. On completion of hull the ship will be launched into the river at It suitable high tide and towed to the fitting out jetty for fitting of balance machinery, accommodation, and navigation systems. On completion of fitting of all systems trials of systems, the ship taken to sea for sea trials and on successful completion of sea trials, the ship will be handed over to owners. Area required for the project is 280 acres Estimated cost of the project is Rs.81.44 crores. The major land use for the proposed project is as follows: - • Fabrication Yard: 3,25,000 m <sup>2</sup> • Main Jetty: 5,600 m <sup>2</sup> • RO - RO jetty: 3,200 m <sup>2</sup>	Noted & Agreed.
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		Noted & Agreed.
4.	Source of power supply is "Dakshin Gujarat Vij Co. Limited" and power will be around 2400 KVA. The unit will also install 1 number of DG set for use in case of power failure. Total manpower for the project is 180. The water requirement for the project is around 25.00 liters/day which will be drawn from siganpore weir through a shared pipeline with Essar. Waste scraps are proposed to be disposed to the reusing units. And paints will be disposed to TSDF- MOU is required. Mitigation of Oil spillage is required. 15 -20 KLD is proposed to met from Narmada Dam- Biological treatment is proposed. The proposed site falls in the intertidal area classified as CRZ-I (ii) and CRZ III. For the project 115 acres of land would be required.	<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header><text><text><text><text></text></text></text></text></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>
5.	The proposal was considered by Expert Appraisal Committee at its meeting held November, 2007 and has recommended.	Noted
6.	Keeping in view the above facts, the proposal has been examined in the Ministry of Environment & Forests and Environmental clearance from Coastal Regulation Zone Notification. 1991 as amended from time to time is hereby accorded to this project subject to effective implementation of the following conditions:-	Noted
Α.	S	Specific Condition
i.	All the conditions stipulated by the Environment Department, Government of Gujarat vide their letter No.ENV- 102006182-P, dated 3.10.2007 should	Complied. The L&T Limited, Hazira has got the Letter No.ENV- 10-2006-I82-P, dated 3.10.2007 Compliance of the letter is attached as Annexure - A.
	be strictly implemented and a	Six monthly compliance report along with the monitor

	· · · · · ·	
	comprehensive compliance letter to be provided to Environment Department, Government of Gujarat and to the	data are regularly submitted to the Environment Department, Government of Gujarat and Regional Office, Bhopal.
	Regional Office of this Ministry at Bhopal every quarterly.	
ii.	Theprojectproponentshouldimplement all the measures that havebeensuggestedbytheminclarificationletterNo.ADMN/BSJ/CRZ/13/2007,dated7.1.2008providedtotheEnvironment and Forests.	<b>Complied</b> All the measures suggested in the letter No. ADMN/BSJ/CRZ/13/2007, dated 07.01.2008 are strictly implemented.
iii.	No mangroves should be destroyed during construction and operation of the project.	<b>Complied</b> Company has not destroyed mangroves during construction and operation of the project.
iv.	A program for Mangrove Conservation and Development in the region should be taken by the project proponent through a scientific/ public spirited body for evolving sustainable and long term strategies. The detailed action plan along with fund allocation should be submitted to this ministry as well as the Regional Office Bhopal within three months. The implementation of the conservation plan shall be monitored by the Environmental Cell of the company and a periodic report should be submitted to the ministry's Regional Office at Bhopal.	Complied The Memorandum of Understanding (MoU) between our company and the Gujarat Ecology Commission for the "Restoration, Plantation & Conservation of Mangroves along the Surat Coast, Gujarat" covering a 150-hectare area has already been executed, and the corresponding works have been completed. Photographs illustrating the completed work are attached below. Memorandum of Understanding for To carry out "Mangrove Plantation through PPP Mode" Between Larsen & Toubro Limited Hazira - Surat * Year: 2014 - 15 Full *

•	Environmental	Management	Cell	of	company	is
	regularly monito	oring the implen	nentat	ion (	of this proje	ct.



Photographs of the mangrove plantation of as under.



	Sewage Treatment Plant should be	Complied
	included in the project and the details	Sewage Treatment Plant is included in the project and the
٧.	provided to the Regional Office of this	details of the same have been sent to the Regional Office,
	Ministry within three months from the	Bhopal.
	date of receipt of this letter.	
	The recommendations of the Risk	Complied
vi.	Assessment Report should be	Recommendations of the Risk Assessment Report have
	incorporate, and report submitted.	been implemented.

	Location of general cargo berth should	Noted & Agreed.
	be taken into consideration with regard	Photo of cargo berth is attached as below.
vii.	to location of LNG terminal.	
	The materials for the filling and	Complied
viii.	pavement construction should be made	Company had obtained the materials for the filling and
	available from approved quarries.	pavement construction from the approved quarries only.
	Sufficient fixed and mobile firefighting	Complied
	system should be provided exclusively	Company has provided sufficient fixed & mobile fire-
ix.	for the terminal in consultation with the	fighting system after consulting the local statutory bodies
	local statutory bodies and firefighting	& firefighting authorities.
	authorities.	
	The project proponent should ensure	Noted & Agreed.
	that during construction and operation	There is no adverse impact on the livelihood of the
х.	of the port there will be no impact on the	fisherman during construction phase and operation phase
	livelihood of the fisherman. The	of the port. No fishing activity has been carried out.
	fishermen should be provided free	
	access to carry out the fishing activity.	
	All necessary precaution while	Complied
	undertaking construction and operation	All the necessary precautions are undertaken during
xi.	of the port should be taken keeping in	construction and operation phase of the port.
	view the bathymetric changes caused	
	due to cyclones.	
	All development in the Port should be	Complied
xii.	carried out in accordance with the	All development in the port is carried out as per the
	Coastal Regulation Zone Notification,	Coastal Regulation Zone Notification, 1991 and approved
	1991 and approved Coastal Zone	Coastal Zone Management Plan of Gujarat.

	Management Plan of Gujarat.	
xiii.	There should be no withdrawal of ground water in CRZ area, for this project. The proponent should ensure that as a result of the proposed constructions, ingress of saline water into ground water does not take place. Piezometers shall be installed for regular monitoring for this purpose at appropriate locations on the project site.	<b>Complied</b> Unit had not tapped ground water during the construction phase. We are not tapping ground water for the domestic/other purposes. The source of water for this facility is surface water.
xiv.	The project should not be commissioned till the requisite water supply and electricity to the project are provided by the PWD/Electricity Department.	Noted & Agreed. We have obtained prior permission for the water supply and electricity from the concerned authorities.
xv.	Specific arrangements for rainwater harvesting should be made in the project design and the rain water so harvested should be optimally utilized. Details in this regard should be furnished to this Ministry's Regional Office at Bhopal within 3 months.	Rainwater harvesting is not feasible since the major land use of the said-facility is open fabrication yard, ship- building yard, slipway, jetties etc.
xvi.	Green buffer zone should be provided all around the project area in consultation with local forest department and the report submitted to this Ministry's Regional Office at Bhopal.	Complied Total 24,270 m <sup>2</sup> area has been provided for greenbelt and total 1,625 trees are planted within project premises.

	No product other than those permissible	Noted & Agreed
vo dii	in the Coastal Regulation Zone	We do not store any product other than those permissible
xvii.	Notification, 1991 should be stored in	in the CRZ Notification, 1991 in the CRZ area.
	the Coastal Regulation Zone area.	
В.	G	eneral Conditions
	Construction of the proposed structures	Complied
	Should be undertaken meticulously	The said facility has been constructed conforming to the
	conforming to the existing Central/local	existing Central/local rules and regulations.
	rules and regulations including Coastal	
	Regulation Zone Notification 1991 & its	
i.	amendments. All the construction	
	designs / drawings relating to the	
	proposed construction activities must	
	have approvals of the concerned State	
	Government Department/ Agencies.	
	Adequate provisions for infrastructure	Complied
	facilities such as water supply, fuel,	Necessary amenities such as drinking water, fuel,
	sanitation, etc. should be ensured for	sanitation etc. were provided to the construction workers
ii.	construction workers during the	during the construction phase to avoid felling of
	construction phase of the project so as	trees/mangroves and water pollution.
	to avoid felling of trees/ mangroves and	Č I
	pollution of water and the surroundings.	
iii.	The project authorities must make	Complied
		Page   21

necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing а 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 component 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.

We have already undertaken necessary arrangements for disposal of sewage & solid waste. Since the manufacturing process principally involves cutting, welding & fabrication of structural steels, only sewage is generated, which is treated in the STP and the treated sewage is utilized for plantation / gardening purposes within premises as prescribed by GPCB.

The analysis reports of the same are attached as **Annexure – 3.** All results of final STP outlet are well within the GPCB norms. Summary of the inlet and outlet results are as below:

Parameter			Result	
Faran	Parameter			Outlet
рН	pH-	Min	6.70	7.06
рп	Unit	Max	7.08	7.42
Total	mg/L	Min	75	20
Suspended Solids (T.S.S)		Max	92	26
BOD ( 3 days	ma/l	Min	65	14
at 27ºC)	mg/L	Max	78	14
Residual	ma/l	Min	NIL	0.6
Chlorine		Max	NIL	0.6

Monthly noise monitoring is being regularly done. Noise report and monthly comparison of noise report are attached as **Annexure-4.** Overall ambient noise level was found in the range of 55 - 72 dB (A) in day time and 50 -67 dB (A) in night time. During day time & night time, all results were well within the prescribed limit.

Location			Day Time dB(A)	Night Time dB(A)
MC Shop	0.5 m	Min	57	54
MC Shop	0.5 m	Max	60	58
Nr. ADM	10 m	Min	55	52
Building	10 111	Max	61	57
Jetty 2	10 m	Min	69	56
Jelly 2		Max	70	60
lotty 1	5 m	Min	66	56
Jetty 1	5 m	Max	69	62
Ware House	0.5 m	Min	66	57
(Paint)		Max	70	59

	етр	5 m	Min	66	57	
	STP		Max	71	61	
	Canteen	0.5 m	Min	58	50	
			Max	62	56	
	Gate 2	5 m	Min	65	54	
			Max	69	59	
	SHBD Shop -1	1 m	Min	70	62	
			Max	72	67	
	and the base bis set. Also Manifesting and Also also (D. O. O. C. )					

Monthly Ambient Air Monitoring and Stack (D.G. Set 380 KVA) Monitoring has been carried out and summary are as under. The analysis reports of the same are attached as **Annexure-1 & 2**.

LOCATION		PM <sub>2.5</sub>	<b>PM</b> <sub>10</sub>	SO <sub>2</sub>	NOx
		(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
Nr.	Min	33.6	64.2	10.3	16.7
Main Gate	Max	40.2	76.4	12.5	20.6
	Min	33.5	64.2	9.8	18.4
Jetty 2	Max	43.5	69.5	14.9	19.3
Shop	Min	40.9	80.5	12.5	18.8
1	Max	41.9	84.3	17.5	22.4
	Min	33.9	68.7	10.5	20.2
Jetty 1	Мах	36.4	78.5	13.1	22.4

Stack Attached to	Parameter	Unit	Re	sult
	РМ	mg/Nm3	Min	78.8
			Max	84.6
D.G.Set	SO2 NOx	ppm	Min	21.6
(380 KVA)			Max	24.1
		ppm	Min	17.3
			Max	19.0

	The proponent shall obtain the requisite
	consents for discharge of effluents and
	emissions under the Water (Prevention
iv.	and Control of Pollution) Act, 1974 and
	the Air (prevention and Control of
	Pollution) Act, 1981, from the Gujarat
	State Pollution Control Board before

#### Complied

We have obtained Consent To Establish (CTE) from GPCB vide letter no. GPCB/CE/SRT-1736/10826 dated 10<sup>th</sup> April, 2007 and Consolidated Consent & Authorization (CC&A) from GPCB vide letter No. AWH-122827 Date of issue: 07/02/2019, which is valid up to 24/12/2028.

	commissioning of the project and a copy of each of these shall be sent to this Ministry.	
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.	Noted & Agreed Since the manufacturing process principally involves cutting, welding & fabrication of structural steels, only sewage is generated, which is treated in the STP and the treated sewage is utilized for plantation/gardening purposes within premises as prescribed by GPCB. The record of all the data is mentioned in log book & records of analysis reports are maintained and made available for inspection to the concerned State/Central officials during their visits anytime.
vi.	In order to carry out the environmental monitoring during the operational phase of the project, 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.	<b>Complied</b> Environmental monitoring and testing of various environmental parameters is being done on monthly basis by NABL & MOEFCC approved laboratory.
vii	The sand dunes and mangroves. If any, on the site should not be disturbed in any way.	<b>Complied</b> We have not disturbed the sand dunes and mangroves during the construction and operational phase.
vii.	A copy of the clearance letter will be marked to the concerned Panchayat/ local NGO, if any, from whom any suggestion/representation has been received while processing the proposal.	Noted & Agreed A copy of the clearance letter has been marked to the panchayat, No suggestions received yet from Panchayat/ local NGO, we will do as and when required.
ix.	The Gujarat State Pollution Control board should display copy of the clearance letter at the Regional Office, District Industries Centre and Collector's office/ Tehsildar's office for 30 days.	<b>Complied</b> GPCB had displayed a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's office/Tehsildar's office for 30 days.
x	The funds earmarked for environment	Agreed & Noted
		Page   24

	and the second	
	protection measures should be maintained in a separate account and there should be no diversion of these funds for any other purpose. A year-	We believe in sustainable management of natural resources and environment of project site and surrounding areas for which funds will not be a constraint.
	wise expenditure on environmental safeguards should be reported to this Ministry's Regional Office at Bhopal and the State Pollution Control Board.	
xi	Full support should be extended to the officers of this Ministry's Regional Office at Bhopal and the officers of the Central and Sate Pollution Control Boards by the project proponents during their inspection of monitoring purposes, by furnishing full details and action plans including the action taken reports in respect of mitigative measures and other environmental protection activities.	Noted & Agreed. We will provide full support and adequate details to the officers of MoEF&CC/ CPCB/ GPCB during their inspection for the monitoring purposes.
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.	<b>Noted &amp; Agreed.</b> In case of deviation or alteration in the project, company will make a fresh-reference to the MoEF&CC for modification in the clearance conditions.
xiii.	This Ministry reserve the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this ministry.	Noted & Agreed.
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	Noted & Agreed. We will comply with the condition to be stipulated subsequently by the MoEF&CC or any other competent authority, if deemed necessary for environmental protection.

	with.	
	The project proponent should advertise	Complied
	at least in two local newspapers widely	Information on Environmental Clearance has already
	circulated in the regional around the	been advertised on 23-06-2008 in two local newspapers -
	project, one of which shall be in the	Sandesh & Divya Bhaskar and one national newspaper -
	vernacular language of the locality	Indian Express and a copy of the same forwarded to the
	Concerned informing that the project	RO, Bhopal.
	has been accorded environmental	
	clearance and copies of clearance	
	letters are available with the State	
xv	Pollution Control Board and may also	
	be seen at Website of the Ministry of	
	Environment &.Forests at	
	http://www.envforic.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 forwarded to the regional	
	Office of this Ministry at Bhopal.	
	The Project proponents should inform	Agreed & Noted
	the Regional Office at Bhopal as well as	
xvi	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.	

#### SUMMARY

L & T has 65,000 m<sup>2</sup> of modern heavy shops and 3,00,000 m<sup>2</sup> of open fabrication facilities coupled with private jetties/load out facilities, modern offices, training centers, canteens and other industrial utilities and Hazira works is justifiably proud of the team of Workmen, Engineers and Managers developed over last 20 years.

The project involves construction of Ship building and repairing facility at Village-Mora, Surat, Hazira Road, Dist.-Surat which includes, (i) Jetty (L shape with 100 m length and return 32 m), (ii) Slipway (150 m wide and 80 m long), (iii) Ship fabrication/ Repair facility & activities includes Open area for ship building/repair, fabrication sheds/open area for smaller components and Fabrication shed for pipes. The project activity is covered in CRZ-1 (ii) and CRZ (iii) of CRZ notification. Hence CRZ clearance has been obtained from MoEF&CC for the vide letter no. No. 11-76/2007-IA-III dated 18/02/2008. The study has been carried out to comply with the CRZ condition and environment legislation for submission of six monthly compliance report for the same.

The industry has awarded contract for the Environmental monitoring and preparation of six monthly EC compliance report to Ecosystem Resource Management Pvt. Ltd. The consultancy firm has its own well equipped laboratory to measure the pollution parameters related to Environmental Monitoring (Air, Water, Wastewater, Soil) with National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. All monitoring equipment's are available to measure Stack emissions, Ambient Air quality and noise level of various plants.

In this Project Involves two activity carried out 1) ship building activity 2) repairing facility. Our ship building activity has been discontinued but repairing facility for smaller components and Fabrication shed for pipes. The smaller components and pipes are fabricated and transported to the main fabrication shed on the river side for assembling.

Six monthly compliance report along with monitoring data are regularly submitted to the concerned department and during monitoring period of this report, RO visit was not undertaken during this period. All the conditions stipulated in CRZ clearance was compiled by the project proponent during construction phase as well as operation phase.

#### **MEMBERS ASSOCIATED WITH REPORT**

Project Proponent: Mahesh Joshi Head - Central Services Larsen & Toubro Limited, A.M. Naik Heavy Engineering Complex Post Bhatha – 394 510, Dist - Surat, Gujarat Ph. No.: 0261-2807642 E-mail: mahesh.Joshi@larsentoubro.com

#### Team Leader:

Mrs. Rekha Shah (Director - Ecosystem Resource Management Pvt. Ltd.)

#### Team Members (ERM) :

Environmental Monitoring	&	:	Team Leader –	Mr. Krishna Patel
Data Collection			Team Members –	Mr. Harpalsinh Sangdot
Sample Analysis		:	Lab. In charge –	Mr. Sunil Kumar Pandey
			Chemist –	Mr. Bharat Patel
Report Prepared By		:	Mr. Harpalsinh Sangdot	
Report Checked By		:	Mr. Rajatkumar Go	ondaliya
Report Approved By		:	Mrs. Rekha Shah	

Annexure – A: Compliance Report of Letter No. ENV-10-2006-J82-P

S.						
No.	Conditions	Compliance				
	The Executive Vice President, L&T Ltd. has also given follow					
1	The L&T Ltd. will implement all the suggestions and	L&T Ltd. has implemented all the				
	recommendations given by the consultant in their EIA and	suggestions & recommendation given in				
	Risk Assessment report.	EIA.				
2	The L&T Ltd. will bear the cost or the external agency to	Agreed & Noted.				
	be appointed by Forests & Environment Department for					
3	supervising/ monitoring of the proposed activities. The L&T Ltd. will carry out Comprehensive Environmental	Noted				
3	Impact Assessment and Risk Assessment -report.	Noted				
4	The L&T will not tap the ground water to meet the water	Agreed & Noted.				
-	requirement during construction and operational phase.	Agreed & Noted.				
5	The L&T Ltd. will provide adequate amenities to the	L&T Ltd. had already provided amenities				
Ũ	construction labours including water supply, sanitation	to the construction labours during				
	and fuel to ensure that they do not ruin the existing	construction.				
	environment.					
6	The L&T Ltd. will not erect/ construct the labour campus	L&T Ltd. has not constructed labour				
	within CRZ area and solid/ hazardous waste will not be	campus within CRZ area and				
	disposed off in the CRZ area or in sea.	solid/hazardous waste has been				
		disposed as per HWM rules.				
7	The L&T Ltd., will carry out /implement the program	Agreed				
	associated with social-economical up liftment in consultation with the District Collector.					
8	The L&T Ltd. will develop green belt in consultation with	L&T Ltd. has developed green belt within				
0	the Forest Department.	premises.				
9	The L&T Ltd. will support financially the National Green	L&T Ltd. has supported financially to the				
Ū	Corps Scheme being implemented by GEER Foundation	GEER Foundation in Gujarat.				
	in Gujarat, in consultation with Forests and Environment	,				
	Department.					
	SPECIFIC CONDITIONS					
1	The L&T Ltd. shall strictly adhere to the provisions of the	Complied.				
	CRZ Notification, .1991, and its amendments issued by					
	the Ministry of Environment and Forests, GOI, from time					
2	to time.					
2	The L&T Ltd. shall obtain all necessary clearances permissions from different Government Departments /	L&T Ltd. has taken all the necessary Clearances from different Government				
	Agencies before commencing any construction activity	Departments / Agencies before				
	related to the proposed project.	commencing any construction activity				
		related to the proposed project.				
3	The L&T Ltd. shall carry out the construction activities	Complied				
	either in the CRZ area or into the sea I estuary only after	· ·				
	having the detailed study with respect to chances of					
	erosion/accretion due to the proposed activities conducted					
	through the institute of National repute.					
4	The L&T Ltd. shall minimize the construction period to	L&T Ltd. has completed the construction				
	reduce the potential negative impacts that may arise	activity within given time period after				
	during the construction phase. The construction drawing	getting approval of construction				
	shall have to be got approved from the concerned Government Departments.	drawings from the concerned Government Department.				
5	All necessary permissions from different offices of the	All the necessary permission has been				
		Page   30				

Page | 30

	Government shall be obtained before commencing the construction activities.	obtained from the concerned authority before commencing the construction activities.
6	The L&T Ltd. shall strictly implement the measures suggested in the EIA report for mitigation of likely adverse impacts on coastal and marine environment.	Complied
7	There shall be no discharge of any kind of wastewater / sewage / effluent into the creek / sea or in the CRZ areas.	Agreed & Noted.
8	Toward mitigation of impacts and corporate social responsibility, the L&T Ltd. shall take up the mangrove plantation in 100 ha. Area.	L&T Ltd. has Successfully Planted and Regenerated 50 ha of mangroves area at Katpor village, Ta. Hansot, Di. Bharuch and 100 ha Karanj Village, olpad Taluka, Surat District.
9	The L&T Ltd. shall commission a comprehensive EIA for the proposed activities with specific emphasis on the coastal and marine environment and all the suggestions/recommendations for the purpose of environmental conservation and management given in the said report shall also be strictly implemented.	Complied
10	A full-fledged environmental management cell with qualified staff shall be created for the purpose of environmental monitoring and implementation of the environmental management plan.	Environmental Management Cell of company is regularly monitoring the implementation of this project.
		VICE PRESIDENT
		(EHS) AM (EHS)
		(INCHARGE & TEAM)
	GENERAL CONDITIONS	
11	No groundwater Shall be tapped to meet with the water requirements during the construction and/or operation phases.	Company had not tapped ground water during the construction phase. Presently they are not tapping ground water for the domestic/other purposes. The source of water for their facility is surface water.
12	The L&T Ltd. shall not discharge any kind of waste including the construction debris into the river/ estuary or into the CRZ.	Complied
13	The L&T Ltd. shall participate financially for any common facility that may be established or any common study that may be carried out for the Gulf of Khambhat region for environmental protection and/or management purpose.	Agreed & Noted.
14	The L&T Ltd. shall have to face the consequences whatsoever due to implementation of the Kalpsar Project proposed by the Government of Gujarat and shall have to take all necessary actions as maybe desired by the Government from time to time.	Agreed & Noted.
15	The L&T Ltd. shall prepare and furnish the detailed	L&T Ltd. has prepared Disaster

	Disaster Management Plan to the concerned offices including the District Authorities and this Department.	Management Plan to the concerned offices including the District Authorities and this Department.
16	The L&T Ltd. shall ensure that the construction camps are kept outside the CRZ areas and the construction labour are provided with adequate amenities like drinking water, fuel, sanitation, etc. to ensure that the existing environmental condition is not deterioted by them.	Complied
17	The L&T Ltd. shall bear the cost of the external agency that may be appointed by this Department for supervision / monitoring of proposed activities.	Agreed & Noted.
18	The L&T Ltd. shall take up massive mangrove plantation activities in approx. 100 ha. of area as well as greenbelt activities in consultation with the GEER Foundation and the Forest Department.	L&T Ltd. has Successfully Planted and Regenerated 50 ha of mangroves area at Katpor village, Ta. Hansot, Di. Bharuch and 100 ha Karanj Village, olpad Taluka, Surat District .s
19	The L&T Ltd. shall support financially the National Green Corps Scheme being implemented by the GEER Foundation in Gujarat in Consultation with this Department.	L&T Ltd. has supported financially to National Green Corps Scheme.
20	The L&T Ltd. shall take up socio-economic upliftment activities in consultation with the District Collector / DDO. A separate budget shall be earmarked for this purpose.	Agreed & Noted. L & T Management believes in sustainable management of natural resources and environment of project site and surrounding areas for which funds has been allotted.
21	An Environmental Cell shall be constituted with technically qualified staff to implement the Environment Management Plan. A separate budget shall be earmarked annually for this purpose and the details shall be furnished to various regulatory authorities from time to time.	Environmental Management Cell of company is regularly monitoring the implementation of this project.
22	The L&T Ltd. shall furnish the environmental audit report including the aspects on coastal and marine environment, to this Department every year.	Complied
23	The L&T Ltd. shall regularly submit the half-yearly compliance report on the conditions stipulated by this Department.	Complied Six Monthly compliance report has been regularly submitted at Regional Office at Bhopal.
24	Any other condition that may be stipulated by this Department from time to time for environmental protection / management purpose.	Agreed & Noted.

**ANALYSIS REPORTS** 

Annexure -1 – Ambient Air Monitoring Reports.



Issue Date: 11/04/2024

	<u>TEST REPORT</u>							
AMBIENT AIR QUALITY MONITORING REPORT								
	<u>TEST I</u>	REPORT NO:QF/7.8/	01 B/AMBIENT/L&T/R	ev.0-00/04-2024				
Name o	Name of the Industry : M/s. Larsen & Toubro Limited							
		Hazira Works, Dis	st. Surat					
Sample	Description	: Ambient Air Qual	ity Monitoring					
Sample	Collected On	:01/04/2024						
Sample	Received on	:02/04/2024						
Sample	Analyzed& Completion	:02/04/2024 & 03	/04/2024					
Quantit	y/No. of Sample	: 1-1 no. of filter pa	aper for $PM_{10} \& PM_{2.5}$ ,	approx. 25 ml exposed	scrubbing media			
		for $SO_2$ and $NO_X$ in	n 1-1 no. of polyethyle	ne bottle. /16 Nos.				
Packing	/ Seal	: Packed						
Protoco	l (Purpose)	: As per work orde	r					
Height f	from Ground Level (m)	: 3.0						
Average	e Wind speed (Km/hr)	: 6.3						
Average	e Temperature (°C)	: 30.0						
Average	Average Humidity (%) : 32.0							
Domina	Dominant wind direction : WSW							
Samplin	Sampling Procedure : As per Test method given for the following parameters & instrument manual							
Sample	Sample Collected By : ERM Team							
		Parameters						
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen			
No.	Location	Matter (PM <sub>2.5</sub> ) (PM <sub>10</sub> ) (SO <sub>2</sub> ) (NO <sub>2</sub> )						

Sr. No.	Location	Fine Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	RSPM (PM <sub>10</sub> ) μg/m³	Sulphur Dioxide (SO₂) µg/m <sup>3</sup>	Oxides of Nitrogen (NO <sub>2</sub> ) µg/m <sup>3</sup>
1.	Near Main Gate	37.8	76.4	12.5	20.6
2.	Jetty 2	43.5	68.7	14.9	18.9
3.	Shop 1	40.9	80.5	17.5	22.4
4.	Jetty 1	36.4	71.3	12.8	20.7
	GPCB Limit	60	100	80	80
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006

Note: (1) These results relate to the sample tested only.

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 Website: www.ecosystemindia.com



Issue Date: 11/05/2024

	<u>TEST REPORT</u>							
	AMBIENT AIR QUALITY MONITORING REPORT							
	TEST REPORT NO:QF/7.8/01 B/AMBIENT/L&T/Rev.0-00/05-2024							
Name o	Name of the Industry : M/s. Larsen & Toubro Limited							
		Hazira Works, Dis	st. Surat					
Sample	Description	: Ambient Air Qual	ity Monitoring					
Sample	Collected On	:01/05/2024						
Sample	Received on	:02/05/2024						
Sample	Analyzed& Completion	:02/05/2024 & 03	/05/2024					
Quantit	ty/No. of Sample	: 1-1 no. of filter pa	aper for $PM_{10} \& PM_{2.5}$ ,	approx. 25 ml exposed	l scrubbing media			
		for $SO_2$ and $NO_X$ in	n 1-1 no. of polyethyle	ne bottle. /16 Nos.				
Packing	g/ Seal	: Packed						
Protoco	ol (Purpose)	: As per work orde	r					
Height	from Ground Level (m)	: 3.0						
Average	e Wind speed (Km/hr)	:10.3						
Average	verage Temperature (°C) : 33.0							
Average	e Humidity (%)	:23.0						
Domina	Dominant wind direction : SW							
Samplin	Sampling Procedure : As per Test method given for the following parameters & instrument manual							
Sample	Collected By	: ERM Team						
		Parameters						
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen			
No.	Location	Matter (PM <sub>2</sub> <sub>5</sub> )	(PM <sub>10</sub> )	(SO <sub>2</sub> )	(NO <sub>2</sub> )			

Sr. No.	Location	Fine Particulate Matter (PM <sub>2.5</sub> )	RSPM (PM <sub>10</sub> )	Sulphur Dioxide (SO <sub>2</sub> )	Oxides of Nitrogen (NO <sub>2</sub> )
		μg/m³	μg/m³	μg/m³	µg/m³
1.	Near Main Gate	33.6	64.2	10.3	16.7
2.	Jetty 2	36.8	69.5	9.8	18.4
3.	Shop 1	41.9	84.3	13.9	19.6
4.	Jetty 1	36.4	78.5	10.5	20.2
	GPCB Limit	60	100	80	80
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006

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Issue Date: 12/06/2024

		:	TEST REPORT							
	AMBIENT AIR QUALITY MONITORING REPORT									
	<u>TEST I</u>	REPORT NO:QF/7.8/	01 B/AMBIENT/L&T/R	<u>ev.0-00/06-2024</u>						
Name o	of the Industry	: M/s. Larsen & To	ubro Limited							
		Hazira Works, Dis	st. Surat							
Sample	Description	: Ambient Air Qual	ity Monitoring							
Sample	Collected On	:01/06/2024								
Sample	Received on	:03/06/2024								
Sample	Analyzed& Completion	:03/06/2024 & 04	/06/2024							
Quantit	:y/No. of Sample	: 1-1 no. of filter pa	aper for $PM_{10} \& PM_{2.5}$ ,	approx. 25 ml exposed	scrubbing media					
		for $SO_2$ and $NO_X$ in	n 1-1 no. of polyethyle	ne bottle. /16 Nos.						
Packing	cking/ Seal : Packed									
Protoco	ol (Purpose)	: As per work orde	r							
Height	from Ground Level (m)	: 3.0								
Average	e Wind speed (Km/hr)	:17.3								
Average	e Temperature (°C)	: 35.0								
Average	e Humidity (%)	:47.0								
Domina	ant wind direction	:SSW								
Samplir	ng Procedure	: As per Test meth	od given for the followi	ing parameters & instr	ument manual					
Sample	Collected By	: ERM Team								
			Parai	meters						
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen					
No.	Location	Matter (PM <sub>25</sub> )	(PM <sub>10</sub> )	(SO <sub>2</sub> )	(NO <sub>2</sub> )					

Sr. No.	Location	Fine Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	RSPM (PM <sub>10</sub> ) μg/m <sup>3</sup>	Sulphur Dioxide (SO₂) µg/m <sup>3</sup>	Oxides of Nitrogen (NO <sub>2</sub> ) μg/m <sup>3</sup>
1.	Near Main Gate	40.2	76.4	10.3	18.5
2.	Jetty 2	33.5	64.2	11.9	19.3
3.	Shop 1	41.1	83.5	12.5	18.8
4.	Jetty 1	33.9	68.7	13.1	22.4
	GPCB Limit	60	100	80	80
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006

Note: (1) These results relate to the sample tested only.

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## Issue Date: 01/08/2024

		AMBIENT AIR QU	JALITY MONITORING R	REPORT						
	<u>TEST I</u>	REPORT NO:QF/7.8/	01 B/AMBIENT/L&T/R	ev.0-00/07-2024						
Name o	Name of the Industry : M/s. Larsen & Toubro Limited									
		Hazira Works, Dis	st. Surat							
Sample	Description	: Ambient Air Quality Monitoring								
Sample	Collected On	:03/07/2024								
Sample	Received on	:04/07/2024								
Sample	Analyzed& Completion	:04/07/2024 & 05	/07/2024							
Quantit	ty/No. of Sample	: 1-1 no. of filter pa	aper for $PM_{10}$ & $PM_{2.5}$ ,	approx. 25 ml exposed	scrubbing media					
		for $SO_2$ and $NO_X$ ir	n 1-1 no. of polyethyler	ne bottle. /16 Nos.						
Packing	g/ Seal	: Packed								
Protoco	ol (Purpose)	: As per work orde	r							
Height	from Ground Level (m)	: 3.0								
Average	e Wind speed (Km/hr)	:14.0								
Average	e Temperature (°C)	: 30.0								
Average	e Humidity (%)	:79.0								
Domina	ant wind direction	:S								
Samplin	ng Procedure	: As per Test metho	od given for the followi	ing parameters & instr	ument manual					
Sample	Collected By	: ERM Team								
			Parar	neters						
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen					
No.	Location	Matter (PM <sub>2.5</sub> )	(PM <sub>10</sub> )	(SO <sub>2</sub> )	(NO <sub>2</sub> )					
	1	, 2	1 2	, 2	, ,					

**TEST REPORT** 

Sr. No.	Location	Fine Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>	RSPM (ΡΜ <sub>10</sub> ) μg/m³	Sulphur Dioxide (SO₂) µg/m³	Oxides of Nitrogen (NO₂) µg/m³		
1.	Near Main Gate	35.4	75.2	16.7	23.4		
2.	Jetty 2	38.2	78.4	19.6	25.2		
3.	Shop 1	42.0	75.0	18.5	24.8		
4.	Jetty 1	34.6	68.8	15.2	22.0		
	GPCB Limit	60	100	80	80		
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006		

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Issue Date: 02/09/2024

			EST REPORT					
			ALITY MONITORING					
		REPORT NO:QF/7.8/0		<u>Rev.0-00/08-2024</u>				
Name o	of the Industry	: M/s. Larsen & Tou	ubro Limited					
		Hazira Works, Dist	t. Surat					
Sample Description : Ambient Air Quality Monitoring								
Sample	Collected On	:01/08/2024						
Sample	Received on	:02/08/2024						
Sample	Analyzed& Completion	: 02/08/2024 & 03/	08/2024					
Quantit	:y/No. of Sample	: 1-1 no. of filter pa	per for PM <sub>10</sub> & PM <sub>2.5</sub>	, approx. 25 ml expose	d scrubbing media			
		for $SO_2$ and $NO_X$ in	1-1 no. of polyethyl	ene bottle. /16 Nos.				
Packing	/ Seal	: Packed						
Protoco	ol (Purpose)	: As per work order						
Height	from Ground Level (m)	: 3.0						
Average	e Wind speed (Km/hr)	: 12.0						
Average	e Temperature (°C)	:28.0						
Average	e Humidity (%)	:86.0						
Domina	ant wind direction	:S						
Samplin	ng Procedure	: As per Test metho	d given for the follo	wing parameters & inst	rument manual			
Sample	Collected By	: ERM Team						
			Par	ameters				
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen			
No.	LUCALIUN	Matter (PM <sub>2.5</sub> )	(PM10)	(SO <sub>2</sub> )	(NO <sub>2</sub> )			
		μg/m³	μg/m³	μg/m³	μg/m³			

INO.		Watter (Pivi2.5)	(PIVI <sub>10</sub> )	(302)	
		μg/m³	µg/m³	µg/m³	μg/m³
1.	Near Main Gate	34.2	78.8	16.4	20.7
2.	Jetty 2	30.8	68.6	15.9	18.5
3.	Shop 1	38.9	78.8	22.2	24.8
4.	Jetty 1	36.4	72.5	16.0	19.2
	GPCB Limit	60	100	80	80
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006

Note: (1) These results relate to the sample tested only.

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Issue Date: 01/10/2024

	<u>TEST REPORT</u>								
	AMBIENT AIR QUALITY MONITORING REPORT								
	TEST REPORT NO:QF/7.8/01 B/AMBIENT/L&T/Rev.0-00/09-2024								
Name o	me of the Industry : M/s. Larsen & Toubro Limited								
Hazira Works, Dist. Surat									
Sample	Description	: Ambient Air Qual	ity Monitoring						
Sample	Collected On	:02/09/2024							
-	Received on	:03/09/2024							
Sample	Analyzed& Completion	:03/09/2024 & 04	/09/2024						
Quantit	y/No. of Sample	: 1-1 no. of filter pa	aper for PM <sub>10</sub> & PM <sub>2.5</sub> ,	approx. 25 ml exposed	scrubbing media				
		for $SO_2$ and $NO_X$ in	n 1-1 no. of polyethyler	ne bottle. /16 Nos.					
Packing		: Packed							
	l (Purpose)	: As per work orde	r						
-	from Ground Level (m)	: 3.0							
-	e Wind speed (Km/hr)	:9.3							
-	e Temperature (°C)	:27.0							
•	e Humidity (%)	:85.0							
	int wind direction	:W							
-	ng Procedure	: As per Test meth	od given for the followi	ing parameters & instr	ument manual				
Sample	Collected By	: ERM Team							
			Parar	meters					
Sr.	Location	Fine Particulate	RSPM	Sulphur Dioxide	Oxides of Nitrogen				
No.	LUCALIUII	Matter (PM <sub>2.5</sub> )	(PM <sub>10</sub> )	(SO <sub>2</sub> )	(NO <sub>2</sub> )				
		µg/m³	µg/m³	μg/m³	μg/m³				

NO.			(FIVI10)	(302)	
		μg/m³	μg/m³	μg/m³	μg/m³
1.	Near Main Gate	38.5	72.5	20.5	24.2
2.	Jetty 2	32.8	74.2	16.0	20.6
3.	Shop 1	34.2	77.2	19.5	25.2
4.	Jetty 1	38.0	76.8	18.2	23.0
	GPCB Limit	60	100	80	80
	Test Method	IS 5182 (Part 24):2019	IS 5182 (Part 23) : 2006	IS 5182 (Part 2) : 2001	IS 5182 (Part 6) :2006

Note: (1) These results relate to the sample tested only.

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Annexure -2 – Stack Monitoring Reports.

Issue Date: 11/04/2024

		ILJI	<u>NLFORT</u>		
		STACK AN	ALYSIS REPORT		
<u>TES1</u>	REPORT I	NO:QF/7.8/01	C/STACK/L&T/Rev.0-0	00/04-2024	<u>1</u>
Name of the Industry	: M/s. La	rsen & Toubro	o Limited		
	Hazira V	Norks, Dist. Sı	urat		
Sample Description	: Stack N	Ionitoring			
Stack attached to	: Stack at	tached to D.G	Set (380 KVA)		
Date of Sampling	:01/04/2	2024			
Sample Received on	:02/04/2	2024			
Sample Analyzed & Completion	:02/04/2	2024 & 03/04/	2024		
Quantity/No. of Sample					g solution $SO_2$ (in Polyethylene DA flask for NOx /3 Nos.
Protocol (Purpose)/ Packing	: As per \	Nork Order/ P	acked		
Packing/ Seal	: Packed				
Height of Stack (m)	: Approx	. 09			
Type of Fuel	: Diesel				
Temperature of Flue Gas	:126 <sup>0</sup> C				
Velocity of flue Gas	:7.2 m/s				
Sampling Method	: Stack ki	t manual & IS	11255 as per respectiv	ve paramet	ers
Sample Collected By	: ERM Te	am			
Sr No Parameters		Unit	Results	Limits	Test Method

**TEST REPORT** 

Sr. No.	Parameters	Unit	Results	Limits	Test Method
1.	Particulate Matter (PM)	mg/Nm <sup>3</sup>	84.6	150	IS 11255 (Part 1) :1985
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	24.1	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	19.0	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

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Issue Date: 11/05/2024

			<u>TEST</u>	REPORT			
			STACK AN	ALYSIS REPORT			
	<u>TEST</u>	REPORT N	NO:QF/7.8/01	C/STACK/L&T/Rev.0-	00/05-2024	<u>1</u>	
Name of th	ne Industry	: M/s. La	rsen & Toubro	o Limited			
		Hazira V	Works, Dist. Su	urat			
Sample De	scription	: Stack N	lonitoring				
Stack attac	ched to	: Stack at	ttached to D.G	Set (380 KVA)			
Date of Sau	mpling	:01/05/2	2024				
Sample Re	ceived on	:02/05/2	2024				
Sample An	alyzed & Completion	:02/05/2	2024 & 03/05/	2024			
Quantity/N	No. of Sample			•••		g solution SO <sub>2</sub> (in Polyethylene DA flask for NOx /3 Nos.	
Protocol (P	Purpose)/ Packing		Nork Order/ P			DA Hask for NOX / 5 NOS.	
Packing/ Se	• • •	: Packed	-	ackeu			
Height of S		: Approx					
Type of Fu	• •	: Diesel	. 05				
	ire of Flue Gas	: 124 °C					
Velocity of flue Gas :7.8 m/s							
Sampling N	Viethod	: Stack ki	Stack kit manual & IS 11255 as per respective parameters				
Sample Co	llected By	: ERM Te	am				
Sr. No.	Parameters		Unit	Results	Limits	Test Method	
1	Dortioulate Matter		mag / Num <sup>3</sup>	70.0	100	IC 112FF (Dout 1) 100F	

-------

Sr. NO.	Parameters	Unit	Results	LIMITS	l est iviethod
1.	Particulate Matter (PM)	mg/Nm <sup>3</sup>	78.8	150	IS 11255 (Part 1) :1985
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	21.6	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	17.3	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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(Haresh Ahir)

Issue Date: 12/06/2024

		STACK AN	ALYSIS REPORT		
<u>TEST</u>	REPORT N	NO:QF/7.8/01	C/STACK/L&T/Rev.0-0	00/06-2024	<u>1</u>
Name of the Industry	: M/s. La	rsen & Toubro	o Limited		
	Hazira \	Works, Dist. Su	urat		
Sample Description	: Stack N	lonitoring			
Stack attached to	: Stack at	ttached to D.G	Set (380 KVA)		
Date of Sampling	:01/06/2	2024			
Sample Received on	:03/06/2	2024			
Sample Analyzed & Completion	:03/06/2	2024 & 04/06/	2024		
Quantity/No. of Sample					g solution $SO_2$ (in Polyethylene DA flask for NOx /3 Nos.
Protocol (Purpose)/ Packing	: As per \	Nork Order/ P	acked		
Packing/ Seal	: Packed				
Height of Stack (m)	: Approx	. 09			
Type of Fuel	: Diesel				
Temperature of Flue Gas	:126 <sup>0</sup> C				
Velocity of flue Gas	: 7.0 m/s				
Sampling Method	: Stack ki	t manual & IS	11255 as per respectiv	e paramet	ers
Sample Collected By	: ERM Te		· ·	•	
Sr No Parameters		Unit	Results	Limits	Test Method

**TEST REPORT** 

Sr. No.	Parameters	Unit	Results	Limits	Test Method
1.	Particulate Matter (PM)	mg/Nm <sup>3</sup>	82.0	150	IS 11255 (Part 1) :1985
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	22.3	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	17.5	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

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(Haresh Ahir)

#### Issue Date: 01/08/2024

## <u>TEST REPORT</u> <u>STACK ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 C/STACK/L&T/Rev.0-00/07-2024</u>

Name of th	ne Industry	: M/s. La	rsen & Toubro	o Limited		
		Hazira \	Norks, Dist. Sı	urat		
Sample De	scription	: Stack N	lonitoring			
Stack attac	hed to	: Stack at	tached to D.G	Set (380 KVA)		
Date of Sar	mpling	:03/07/2	2024			
Sample Re	ceived on	:04/07/2	2024			
Sample An	alyzed & Completion	:04/07/2	2024 & 05/07/	2024		
Quantity/N	No. of Sample	: 1 No. Tl	nimble for PM	, Approx.50 ml expose	d absorbing	g solution SO <sub>2</sub> (in Polyethylene
		Bottle),	Approx. 25ml	. exposed absorbing so	olution in P	DA flask for NOx /3 Nos.
Protocol (P	Purpose)/ Packing	: As per \	Nork Order/ P	acked		
Packing/ So	eal	: Packed				
Height of S	tack (m)	: Approx	. 09			
Type of Fu	el	: Diesel				
Temperatu	ire of Flue Gas	:120 °C				
Velocity of	flue Gas	:7.2m/s				
Sampling N	/lethod	: Stack ki	t manual & IS	11255 as per respectiv	e paramet	ers
Sample Co	llected By	: ERM Te	am			
Sr. No.	Parameters		Unit	Results	Limits	Test Method
1.	Particulate Matter	(PM)	mg/Nm <sup>3</sup>	79.2	150	IS 11255 (Part 1) :1985

		11.8/ 1111	13.2	150	10 11200 (1 art 1) 11900
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	25.3	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	21.6	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

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AUTHORISED SIGNATORY (Haresh Ahir)

#### Issue Date: 02/09/2024

## <u>TEST REPORT</u> <u>STACK ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 C/STACK/L&T/Rev.0-00/08-2024</u>

Name of th	ne Industry	: M/s. La	rsen & Toubro	o Limited		
		Hazira \	Norks, Dist. Su	urat		
Sample De	scription	: Stack N	Ionitoring			
Stack attac	ched to	: Stack at	ttached to D.G	Set (380 KVA)		
Date of Sar	mpling	:01/08/2	2024			
Sample Ree	ceived on	:02/08/2	2024			
Sample An	alyzed & Completion	:02/08/2	2024 & 03/08/	2024		
Quantity/N	No. of Sample	: 1 No. Tl	himble for PM	, Approx.50 ml expose	d absorbing	g solution SO <sub>2</sub> (in Polyethylene
		Bottle),	Approx. 50ml	exposed absorbing so	olution in P	DA flask for NOx /3 Nos.
Protocol (P	Purpose)/ Packing	: As per \	Nork Order/ P	acked		
Packing/ Se	eal	: Packed				
Height of S	itack (m)	: Approx	. 09			
Type of Fue	el	: Diesel				
Temperatu	re of Flue Gas	: 122 °C				
Velocity of	flue Gas	: 7.6 m/s				
Sampling N	Vethod	: Stack ki	t manual & IS	11255 as per respectiv	e paramet	ers
Sample Col	llected By	: ERM Te	am			
Sr. No.	Parameters		Unit	Results	Limits	Test Method
1	Darticulate Matter		ma/Nm <sup>3</sup>	70.0	150	IS 11255 (Dart 1) -1085

0111101	i di di lictero	onic	nesures	Liiiito	i cot method
1.	Particulate Matter (PM)	mg/Nm <sup>3</sup>	79.0	150	IS 11255 (Part 1) :1985
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	24.1	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	20.6	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

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Issue Date: 01/10/2024

			<u>TEST</u>	REPORT		
			STACK AN	ALYSIS REPORT		
	TEST	REPORT	NO:QF/7.8/01	C/STACK/L&T/Rev.0-	00/09-2024	<u>1</u>
Name of th	ne Industry	: M/s. La	rsen & Toubro	o Limited		
		Hazira \	Works, Dist. Sı	urat		
Sample De	scription	: Stack N	lonitoring			
Stack attac	hed to	: Stack at	ttached to D.G	Set (380 KVA)		
Date of Sa	mpling	:02/09/2	2024			
Sample Re	ceived on	:03/09/2	2024			
Sample An	alyzed & Completion	:03/09/2	2024 & 04/09/	2024		
Quantity/N	lo. of Sample			•••		g solution SO2 (in Polyethylene 2DA flask for NOx /3 Nos.
Protocol (P	Purpose)/ Packing		Work Order/ P			DA hask for NOX75 Nos.
Packing/ S	eal	: Packed				
Height of S	tack (m)	: Approx	. 09			
Type of Fu	el	: Diesel				
Temperatu	re of Flue Gas	: 124 °C				
Velocity of	flue Gas	: 7.8 m/s	;			
Sampling N	/lethod	: Stack ki	it manual & IS	11255 as per respectiv	ve paramet	ers
Sample Co	llected By	: ERM Te	am			
Sr. No.	Parameters		Unit	Results	Limits	Test Method
1	Particulate Matter	(DM)	mg/Nm <sup>3</sup>	82.6	150	IS 11255 (Part 1) ·1985

	i di di lictero	•			
1.	Particulate Matter (PM)	mg/Nm <sup>3</sup>	82.6	150	IS 11255 (Part 1) :1985
2.	Sulphur Dioxide (SO <sub>2</sub> )	ppm	25.1	100	IS 11255 (Part 2) :1985
3.	Oxides of Nitrogen (NOx)	ppm	20.3	50	IS 11255 (Part 7) :2005

Note: (1) These results relate to the sample tested only.

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Annexure -3 – Sewage Analysis Reports.



## TEST REPORT SEWAGE SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/04-2024

Name o		M/s. Larsen 8			• •	_
	,	Hazira Works				
Sample	Description	: Sewage Samp	le			
Mode O	of Sampling	Grab				
Sample	Collected On	: 01/04/2024				
Sample	Received on	: 02/04/2024				
Sample	Analyzed & Completion	: 02/04/2024 t	o 09/04/20	)24		
Quantit	y/No. of Sample	: 2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.	
Packing	/ Seal	: Packed				
Protoco	· · ·	As per work c				
Samplin	ng Method	APHA 23 <sup>rd</sup> Ed	ition 2017,	Part 1000 S	ection 1060 B	
Sample	Collected By	: ERM Team				
Sr.	_		Re	sult		
No.	Parameters	Unit	Inlet	Outlet	Consent Limit	Test Method
1.	pH at 25 °C	pH-Unit	6.79	7.18	6.5-8.5	IS 3025 (Part 11): 2022
2.	Total Suspended Solids	mg/L	92	20	30	IS 3025 (Part 17): 2022
3.	BOD (3 days at 27 °C)	mg/L	78	16	20	IS 3025 (Part 44): 1993
4.	Free Residual Chlorine	mg/L	Nil	0.6	>0.5	IS 3025 (Part 26): 2021

Note: (1) These results relate to the sample tested only.

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## TEST REPORT SEWAGE SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/05-2024

Name o	of the Industry	: M/s. Larsen &	& Toubro Li	imited		
		Hazira Works	, Dist. Sura	it		
Sample	Description	: Sewage Samp	le			
Mode O	Of Sampling	: Grab				
Sample	Collected On	:01/05/2024				
Sample	Received on	:02/05/2024				
Sample	Analyzed & Completion	:02/05/2024 t	o 08/05/20	)24		
Quantit	xy/No. of Sample	: 2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.	
Packing	/ Seal	: Packed				
Protoco	ol (Purpose)	: As per work of	order			
Samplin	ng Method	: APHA 23 <sup>rd</sup> Ed	tion 2017,	Part 1000 S	ection 1060 B	
Sample	Collected By	: ERM Team				
Sr.			Re	sult		
No.	Parameters	Unit	Inlet	Outlet	Consent Limit	Test Method
1.	pH at 25 °C	pH-Unit	6.70	7.06	6.5-8.5	IS 3025 (Part 11): 2022
1.						
2.	Total Suspended Solids	mg/L	88	26	30	IS 3025 (Part 17): 2022
	Total Suspended Solids BOD (3 days at 27 °C)	mg/L mg/L	88 78	26 18	30 20	IS 3025 (Part 17): 2022 IS 3025 (Part 44): 1993

Note: (1) These results relate to the sample tested only.

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Issue Date: 12/06/2024

## TEST REPORT SEWAGE SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/06-2024

Name o	of the Industry	: M/s. Larsen &	& Toubro Li	imited		
		Hazira Works	, Dist. Sura	it		
Sample	Description	: Sewage Samp	ole			
Mode O	Of Sampling	: Grab				
Sample	Collected On	:01/06/2024				
Sample	Received on	:03/06/2024				
Sample	Analyzed & Completion	: 03/06/2024 t	o 10/06/20	)24		
Quantit	y/No. of Sample	: 2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.	
Packing	/ Seal	: Packed				
Protoco	ol (Purpose)	: As per work o	order			
Samplin	ng Method	: APHA 23 <sup>rd</sup> Edi	ition 2017,	Part 1000 S	ection 1060 B	
Sample	Collected By	: ERM Team				
Sr.	-		Re	sult		
Sr. No.	Parameters	Unit	Re: Inlet	sult Outlet	Consent Limit	Test Method
	Parameters pH at 25 °C	Unit pH-Unit	-		Consent Limit 6.5-8.5	Test Method IS 3025 (Part 11): 2022
No.			Inlet	Outlet		
No. 1.	pH at 25 °C	pH-Unit	<b>Inlet</b> 6.98	<b>Outlet</b> 7.42	6.5-8.5	IS 3025 (Part 11): 2022

Note: (1) These results relate to the sample tested only.

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#### Issue Date: 01/08/2024

## TEST REPORT SEWAGE SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/07-2024

Name o	of the Industry	: M/s. Larsen &	& Toubro Li	imited		
		Hazira Works	, Dist. Sura	it		
Sample	Description	: Sewage Samp	ole			
Mode C	Of Sampling	: Grab				
Sample	Collected On	:03/07/2024				
Sample	Received on	:04/07/2024				
Sample	Analyzed & Completion	:04/07/2024 t	o 11/07/20	)24		
Quantit	xy/No. of Sample	: 2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.	
Packing	/ Seal	: Packed				
Protoco	ol (Purpose)	: As per work o	order			
Samplin	ng Method	: APHA 23 <sup>rd</sup> Ed	ition 2017,	Part 1000 S	Section 1060 B	
Sample	Collected By	: ERM Team				
-		. LINIVI TEATT				
Sr.			Re	sult		
Sr. No.	Parameters	Unit	Re Inlet	sult Outlet	Consent Limit	Test Method
					Consent Limit 6.5-8.5	Test Method IS 3025 (Part 11): 2022
No.	Parameters	Unit	Inlet	Outlet		
No. 1.	Parameters pH at 25 °C	Unit pH-Unit	<b>Inlet</b> 7.08	Outlet 7.22	6.5-8.5	IS 3025 (Part 11): 2022

Note: (1) These results relate to the sample tested only.

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Issue Date: 02/09/2024

IS 3025 (Part 17): 2022

IS 3025 (Part 44): 1993

IS 3025 (Part 26): 2021

SEWAGE SAMPLE ANALYSIS REPORT							
TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/08-2024							
Name of	Name of the Industry : M/s. Larsen & Toubro Limited						
	Hazira Works, Dist. Surat						
Sample D	Description :	Sewage Samp	ole				
Mode Of	f Sampling :	Grab					
Sample C	Collected On :	01/08/2024					
Sample F	Received on :	02/08/2024					
Sample A	Sample Analyzed & Completion : 02/08/2024 to 09/08/2024						
Quantity	/No. of Sample :	2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.		
Packing/ Seal : Packed							
Protocol	(Purpose) :	: As per work order					
Sampling	g Method :	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B					
Sample C	Collected By :	ERM Team					
Sr.	<b>D</b>		Re	sult	• • • •		
No.	Parameters	Unit Inlet Outlet Cons		Consent Limit	Test Method		
1.	pH at 25 °C	pH-Unit	6.80	7.10	6.5-8.5	IS 3025 (Part 11): 2022	

**TEST REPORT** 

4.	Free Residual Chlorine	mg/L	Nil	
	4 · · · · · · · · · · · · · · · · · · ·			

mg/L

mg/L

**Note: (1)** These results relate to the sample tested only.

**Total Suspended Solids** 

BOD (3 days at 27 °C)

(2) The report shall not be reproduced except in full without written approval of the laboratory.

85

78

29

18

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30

20

>0.5

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#### Issue Date: 01/10/2024

## TEST REPORT SEWAGE SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/SEWAGE/L&T/Rev.0-00/09-2024

Name o	of the Industry	: M/s. Larsen &	& Toubro Li	imited			
		Hazira Works	, Dist. Sura	t			
Sample	Description	: Sewage Samp	ole				
Mode C	Of Sampling	: Grab					
Sample	Collected On	:02/09/2024					
Sample	Received on	:03/09/2024					
Sample	Analyzed & Completion	:03/09/2024 t	o 10/09/20	)24			
Quantit	ty/No. of Sample	: 2 Litre In plas	tic carboys	(each locat	ion) /2 Nos.		
Packing/ Seal : Packed			Packed				
Protocol (Purpose) : As per work order							
Samplin	ng Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B					
Sample	Collected By	: ERM Team					
Sr							
Sr.			Re	sult			
Sr. No.	Parameters	Unit	Re: Inlet	sult Outlet	Consent Limit	Test Method	
	Parameters pH at 25 °C	Unit pH-Unit	-		Consent Limit 6.5-8.5	Test Method IS 3025 (Part 11): 2022	
No.			Inlet	Outlet			
No. 1.	pH at 25 °C	pH-Unit	<b>Inlet</b> 6.98	<b>Outlet</b> 7.08	6.5-8.5	IS 3025 (Part 11): 2022	

Note: (1) These results relate to the sample tested only.

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Annexure -4 – Noise Monitoring Reports.



## <u>TEST REPORT</u> <u>NOISE LEVEL MONITORING REPORT</u> <u>TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/04-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
·····,	Hazira Works, Dist. Surat
Sample Description	: Noise Level Monitoring
Date of Monitoring	: 01/04/2024
Quantity/No. of Observations	: 9 stations/18 observations
Protocol (Purpose)	: As per Work Order
Sampling Method	: Instrument's Manual & IS 9989 : 1981 Reaffirmed 2020
Noise level monitored by	: ERM Team

Sr. No.	Location	Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr
1.	MC Shop	0.5 m	59	54
2.	Nr. ADM Building	10 m	56	52
3.	Jetty 2	10 m	70	59
4.	Jetty 1	5 m	66	56
5.	Ware House (Paint)	0.5 m	68	57
6.	STP	5 m	66	58
7.	Canteen	0.5 m	62	50
8.	Gate 2	5 m	65	54
9.	SHBD Shop- I	1 m	72	67
	GPCB LIMIT	75	70	

Note: (1) These results relate to the measurement taken at a time for particular place.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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## <u>TEST REPORT</u> <u>NOISE LEVEL MONITORING REPORT</u> <u>TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/05-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited			
	Hazira Works, Dist. Surat			
Sample Description	: Noise Level Monitoring			
Date of Monitoring	: 01/05/2024			
Quantity/No. of Observations	: 9 stations/18 observations			
Protocol (Purpose)	: As per Work Order			
Sampling Method	: Instrument's Manual & IS 9989 : 1981 Reaffirmed 2020			
Noise level monitored by	: ERM Team			

Sr. No.	Location	Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr
1.	MC Shop	0.5 m	57	55
2.	Nr. ADM Building	10 m	55	53
3.	Jetty 2	10 m	69	56
4.	Jetty 1	5 m	68	60
5.	Ware House (Paint)	0.5 m	66	59
6.	STP	5 m	71	61
7.	Canteen	0.5 m	62	53
8.	Gate 2	5 m	66	56
9.	SHBD Shop- I	1 m	72	66
	GPCB LIMIT	75	70	

Note: (1) These results relate to the measurement taken at a time for particular place.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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### Issue Date: 12/06/2024

## <u>TEST REPORT</u> <u>NOISE LEVEL MONITORING REPORT</u> <u>TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/06-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited			
	Hazira Works, Dist. Surat			
Sample Description	: Noise Level Monitoring			
Date of Monitoring	: 01/06/2024			
Quantity/No. of Observations	: 9 stations/18 observations			
Protocol (Purpose)	: As per Work Order			
Sampling Method	: Instrument's Manual & IS 9989 : 1981 Reaffirmed 2020			
Noise level monitored by	: ERM Team			

Sr. No.	Location	Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr
1.	MC Shop	0.5 m	60	58
2.	Nr. ADM Building	10 m	61	57
3.	Jetty 2	10 m	70	60
4.	Jetty 1	5 m	69	62
5.	Ware House (Paint)	0.5 m	70	59
6.	STP	5 m	69	57
7.	Canteen	0.5 m	58	56
8.	Gate 2	5 m	69	59
9.	SHBD Shop- I	1 m	70	62
	GPCB LIMIT		75	70

Note: (1) These results relate to the measurement taken at a time for particular place.

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AUTHORIZED SIGNATORY (Haresh Ahir)



Issue Date: 01/08/2024

TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/07-2024						
Name	Name of the Industry : M/s. Larsen & Toubro Limited					
			Norks, Dist. Surat			
•	e Description		evel Monitoring			
	of Monitoring	:03/07/2				
	ity/No. of Observations		ns/18 observations			
	col (Purpose)	•	Nork Order			
-	ing Method			39 : 1981 Reaffirmed 2020	)	
Noise	level monitored by	: ERM Te	am			
Sr. No.	Location		Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr	
1.	MC Shop		0.5 m	68	54	
2.	Nr. ADM Buildin	g	10 m	65	58	
3.	Jetty 2		10 m	70	65	
4.	Jetty 1		5 m	72	69	
5.	Ware House (Pair	nt)	0.5 m	69	66	
6.	STP		5 m	71	68	
7.	Canteen		0.5 m	68	55	
8.	Gate 2		5 m	67	54	
9.	SHBD Shop- I		1 m	70	65	
	GPCB LIMIT 75 70					

TEST REPORT

**Note: (1)** These results relate to the measurement taken at a time for particular place.

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(Haresh Ahir)



### Issue Date: 02/09/2024

## TEST REPORT NOISE LEVEL MONITORING REPORT TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/08-2024

Name of the Industry	: M/s. Larsen & Toubro Limited					
	Hazira Works, Dist. Surat					
Sample Description	: Noise Level Monitoring					
Date of Monitoring	: 01/08/2024					
Quantity/No. of Observations	s : 9 stations/18 observations					
Protocol (Purpose)	: As per Work Order					
Sampling Method	: Instrument's Manual & IS 9989 : 1981 Reaffirmed 2020					
Noise level monitored by	: ERM Team					

Sr. No.	Location	Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr
1.	MC Shop	0.5 m	69	64
2.	Nr. ADM Building	10 m	65	58
3.	Jetty 2	10 m	70	66
4.	Jetty 1	5 m	69	65
5.	Ware House (Paint)	0.5 m	68	60
6.	STP	5 m	69	62
7.	Canteen	0.5 m	60	56
8.	Gate 2	5 m	68	59
9.	SHBD Shop- I	1 m	70	66
	GPCB LIMIT	75	70	

Note: (1) These results relate to the measurement taken at a time for particular place.

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### Issue Date: 01/10/2024

## TEST REPORT NOISE LEVEL MONITORING REPORT TEST REPORT NO:QF/7.8/01 D/NOISE/L&T/Rev.0-00/09-2024

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Noise Level Monitoring
Date of Monitoring	: 02/09/2024
Quantity/No. of Observations	: 9 stations/18 observations
Protocol (Purpose)	: As per Work Order
Sampling Method	: Instrument's Manual & IS 9989 : 1981 Reaffirmed 2020
Noise level monitored by	: ERM Team

Sr. No.	Location	Distance from the source	Day Time dB (A) 14:00 to 15:00 hr	Night Time dB (A) 22:00 to 23:00 hr
1.	MC Shop	0.5 m	64	58
2.	Nr. ADM Building	10 m	68	60
3.	Jetty 2	10 m	70	65
4.	Jetty 1	5 m	69	63
5.	Ware House (Paint)	0.5 m	66	59
6.	STP	5 m	71	66
7.	Canteen	0.5 m	65	58
8.	Gate 2	5 m	68	62
9.	SHBD Shop- I	1 m	72	67
	GPCB LIMIT		75	70

Note: (1) These results relate to the measurement taken at a time for particular place.

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Annexure -5 – Marine Water Analysis Reports.



# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Narmada Cement Jetty
Sample Collected on	: 01/04/2024
Sample Received on	: 02/04/2024
Sample Analyzed & Completion	: 02/04/2024 to 09/04/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Devenue at ava	11	Res	sult	Test Mathed
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	25	25	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ℃	pH Unit	7.99	8.10	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pt.co.scale	12	10	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	32	88	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1840	2216	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	80	118	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	399	467	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	150	188	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	6.2	15.9	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	578	682	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	mg/L	578	082	(Turbidimetric Method)
11	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.5	0.8	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.3	0.7	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.5	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.05	0.07	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.2	0.4	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

Note: (1) These results relate to the sample tested only.

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024</u>

	<u>_</u>	EST REPUR		VIANINE WATER/L	.&1/Kev.0-00/04-2024		
Name	of the Industry		: M/s. Larsen & To	ubro Limited			
			Hazira Works, Dis	st. Surat			
Sample Description			: Marine water for	Zooplankton Anal	ysis		
Sampling Location			: Tapi River Near N	armada Cement Je	etty		
Sample Collected on			: 01/04/2024				
Sample Received on			: 02/04/2024				
Samp	le Analyzed & Co	mpletion	: 02/04/2024 to 09	/04/2024			
Quan	tity/No. of Sampl	е	: 100ml concentrat	ed water sample i	in plastic carboys (During High Tide & Low		
-			Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By		: ERM Team				
Sr.	Parameters	Unit	Res	sult	Test Method		
No	Parameters	Unit	High Tide	Low Tide	l est Method		
1	Total Count	No/L	578	490	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
2	Protozoa	%	82	77	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
3	Rotifera	%	10	11	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
4	Nematoda	%	6	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
F	Cononada	9/	2	C C	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		

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Note: (1) These results relate to the sample tested only.

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Copepoda

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methods in Environmental studies by S.K.Maitti



	MARINE WATER SAMPLE ANALYSIS REPORT						
	<u>TES</u>	T REPORT N	NO:QF/7.8/01 A	<u>/MARINE WATI</u>	ER/L&T/Rev.0-00/04-2024		
Name of the Industry			M/s. Larsen & T	oubro Limited			
			Hazira Works, D	ist. Surat			
Samp	e Description	:	Marine water fo	or Phytoplankto	n Analysis		
Sampling Location			Tapi River Near	Narmada Ceme	nt Jetty		
Sample Collected on			01/04/2024				
Samp	e Received on	:	02/04/2024				
Sample Analyzed & Completion			02/04/2024 to 0	9/04/2024			
Quant	ity/No. of Sample	:	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			APHA 23 <sup>rd</sup> Editic	on 2017, Part-90	000, Section: 9060 A		
Samp	e Collected By	:	ERM Team				
Sr.	Parameters	Unit	Re	sult	Test Method		
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
1	Total Count	No/L	558	480	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
-				100	methods in Environmental studies by S.K.Maitti		
2	Cynophyceae	%	36	34	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
	-7 -17 7				methods in Environmental studies by S.K.Maitti		
3	Chlorophyena	%	14	15	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
					methods in Environmental studies by S.K.Maitti		
4	Bacillariophyceae	%	50	51	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
				methous in Linvironmental studies by S.K.Ivialtti			

**TEST REPORT** 

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024</u>

Dist. Surat
Jetty of L&T Ltd.
Jetty of L&T Ltd.
09/04/2024
tic carboys (Each Location) /6 Nos.
der
on 2017, Part 1000 Section 1060 B
(

Sr.	Parameters	Unit	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	°C	25	26	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.10	8.25	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	14	22	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
5	Coloui	pr.co.scale	14	22	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	38	99	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1028	3665	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	100	124	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	189	815	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	140	168	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	12.6	23.1	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	ma/l	632	685	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	mg/L	032	000	(Turbidimetric Method)
11	Phenolic compounds as		10.01	10.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.6	1.0	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.4	0.9	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.5	0.7	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.06	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.3	0.6	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.2	IS 3025 (Part 57): 2021 (Curcumin Method)

Note: (1) These results relate to the sample tested only.

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024</u>

Name	of the Industry		: M/s. Larsen & Toubro Limited				
			Hazira Works, Dist. Surat				
Samp	le Description		: Marine water for Zooplankton Analysis				
Samp	ling Location		: Tapi River Near Jetty of L&T Ltd.				
Samp	le Collected on		: 01/04/2024				
Samp	le Received on		: 02/04/2024				
Sample Analyzed & Completion			: 02/04/2024 to 09/04/2024				
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By			: ERM Team				
Sr.	Daramators	Linit	Re	sult	Tast Mathed		
No	Parameters	eters Unit High Ti	High Tide	Low Tide	Test Method		
				1			

-	Daramotore     nit			Tost Mothod	
No	Parameters	Unit	High Tide	Low Tide	Test Method
1	Total Count	No/L	622	515	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	80	76	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	12	11	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	5	7	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	3	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024</u>

	<u>1E3</u>					
Name	e of the Industry	:	: M/s. Larsen & Toubro Limited			
		l	Hazira Works, D	Dist. Surat		
Sample Description			Marine water fo	or Phytoplankto	n Analysis	
Sampling Location			Tapi River Near	Jetty of L&T Ltd		
Sample Collected on			01/04/2024			
Sample Received on			02/04/2024			
Sample Analyzed & Completion			02/04/2024 to 0	09/04/2024		
Quantity/No. of Sample		:	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low	
		-	Tide)/2 Nos.			
Protocol (Purpose)		: /	: As Per work order			
Packing/ Seal		:	: Packed			
Sampling Method			APHA 23 <sup>rd</sup> Editic	on 2017, Part-90	000, Section: 9060 A	
Samp	le Collected By	:	ERM Team			
Sr.	Parameters	Unit	Re	sult	Test Method	
No.	Parameters	Unit	High Tide	Low Tide	Test Method	
1	Total Count	No/L	589	514	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of	
	Total count	NO/E	505	514		
					methods in Environmental studies by S.K.Maitti	
2	Cynophyceae	%	34	35	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of	
2	Cynophyceae	%	34	35	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
2 3	Cynophyceae Chlorophyena	%	34	35	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of	
-					APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
-					APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of	

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2023</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Jetty of Essar Steel Ltd.
Sample Collected on	: 01/04/2024
Sample Received on	: 02/04/2024
Sample Analyzed & Completion	: 02/04/2024 to 09/04/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Parameters	Unit	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	°C	26	26	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.10	8.22	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui				(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	44	99	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1066	3852	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	100	138	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	198	852	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	162	189	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	14.0	24.6	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as $SO_4$	mg/L	659	706	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10					(Turbidimetric Method)
11	Phenolic compounds as	mg/L	<0.01	<0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)				without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	1.0	1.8	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	1.2	2.0	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	2	3	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.5	0.9	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.08	0.09	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.5	0.9	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.3	IS 3025 (Part 57): 2021 (Curcumin Method)

Note: (1) These results relate to the sample tested only.

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024

Name of the Industry			: M/s. Larsen & Toubro Limited				
			Hazira Works, Dist. Surat				
Sample Description			: Marine water for Zooplankton Analysis				
Samp	ling Location		: Tapi River Near Jetty of Essar Steel Ltd.				
Samp	le Collected on		: 01/04/2024				
Samp	le Received on		: 02/04/2024				
Sample Analyzed & Completion			: 02/04/2024 to 09/04/2024				
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By			: ERM Team				
Sr.	Parameters	Unit	Result	Test Method			
	i ui ui i ci ci s	Unit					

Sr.	Parameters	Unit	Res	sult	Test Method
No	Farameters	Onit	High Tide Low Tide	Low Tide	Test Method
1	Total Count	No/L	625	534	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	82	78	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	12	10	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	5	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	1	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

Note: (1) These results relate to the sample tested only.

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/04-2024

Name of the Industry : M/s. Larsen & Toubro Limited							
	Hazira Works, Dist. Surat						
Sample Description			Marine water fo		n Analysis		
Sampling Location			Tapi River Near				
•	le Collected on		01/04/2024				
•	le Received on		02/04/2024				
•	le Analyzed & Comp		02/04/2024 to 0	9/04/2024			
-	tity/No. of Sample				ple in plastic carboys (During High Tide & Low		
Quuin			Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
•	Sampling Method : APRA 25 * Edition 2017, Part-9000, Section: 9060 A Sample Collected By : ERM Team						
Sr. Sr.			Result				
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
140.			nigii fide	LOW HUE	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
1	Total Count	No/L	572	490	methods in Environmental studies by S.K.Maitti		
	_				APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
2	Cynophyceae	%	40	32	methods in Environmental studies by S.K.Maitti		
•		~		18	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
3	Chlorophyena	%	19		methods in Environmental studies by S.K.Maitti		
4	Bacillariophyceae	%	41	50	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		
4	Bacillariophyceae	70	41	50	methods in Environmental studies by S.K.Maitti		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/05-2024</u>

Hazira Works, Dist. Surat Marine water			
Marine water			
: Tapi River Near Narmada Cement Jetty			
01/05/2024			
02/05/2024			
02/05/2024 to 08/05/2024			
: 2+1+1 L in plastic carboys (Each Location) /6 Nos.			
As Per work order			
Packed			
APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B			
ERM Team			

Sr.	Parameters	Linit	Result		Test Mathed
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	26	26	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.01	8.26	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	14	20	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui	pt.co.scale			(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	36	92	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1821	2238	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	88	130	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	389	465	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	146	180	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	6.0	15.2	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	572	690	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10					(Turbidimetric Method)
	Phenolic compounds as	mg/L	<0.01	<0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)				without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.4	0.7	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.2	0.6	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.6	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.06	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.2	0.3	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/05-2024

	_				.&1/Kev.0-00/05-2024			
Name	e of the Industry		: M/s. Larsen & Toubro Limited					
			Hazira Works, Dist. Surat					
Samp	le Description		: Marine water for	Zooplankton Anal	ysis			
Samp	ling Location		: Tapi River Near Na	armada Cement J	etty			
Samp	le Collected on		: 01/05/2024					
Samp	le Received on		: 02/05/2024					
Samp	le Analyzed & Co	mpletion	: 02/05/2024 to 08	/05/2024				
Quan	tity/No. of Sampl	e	: 100ml concentrat	ed water sample	in plastic carboys (During High Tide & Low			
			Tide)/2 Nos.					
Proto	col (Purpose)		: As Per work order					
Packi	ng/ Seal		: Packed					
Samp	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	le Collected By		: ERM Team					
Sr.	Parameters	11	Res	ult	Test Method			
No	Parameters	Unit	High Tide	Low Tide	l est Method			
1	Total Count	No/L	582	486	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
2	Protozoa	%	80	75	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
3	Rotifera	%	12	13	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
4	Nematoda	%	5	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
					APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of			

4

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%

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Copepoda

5

AUTHORISED SIGNATORY (Haresh Ahir)

methods in Environmental studies by S.K.Maitti



	MARINE WATER SAMPLE ANALYSIS REPORT								
	TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/05-2024								
Name	of the Industry	:	M/s. Larsen & T	oubro Limited					
			Hazira Works, D	ist. Surat					
Samp	e Description	:	Marine water fo	or Phytoplankto	n Analysis				
Samp	ling Location	:	Tapi River Near	Narmada Ceme	nt Jetty				
Samp	le Collected on	:	01/05/2024						
Samp	le Received on	:	02/05/2024						
Samp	le Analyzed & Comp	letion :	02/05/2024 to 0	8/05/2024					
Quant	tity/No. of Sample	:	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low				
			Tide)/2 Nos.						
Proto	col (Purpose)	:	: As Per work order						
Packir	ng/ Seal	:	: Packed						
Samp	ling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A						
Samp	le Collected By	:	ERM Team						
Sr.	Parameters	Unit	Result		Test Method				
No.	Falameters	Onit	High Tide	Low Tide					
1	Total Count	No/L	565	494	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				
		110/1	303	131	methods in Environmental studies by S.K.Maitti				
2	Cynophyceae	%	38	35	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				
	, , ,				methods in Environmental studies by S.K.Maitti				
3	Chlorophyena	%	14	12	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				
					methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of				
4	Bacillariophyceae	%	48	53	methods in Environmental studies by S.K.Maitti				
		<u> </u>	1	1	inclined in Environmental studies by Sikiwalth				

**TEST REPORT** 

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/05-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water				
Sampling Location	: Tapi River Near Jetty of L&T Ltd.				
Sample Collected on	: 01/05/2024				
Sample Received on	: 02/05/2024				
Sample Analyzed & Completion	: 02/05/2024 to 08/05/2024				
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	: Packed				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B				
Sample Collected By	: ERM Team				

Sr.	Devementere	11	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	l'est Method
1	Temperature	°C	27	27	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.14	8.20	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	14	20	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pt.co.scale	14	20	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	40	102	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1016	3650	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	98	136	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	187	804	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	132	160	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	12.8	23.8	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	to Subshate as CO	mg/L	642	698	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as SO <sub>4</sub>	111g/ L	042	090	(Turbidimetric Method)
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.8	1.2	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.5	0.9	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.4	0.6	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.05	0.07	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.3	0.5	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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Name of the Industry		: M/s. Larsen & Toubro Limited				
		Hazira Works, Dis	st. Surat			
Sample Description		: Marine water for	Zooplankton Analy	sis		
Sampling Location		: Tapi River Near Je	etty of L&T Ltd.			
Sample Collected on		: 01/05/2024				
Sample Received on		: 02/05/2024				
Sample Analyzed & Comple	etion	: 02/05/2024 to 08/05/2024				
Quantity/No. of Sample		: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)		: As Per work order				
Packing/ Seal		: Packed				
Sampling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By		: ERM Team				
Sr. Deremeters	Unit	Res	sult	Test Method		
No	arameters Unit	High Tide	Low Tide	i est ivietnod		

51.	Parameters	Unit	ne.	Juit	Test Method
No	Parameters	Onit	High Tide	Low Tide	Test Method
1	Total Count	No/L	628	505	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	77	72	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	15	18	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	6	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	2	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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	1231 KEPOKT NO.QF/7.8/01 A/MAKINE WATEN/E&T/KEV:0-00/03-2024							
Name	of the Industry	:	: M/s. Larsen & Toubro Limited					
		I	Hazira Works, Dist. Surat					
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis			
Samp	ling Location	:	Tapi River Near	Jetty of L&T Ltd				
Samp	le Collected on	: (	01/05/2024					
Samp	le Received on	: (	02/05/2024					
Samp	le Analyzed & Comp	letion :	02/05/2024 to 0	08/05/2024				
Quant	tity/No. of Sample	::	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low			
		-	Tide)/2 Nos.					
Proto	col (Purpose)	: /	: As Per work order					
Packir	ng/ Seal	:	: Packed					
Samp	ling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	le Collected By	:	ERM Team					
Sr.	Parameters	l lucit	Result		Test Method			
No.	Parameters	Unit	High Tide	Low Tide	Test Method			
1	Total Count	No/L	598	490	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
-		NO/L	550	450	methods in Environmental studies by S.K.Maitti			
2	Cynophyceae	%	38	32	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
		-			methods in Environmental studies by S.K.Maitti			
3	Chlorophyena	%	12	20	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
					methods in Environmental studies by S.K.Maitti			
4	Bacillariophyceae	%	50	48	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
					methous in Linvironmental studies by S.K. Walth			

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Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water				
Sampling Location	: Tapi River Near Jetty of Essar Steel Ltd.				
Sample Collected on	: 01/05/2024				
Sample Received on	: 02/05/2024				
Sample Analyzed & Completion	: 02/05/2024 to 08/05/2024				
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	: Packed				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B				
Sample Collected By	: ERM Team				

Sr.	Devementere	11	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	27	27	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.16	8.20	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	14	22	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pt.co.scale	14	22	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	40	94	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1058	3862	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	94	130	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	200	859	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	150	181	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	14.5	25.0	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	648	712	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	iiig/L	048	/12	(Turbidimetric Method)
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	1.2	1.5	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	1.0	1.8	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	2	2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.6	0.9	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.06	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.5	0.8	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/05-2024

Name of the Industry			: M/s. Larsen & Toubro Limited				
			Hazira Works, Dist. Surat				
Samp	le Description		: Marine water for Zooplankton Analys	sis			
Samp	ling Location		: Tapi River Near Jetty of Essar Steel Lt	d.			
Samp	le Collected on		: 01/05/2024				
Samp	le Received on		: 02/05/2024				
Sample Analyzed & Completion			: 02/05/2024 to 08/05/2024				
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work order				
Packi	ng/ Seal		: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By			: ERM Team				
Sr.	Parameters	Unit	Result	Test Method			
		UIIIL					

Sr.	Parameters Unit Resu		sult	Test Method	
No	Farameters	Onic	High Tide	Low Tide	Test Method
1	Total Count	No/L	610	525	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	80	76	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	12	12	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	6	7	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	2	5	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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Name	lame of the Industry : M/s. Larsen & Toubro Limited						
	· · · · · · · · ·		Hazira Works, Dist. Surat				
Sampl	le Description		Marine water fo		n Analysis		
Sampl	ling Location	:	Tapi River Near	Jetty of Essar S	teel Ltd.		
Sampl	le Collected on	: (	01/05/2024				
Sampl	le Received on	: (	02/05/2024				
Sampl	le Analyzed & Comp	letion : (	02/05/2024 to 0	08/05/2024			
Quant	tity/No. of Sample	::	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
		-	Tide)/2 Nos.				
Proto	col (Purpose)	: /	As Per work ord	er			
	ng/ Seal		: Packed				
-	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sampl	le Collected By	:	ERM Team				
Sr.	Parameters	Unit	Result		Test Method		
No.			High Tide	Low Tide			
1	Total Count	No/L	580	505	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
		-			methods in Environmental studies by S.K.Maitti		
2	Cynophyceae	%	38	34	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
					APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
3	Chlorophyena	%	22	19	methods in Environmental studies by S.K.Maitti		
	Decillerienhusses	9/	40	47	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		
4	Bacillariophyceae	%	40		methods in Environmental studies by S.K.Maitti		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Narmada Cement Jetty
Sample Collected on	: 01/06/2024
Sample Received on	: 03/06/2024
Sample Analyzed & Completion	: 03/06/2024 to 10/06/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Devementere	l la it	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	28	28	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	7.97	8.19	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	17	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pr.co.scale	12	17	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	39	85	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1830	2220	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	84	124	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	393	464	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	142	182	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	6.3	15.6	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	565	683	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	iiig/L	202	083	(Turbidimetric Method)
	Phenolic compounds as		10.01		IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.5	0.6	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.1	0.4	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.2	0.5	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.05	0.06	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.3	0.4	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024

		EST REPOR		ARINE WATER	L& I/Rev.0-00/06-2024			
Name	of the Industry		: M/s. Larsen & Tou	ubro Limited				
			Hazira Works, Dis	t. Surat				
Samp	le Description		: Marine water for Zooplankton Analysis					
Samp	ling Location		: Tapi River Near Na	armada Cement J	etty			
Samp	le Collected on		: 01/06/2024					
Samp	le Received on		: 03/06/2024					
Samp	le Analyzed & Co	mpletion	: 03/06/2024 to 10	/06/2024				
Quant	tity/No. of Samp	le	: 100ml concentrate	ed water sample	in plastic carboys (During High Tide & Low			
	-		Tide)/2 Nos.					
Proto	col (Purpose)		: As Per work order					
Packir	ng/ Seal		: Packed					
Samp	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	le Collected By		: ERM Team					
Sr.	Parameters	Unit	Res	ult	Test Method			
No	Parameters	Onit	High Tide	Low Tide				
1	Total Count	No/L	574	482	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
2	Protozoa	%	78	72	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
3	Rotifera	%	13	15	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
4	Nematoda	%	7	9	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
5	Copepoda	%	2	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K. Maitti			

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	MARINE WATER SAMPLE ANALYSIS REPORT								
	<u>TES</u>	T REPORT N	IO:QF/7.8/01 A	MARINE WATE	<u>ER/L&amp;T/Rev.0-00/06-2024</u>				
Name	of the Industry	:	M/s. Larsen & T	oubro Limited					
			Hazira Works, Dist. Surat						
Samp	Sample Description : Marine water for Phytoplankton Analysis								
Samp	ling Location	:	Tapi River Near	Narmada Ceme	nt Jetty				
Samp	le Collected on	:	01/06/2024						
Samp	le Received on	:	03/06/2024						
Samp	le Analyzed & Comp	letion :	03/06/2024 to 1	0/06/2024					
Quant	tity/No. of Sample	:	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low				
			Tide)/2 Nos.						
Proto	col (Purpose)	:	As Per work ord	er					
Packir	ng/ Seal	:	Packed						
Samp	ling Method	:	APHA 23 <sup>rd</sup> Editic	on 2017, Part-90	000, Section: 9060 A				
Samp	le Collected By	:	ERM Team						
Sr.	Parameters	Unit	Re	sult	Test Method				
No.	Parameters	Unit	High Tide	Low Tide	Test Method				
1	Total Count	No/L	562	491	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				
_		1072	502		methods in Environmental studies by S.K.Maitti				
2	Cynophyceae	%	35	33	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				
	,	-			methods in Environmental studies by S.K.Maitti				
2	Chloronhyena	%	12	15	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of				

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# **TEST REPORT**

Note: (1) These results relate to the sample tested only.

%

%

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53

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Chlorophyena

Bacillariophyceae

3

4

methods in Environmental studies by S.K.Maitti APHA, 23<sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of

methods in Environmental studies by S.K.Maitti

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Jetty of L&T Ltd.
Sample Collected on	: 01/06/2024
Sample Received on	: 03/06/2024
Sample Analyzed & Completion	: 03/06/2024 to 10/06/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Devementere	11	Res	sult	Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	28	28	IS 3025 (Part 9): 1984 (Thermometer)
2	pH at 25 °C	pH Unit	8.08	8.23	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	13	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui	pt.co.scale	15	10	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	36	97	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1030	3620	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	100	140	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	189	794	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	136	164	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	12.4	23.3	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulabata as 50	ma /I	626	600	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as SO <sub>4</sub>	mg/L	636	690	(Turbidimetric Method)
11	Phenolic compounds as		-0.01	<0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C <sub>6</sub> H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.7	1.0	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.3	0.7	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.5	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.05	0.07	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.2	0.4	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024</u>

Name of the Industry		: M/s. Larsen & Toubro Limited				
		Hazira Works, Dist. Surat				
Sample Description		: Marine water for	Zooplankton Analy	sis		
Sampling Location		: Tapi River Near Je	etty of L&T Ltd.			
Sample Collected on		: 01/06/2024				
Sample Received on		: 03/06/2024				
Sample Analyzed & Co	mpletion	: 03/06/2024 to 10	/06/2024			
Quantity/No. of Samp	le	: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)		: As Per work order				
Packing/ Seal		: Packed				
Sampling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By		: ERM Team				
Sr. Parameters	l lucit	Res	sult	Test Mathed		
No	Unit	High Tide	Low Tide	Test Method		

51.	Parameters	Unit	nesun		Test Method
No	Parameters	Onit	High Tide	Low Tide	Test Method
1	Total Count	No/L	620	510	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	79	74	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	13	16	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	5	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	3	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024</u>

Name of the Industry : M/s. Larsen & Toubro Limited								
Name	e of the Industry		-					
	Hazira Works, Dist. Surat							
Samp	le Description	:	: Marine water for Phytoplankton Analysis					
Samp	ling Location	:	Tapi River Near	Tapi River Near Jetty of L&T Ltd.				
Samp	le Collected on	: (	01/06/2024					
Samp	le Received on	: (	03/06/2024					
Samp	le Analyzed & Comp	letion : (	03/06/2024 to 1	10/06/2024				
-	tity/No. of Sample		100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low			
-	•		Tide)/2 Nos.					
Protocol (Purpose)			As Per work ord	er				
PIOLO			: Packed					
	· · ·	:	Packed					
Packi	ng/ Seal			on 2017, Part-90	000, Section: 9060 A			
Packi Samp	· · ·	:		on 2017, Part-90	000, Section: 9060 A			
Packi Samp	ng/ Seal ling Method le Collected By	:/	APHA 23 <sup>rd</sup> Editic ERM Team	on 2017, Part-90				
Packii Samp Samp	ng/ Seal ling Method	:	APHA 23 <sup>rd</sup> Editic ERM Team		000, Section: 9060 A 			
Packin Samp Samp Sr. No.	ng/ Seal ling Method le Collected By Parameters	: / Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	sult Low Tide				
Packin Samp Samp Sr.	ng/ Seal ling Method le Collected By	:/	APHA 23 <sup>rd</sup> Editic ERM Team	sult	Test Method			
Packin Samp Samp Sr. No. 1	ng/ Seal ling Method le Collected By Parameters Total Count	Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 585	sult Low Tide 482	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
Packin Samp Samp Sr. No.	ng/ Seal ling Method le Collected By Parameters	: / Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	sult Low Tide	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
Packin Samp Samp Sr. No. 1 2	ng/ Seal ling Method le Collected By Parameters Total Count Cynophyceae	Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 585 35	sult Low Tide 482 30	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
Packin Samp Samp Sr. No. 1	ng/ Seal ling Method le Collected By Parameters Total Count	Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 585	sult Low Tide 482	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
Packin Samp Samp Sr. No. 1 2	ng/ Seal ling Method le Collected By Parameters Total Count Cynophyceae	Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 585 35	sult Low Tide 482 30	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2023</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Jetty of Essar Steel Ltd.
Sample Collected on	: 01/06/2024
Sample Received on	: 03/06/2024
Sample Analyzed & Completion	: 03/06/2024 to 10/06/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Devementere	l la it	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	27	28	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.13	8.23	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	19	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui	pt.co.scale	12	19	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	42	91	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1070	3840	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	96	140	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	201	848	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	144	185	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	14.1	24.5	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	.0 Sulphate as SO₄ mg	mg/L	640	702	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	iiig/ L	640	640 703	(Turbidimetric Method)
11	Phenolic compounds as		<0.01	<0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	1.1	1.3	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	1.2	1.6	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	2	3	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.5	0.8	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.07	0.09	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.4	0.9	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024

Name of the Industry			: M/s. Larsen & Toubro Limited				
			Hazira Works, Dist. Surat				
Sample Description			: Marine water for Zooplankton Analys	sis			
Samp	ling Location		: Tapi River Near Jetty of Essar Steel Lt	:d.			
Samp	le Collected on		: 01/06/2024				
Samp	le Received on		: 03/06/2024				
Samp	le Analyzed & Con	npletion	: 03/06/2024 to 10/06/2024				
Quan	tity/No. of Sample	2	: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work order				
Packi	ng/ Seal		: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By		: ERM Team				
Sr.	Parameters	Unit	Result	Test Method			
	raiancicio	UIIIL					

Sr.	Parameters	Unit	Re	sult	Test Method
No	Farameters	Onit	High Tide	Low Tide	
1	Total Count	No/L	622	538	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	83	80	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	10	11	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	5	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	2	3	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/06-2024

					ER/L&1/REV.0-00/00-2024		
Name	of the Industry	:	M/s. Larsen & T	oubro Limited			
		l	Hazira Works, Dist. Surat				
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis		
Samp	ling Location	:	Tapi River Near	api River Near Jetty of Essar Steel Ltd.			
Samp	le Collected on	:	01/06/2024				
Samp	le Received on	:	03/06/2024				
Samp	le Analyzed & Comp	letion :	03/06/2024 to 1	10/06/2024			
Quant	tity/No. of Sample	:	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
	•		Tide)/2 Nos.				
Proto	col (Purpose)		As Per work ord	er			
Packir	ng/ Seal	:	: Packed				
Samp	ling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
-	le Collected By	:	ERM Team				
Sr.	Demonsterne	11	Result		Task Markhard		
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
1	Total Count	No/L	565	492	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
1		NU/L	505	492	methods in Environmental studies by S.K.Maitti		
2	Cynophyceae	%	41	36	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
-	cynophyceae	70	71	50	methods in Environmental studies by S.K.Maitti		
3	Chlorophyena	%	17	15	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
					methods in Environmental studies by S.K.Maitti		
4	Bacillariophyceae	%	42	49	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		
	· · · · ·				methods in Environmental studies by S.K.Maitti		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024</u>

Hazira Works, Dist. SuratSample Description: Marine waterSampling Location: Tapi River Near Narmada Cement JettySample Collected on: 03/07/2024Sample Received on: 04/07/2024Sample Analyzed & Completion: 04/07/2024 to 11/07/2024Quantity/No. of Sample: 2+1+1 L in plastic carboys (Each Location) /6 Nos.Protocol (Purpose): As Per work order	Name of the Industry	: M/s. Larsen & Toubro Limited
Sampling Location: Tapi River Near Narmada Cement JettySample Collected on: 03/07/2024Sample Received on: 04/07/2024Sample Analyzed & Completion: 04/07/2024 to 11/07/2024Quantity/No. of Sample: 2+1+1 L in plastic carboys (Each Location) /6 Nos.		Hazira Works, Dist. Surat
Sample Collected on: 03/07/2024Sample Received on: 04/07/2024Sample Analyzed & Completion: 04/07/2024 to 11/07/2024Quantity/No. of Sample: 2+1+1 L in plastic carboys (Each Location) /6 Nos.	Sample Description	: Marine water
Sample Received on: 04/07/2024Sample Analyzed & Completion: 04/07/2024 to 11/07/2024Quantity/No. of Sample: 2+1+1 L in plastic carboys (Each Location) /6 Nos.	Sampling Location	: Tapi River Near Narmada Cement Jetty
Sample Analyzed & Completion: 04/07/2024 to 11/07/2024Quantity/No. of Sample: 2+1+1 L in plastic carboys (Each Location) /6 Nos.	Sample Collected on	: 03/07/2024
Quantity/No. of Sample : 2+1+1 L in plastic carboys (Each Location) /6 Nos.	Sample Received on	: 04/07/2024
• • • • • • • • • • • • • • • • • • • •	Sample Analyzed & Completion	: 04/07/2024 to 11/07/2024
Protocol (Purpose) : As Per work order	Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
	Protocol (Purpose)	: As Per work order
Packing/ Seal : Packed	Packing/ Seal	: Packed
Sampling Method : APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B	Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By : ERM Team	Sample Collected By	: ERM Team

Sr.	Devenuenteve	11	Res	sult	Test Method
No.	Parameters	Unit	Low Tide	High Tide	l'est Method
1	Temperature	٥C	24	24	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	7.98	7.91	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	10	13	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pt.co.scale	10	15	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	42	80	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1790	2100	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	68	80	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	394	462	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	155	165	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	8.3	14	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	582	656	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	iiig/ L	562	050	(Turbidimetric Method)
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.6	0.5	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.4	0.42	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	3.1	2.8	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.4	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.07	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.4	0.3	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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5. Sfater

CHEMIST

**AUTHORISED SIGNATORY** (Haresh Ahir)



# TEST REPORT MARINE WATER SAMPLE ANALYSIS REPORT TEST REPORT NO:OF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024

	_	IESI KEPUK	I NU:QF/7.8/01 A/N	ARINE WATER/L	<u>-&amp;1/Rev.u-uu/u/-2u24</u>		
Name	of the Industry		: M/s. Larsen & Tou	ubro Limited			
			Hazira Works, Dist. Surat				
Samp	le Description		: Marine water for 2	Zooplankton Anal	lysis		
Samp	ling Location		: Tapi River Near Na	armada Cement J	etty		
Samp	le Collected on		:03/07/2024				
Samp	le Received on		:04/07/2024				
Samp	le Analyzed & Co	mpletion	:04/07/2024 to 11/	/07/2024			
Quant	tity/No. of Samp	le	: 100ml concentrate	ed water sample	in plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By		: ERM Team				
Sr.	Parameters	Unit	Res	ult	Test Method		
No	Parameters	Onit	High Tide	Low Tide			
1	Total Count	No/L	580	450	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
2	Protozoa	%	72	65	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
3	Rotifera	%	18	17	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
4	Nematoda	%	6	5	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
5	Copepoda	%	4	13	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K. Maitti		

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**AUTHORISED SIGNATORY** (Haresh Ahir)

methods in Environmental studies by S.K.Maitti



	MARINE WATER SAMPLE ANALYSIS REPORT							
	TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024							
Name	of the Industry	:	: M/s. Larsen & Toubro Limited					
			Hazira Works, Dist. Surat					
Samp	e Description	:	Marine water fo	or Phytoplankto	n Analysis			
Samp	ling Location	:	Tapi River Near	Narmada Ceme	nt Jetty			
Samp	le Collected on	:	03/07/2024					
Samp	le Received on	:	04/07/2024					
Samp	le Analyzed & Comp	letion :	04/07/2024 to 1	1/07/2024				
Quant	tity/No. of Sample	:	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low			
			Tide)/2 Nos.					
Protocol (Purpose)			: As Per work order					
Packing/ Seal			: Packed					
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	e Collected By	:	ERM Team					
Sr.	Parameters	Unit	Re	sult	Test Method			
No.	Falameters	Onit	High Tide	Low Tide				
1	Total Count	No/L	470	390	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
					methods in Environmental studies by S.K.Maitti			
2	Cynophyceae	%	25	20	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
					methods in Environmental studies by S.K.Maitti			
3	Chlorophyena	%	17	27	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
					APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of			
4	Bacillariophyceae	%	58	53	methods in Environmental studies by S.K.Maitti			

**TEST REPORT** 

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024</u>

nple Description :	Hazira Works, Dist. Surat Marine water
mpling Location : 7	
1 0	Γapi River Near Jetty of L&T Ltd.
nple Collected on : (	03/07/2024
nple Received on : (	04/07/2024
mple Analyzed & Completion : (	04/07/2024 to 11/07/2024
antity/No. of Sample : 2	2+1+1 L in plastic carboys (Each Location) /6 Nos.
otocol (Purpose) : A	As Per work order
cking/ Seal : F	Packed
mpling Method : A	APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
nple Collected By : E	ERM Team

Sr.	Parameters	Unit		sult	Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	25	25	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	7.99	8.07	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	14	19	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
5	Coloui	pr.co.scale	14	15	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	41	90	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1110	3580	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	92	120	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	214	797	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	157	148	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	10.8	21.3	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO₄	mg/L	636	660	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as 504	iiig/L	030	660	(Turbidimetric Method)
11	Phenolic compounds as		10.01	10.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.6	0.5	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.3	0.38	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	2.8	2.1	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.5	0.4	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.05	0.06	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.5	0.4	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.1	0.2	IS 3025 (Part 57): 2021 (Curcumin Method)

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**AUTHORISED SIGNATORY** (Haresh Ahir)



# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024</u>

Name	of the Industry		: M/s. Larsen & To	oubro Limited			
	•		Hazira Works, Dist. Surat				
Samp	le Description		: Marine water for Zooplankton Analysis				
Samp	ling Location		: Tapi River Near J	etty of L&T Ltd.			
Samp	le Collected on		:03/07/2024				
Samp	le Received on		:04/07/2024				
Samp	le Analyzed & Co	mpletion	:04/07/2024 to 11	1/07/2024			
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)			: As Per work order				
Packing/ Seal			: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By			: ERM Team				
Sr.	Parameters	Unit	Result		Test Method		
No	Parameters	Unit	High Tide	Low Tide			
4	Total Count	Nie /I	550	400	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		

NO			nigh hue	LOW HUE	
1	Total Count	No/L	552	490	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	72	67	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	18	20	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	7	5	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	3	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024</u>

Name	e of the Industry	: I	M/s. Larsen & T	oubro Limited			
		H	Hazira Works, Dist. Surat				
Samp	le Description	: [	: Marine water for Phytoplankton Analysis				
Samp	ling Location	: -	: Tapi River Near Jetty of L&T Ltd.				
Samp	le Collected on	:(	03/07/2024				
Samp	le Received on	:(	04/07/2024				
Samp	le Analyzed & Comp	letion : (	04/07/2024 to 1	L1/07/2024			
Quan	tity/No. of Sample	::	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
		٦	Fide)/2 Nos.				
Proto	col (Purpose)	:/	As Per work ord	er			
Packing/ Seal			: Packed				
Packi	ng/ Seal	: I	Packed				
	ng/ Seal ling Method			on 2017, Part-90	000, Section: 9060 A		
Samp	•	:/		on 2017, Part-90	000, Section: 9060 A		
Samp	ling Method le Collected By	:/	APHA 23 <sup>rd</sup> Editic ERM Team	on 2017, Part-90	·		
Samp Samp	ling Method	:/	APHA 23 <sup>rd</sup> Editic ERM Team		D00, Section: 9060 A <b>Test Method</b>		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: / : I Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	sult Low Tide	·		
Samp Samp Sr.	ling Method le Collected By	:/	APHA 23 <sup>rd</sup> Editic ERM Team	sult	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1	Iing Method Ie Collected By Parameters Total Count	: / : I Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 515	sult Low Tide 480	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: / : I Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	sult Low Tide	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1	Ing Method Ie Collected By Parameters Total Count Cynophyceae	: / : I Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 515	sult Low Tide 480	Test Method         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1 2	Iing Method Ie Collected By Parameters Total Count	: / : I Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 515 33	<b>Low Tide</b> 480 30	Test Method           APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti           APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti           APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti           APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1 2	Ing Method Ie Collected By Parameters Total Count Cynophyceae	: / : I Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 515 33	<b>Low Tide</b> 480 30	Test Method         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water				
Sampling Location	: Tapi River Near Jetty of ArcelorMittal Nippon Steel India Limited (AMNS)				
Sample Collected on	: 03/07/2024				
Sample Received on	: 04/07/2024				
Sample Analyzed & Completion	: 04/07/2024 to 11/07/2024				
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	• •				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B				
Sample Collected By	: ERM Team				
Sr	Docult				

Sr.	Parameters	Unit	Result		Test Method		
No.	Parameters	Unit	Low Tide	High Tide	Test Method		
1	Temperature	°C	24	25	IS 3025 (Part 9): 1984 (Thermometer )		
2	pH at 25 ⁰C	pH Unit	8.09	8.11	IS 3025 (Part 11): 2022 (Electrometric Method)		
3	Colour	pt.co.scale	12	14	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017		
3	Coloui	pr.co.scale	12	14	(Spectrophotometric - Single Wavelength Method)		
4	Total Suspended Solids	mg/L	45	84	IS 3025 (Part 17): 2022 (Gravimetric Method)		
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1120	3880	IS 3025 (Part 21): 2009 (EDTA Method)		
6	Calcium as Ca	mg/L	108	136	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)		
7	Magnesium as Mg	mg/L	207	860	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)		
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	151	163	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)		
9	Salinity	ppt	14.3	25.1	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520		
10	Sulphata as SO.	ma/l	641	662	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017		
10	Sulphate as SO₄ mg/L	iiig/L	641	002	(Turbidimetric Method)		
	Phenolic compounds as	mg/L				.0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)		<0.01	<0.01	without Chloroform Extraction)		
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)		
13	Total Nitrogen	mg/L	0.6	0.7	IS 3025 (Part 34) : 1988 (Titrimetric Method)		
14	Phosphate as PO <sub>4</sub>	mg/L	0.4	0.31	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017		
15	BOD (3 Days at 27°C)	mg/L	3	2	IS 3025 (Part 44) :1993		
16	Iron as Fe	mg/L	0.3	0.4	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)		
17	Copper as Cu	mg/L	0.08	0.06	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)		
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)		
19	Zinc as Zn	mg/L	0.5	0.4	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)		
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)		
21	Boron as B	mg/L	0.12	0.14	IS 3025 (Part 57): 2021 (Curcumin Method)		

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### <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024

Name of the Industry	:	: M/s. Larsen & Toubro Limited				
	1	Hazira Works, Dist. Surat				
Sample Description	:	Marine water for Zooplankton Analysis	5			
Sampling Location	:	Tapi River Near Jetty of ArcelorMittal N	Nippon Steel India Limited (AMNS)			
Sample Collected on	:	03/07/2024				
Sample Received on	:	04/07/2024				
Sample Analyzed & Comp	letion :	04/07/2024 to 11/07/2024				
Quantity/No. of Sample		: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Protocol (Purpose)	: /	As Per work order				
Packing/ Seal	:	Packed				
Sampling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By	:	: ERM Team				
Sr. Baramotors	Unit	Result	Tost Mothod			

Sr.	Parameters	Unit	Res	sult	Test Method
No	Farameters	onic	High Tide	Low Tide	Test Method
1	Total Count	No/L	550	471	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	78	66	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	15	19	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	4	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	3	7	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/07-2024

Name					<u>-R/L&amp;1/Rev.0-00/07-2024</u>		
Name	of the Industry		: M/s. Larsen & Toubro Limited				
			Hazira Works, D				
Samp	le Description	: [	Marine water fo	or Phytoplankto	n Analysis		
Samp	ling Location	: 7	Tapi River Near	Jetty of Arcelor	Mittal Nippon Steel India Limited (AMNS)		
Samp	le Collected on	: (	03/07/2024				
Samp	le Received on	:(	04/07/2024				
Samp	le Analyzed & Comp	letion : (	04/07/2024 to 1	L1/07/2024			
Quant	tity/No. of Sample	::	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
	- ·	٦	Γide)/2 Nos.				
Proto	col (Purpose)	: /	As Per work ord	er			
	ng/Seal	: F	: Packed				
Samp	ling Method	:/	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By	: 6	: ERM Team				
Sr.	Damanatan	11	Result		Tech Marthaul		
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
1	Total Count	No/I	523	497	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
1	Total Count	No/L	525	497	methods in Environmental studies by S.K.Maitti		
2	Cynophyceae	%	34	32	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
2	Cynophyceae	70	54	52	methods in Environmental studies by S.K.Maitti		
3	Chlorophyena	%	21	25	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
5	enterophycha	,0		25	methods in Environmental studies by S.K.Maitti		
4	Bacillariophyceae	%	45	43	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		
					methods in Environmental studies by S.K.Maitti		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited			
	Hazira Works, Dist. Surat			
Sample Description	: Marine water			
Sampling Location	: Tapi River Near Narmada Cement Jetty			
Sample Collected on	: 01/08/2024			
Sample Received on	: 02/08/2024			
Sample Analyzed & Completion	: 02/08/2024 to 09/08/2024			
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.			
Protocol (Purpose)	: As Per work order			
Packing/ Seal	: Packed			
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B			
Sample Collected By	: ERM Team			

Sr.	Parameters	Unit Result		sult	Test Method	
No.	Parameters	Onic	Low Tide	High Tide	Test Method	
1	Temperature	°C	24	25	IS 3025 (Part 9): 1984 (Thermometer )	
2	pH at 25 ⁰C	pH Unit	7.92	7.99	IS 3025 (Part 11): 2022 (Electrometric Method)	
3	Colour	pt.co.scale	11	15	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017	
,		pricoiscale		15	(Spectrophotometric - Single Wavelength Method)	
4	Total Suspended Solids	mg/L	34	82	IS 3025 (Part 17): 2022 (Gravimetric Method)	
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1790	2210	IS 3025 (Part 21): 2009 (EDTA Method)	
6	Calcium as Ca	mg/L	84	112	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)	
7	Magnesium as Mg	mg/L	384	467	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)	
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	160	175	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)	
9	Salinity	ppt	8.5	13.4	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520	
10	Sulphata as SO.	mg/L	570	642	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017	
10	10 Sulphate as SO <sub>4</sub>	ilig/L	570	042	(Turbidimetric Method)	
	Phenolic compounds as		10.01	10.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method	
11	(C₀H₅OH)	mg/L	<0.01	01 <0.01	without Chloroform Extraction)	
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)	
13	Total Nitrogen	mg/L	0.6	0.7	IS 3025 (Part 34) : 1988 (Titrimetric Method)	
14	Phosphate as PO <sub>4</sub>	mg/L	0.44	0.51	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017	
15	BOD (3 Days at 27°C)	mg/L	3.1	2.5	IS 3025 (Part 44) :1993	
16	Iron as Fe	mg/L	0.4	0.52	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)	
17	Copper as Cu	mg/L	0.06	0.07	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)	
19	Zinc as Zn	mg/L	0.4	0.35	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
21	Boron as B	mg/L	0.13	0.11	IS 3025 (Part 57): 2021 (Curcumin Method)	

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# TEST REPORT MARINE WATER SAMPLE ANALYSIS REPORT TEST REPORT NO:OF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024

	_	IESI KEPUK	<u>1 NU:QF/7.8/01 A/N</u>	ARINE WATER	L& 1 / Kev.U-UU/ U8-2U24		
Name	of the Industry		: M/s. Larsen & Toubro Limited				
			Hazira Works, Dis	t. Surat			
Samp	le Description		: Marine water for 2	Zooplankton Ana	lysis		
Samp	ling Location		: Tapi River Near Na	armada Cement J	letty		
Samp	le Collected on		:01/08/2024				
Samp	le Received on		:02/08/2024				
Samp	le Analyzed & Co	mpletion	: 02/08/2024 to 09,	/08/2024			
Quant	tity/No. of Samp	le	: 100ml concentrate	ed water sample	in plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work order				
Packir	ng/ Seal		: Packed				
Samp	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By		: ERM Team				
Sr.	Parameters	Unit	Res	ult	Test Method		
No	Parameters	Unit	High Tide	Low Tide			
1	Total Count	No/L	538	496	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
2	Protozoa	%	79	67	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
3	Rotifera	%	11	18	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
4	Nematoda	%	6	5	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
5	Copepoda	%	4	10	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K. Maitti		

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methods in Environmental studies by S.K.Maitti



	MARINE WATER SAMPLE ANALYSIS REPORT							
	<u>TES</u>	T REPORT N	10:QF/7.8/01 A	<u>/MARINE WATI</u>	ER/L&T/Rev.0-00/08-2024			
Name	e of the Industry	:	M/s. Larsen & 1	oubro Limited				
			Hazira Works, D	Dist. Surat				
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis			
Samp	ling Location	:	Tapi River Near	Narmada Ceme	nt Jetty			
Samp	le Collected on	:	01/08/2024					
Samp	le Received on	:	02/08/2024					
Samp	le Analyzed & Comp	letion :	02/08/2024 to (	09/08/2024				
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low					
			Tide)/2 Nos.					
Proto	col (Purpose)	:	: As Per work order					
	ng/ Seal	:	: Packed					
Samp	ling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
-	le Collected By	:	ERM Team					
Sr.	-	_	Result					
No.	Parameters	Unit	High Tide	Low Tide	Test Method			
1	Total Count	N = /1		450	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
1	Total Count	No/L	515	450	methods in Environmental studies by S.K.Maitti			
2	2 Cynophyceae		36	31	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
2	Cynophyceae	%	50	51	methods in Environmental studies by S.K.Maitti			
3	Chlorophyena	%	15	18	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
					methods in Environmental studies by S.K.Maitti			
4	Bacillarionhyceae	%	49	51	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of			

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**TEST REPORT** 

Note: (1) These results relate to the sample tested only.

%

Bacillariophyceae

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited
	Hazira Works, Dist. Surat
Sample Description	: Marine water
Sampling Location	: Tapi River Near Jetty of L&T Ltd.
Sample Collected on	: 01/08/2024
Sample Received on	: 02/08/2024
Sample Analyzed & Completion	: 02/08/2024 to 09/08/2024
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.
Protocol (Purpose)	: As Per work order
Packing/ Seal	: Packed
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
Sample Collected By	: ERM Team

Sr.	Devementere	11	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	25	25	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	8.04	8.13	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	20	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pt.co.scale	12	20	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	31	92	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1050	3660	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	92	128	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	200	812	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	151	157	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	14.5	22.3	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphate as SO <sub>4</sub>	mg/L	640	665	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	LU Sulphate as 504				(Turbidimetric Method)
11	Phenolic compounds as		<0.01	<0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.7	0.85	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.36	0.45	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	3.2	2.6	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.48	0.54	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.07	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.5	0.6	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.09	0.08	IS 3025 (Part 57): 2021 (Curcumin Method)

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024</u>

Name	of the Industry		: M/s. Larsen & Toubro Limited				
			Hazira Works, Di	st. Surat			
Samp	le Description		: Marine water for	Zooplankton Ana	lysis		
Samp	ling Location		: Tapi River Near Jo	etty of L&T Ltd.			
Samp	le Collected on		:01/08/2024				
Samp	le Received on		:02/08/2024				
Samp	le Analyzed & Co	mpletion	: 02/08/2024 to 09/08/2024				
Quantity/No. of Sample			: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work order				
Packir	ng/ Seal		: Packed				
Sampling Method			: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By			: ERM Team				
Sr.	Daramators	Unit	Result		Tost Mothod		
No	Parameters	Unit	High Tide	Low Tide	Test Method		
					APHA 23rd Ed - 2017 Part-9000 & Handbook of		

No			High Tide	Low Tide	
1	Total Count	No/L	572	478	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	82	75	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	11	13	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	5	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	2	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024</u>

	<b>6.1 1 1</b>						
Name	e of the Industry		: M/s. Larsen & Toubro Limited				
			Hazira Works, D				
Samp	le Description	:	Marine water fo	or Phytoplankto	on Analysis		
Samp	ling Location	: '	Tapi River Near	Jetty of L&T Lto	J.		
Samp	le Collected on	:	01/08/2024				
Samp	le Received on	:(	02/08/2024				
Samp	le Analyzed & Comp	letion :	02/08/2024 to (	09/08/2024			
Quan	tity/No. of Sample	::	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
	-	-	Tide)/2 Nos.				
Proto	col (Purpose)		As Per work ord	ler			
			: Packed				
Packi	ng/ Seal	:	Packed				
	•			on 2017, Part-9	000, Section: 9060 A		
Samp	ng/ Seal ling Method le Collected By	:		on 2017, Part-9	000, Section: 9060 A		
Samp	ling Method le Collected By	: :	APHA 23 <sup>rd</sup> Editio ERM Team	on 2017, Part-9			
Samp Samp	ling Method	:	APHA 23 <sup>rd</sup> Editio ERM Team		000, Section: 9060 A Test Method		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: / Unit	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide	esult Low Tide			
Samp Samp Sr.	ling Method le Collected By	: :	APHA 23 <sup>rd</sup> Editio ERM Team	esult	- Test Method		
Samp Samp Sr. No. 1	ling Method le Collected By Parameters Total Count	: / Unit No/L	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide 534	esult Low Tide 492	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: / Unit	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide	esult Low Tide	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1 2	Iing Method Ie Collected By Parameters Total Count Cynophyceae	: / Unit No/L %	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide 534 34	Low Tide 492 31	Test Method         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1	ling Method le Collected By Parameters Total Count	: / Unit No/L	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide 534	esult Low Tide 492	Test MethodAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1 2	Iing Method Ie Collected By Parameters Total Count Cynophyceae	: / Unit No/L %	APHA 23 <sup>rd</sup> Editio ERM Team Re High Tide 534 34	Low Tide 492 31	Test Method         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti         APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		

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AUTHORISED SIGNATORY (Haresh Ahir)



# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited					
	Hazira Works, Dist. Surat					
Sample Description	: Marine water					
Sampling Location	: Tapi River Near Jetty of ArcelorMittal Nippon Steel India Limited (AMNS)					
Sample Collected on	: 01/08/2024					
Sample Received on	: 02/08/2024					
Sample Analyzed & Completion	: 02/08/2024 to 09/08/2024					
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.					
Protocol (Purpose)	: As Per work order					
Packing/ Seal : Packed						
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B					
Sample Collected By	: ERM Team					
Sr.	Result					

Sr.	Parameters	Unit	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	°C	23	24	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 °C	pH Unit	8.06	8.15	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	10	21	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui	pr.co.scale	10	21	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	41	85	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1090	3720	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	108	120	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	199	831	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	145	161	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	13.6	24.7	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphata as SO.	mg/L	630	655	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as SO <sub>4</sub>	IIIg/L			(Turbidimetric Method)
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.8	0.9	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	1.1	1.0	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	3.4	3.1	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.4	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.07	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.4	0.45	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.15	0.18	IS 3025 (Part 57): 2021 (Curcumin Method)

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**AUTHORISED SIGNATORY** (Haresh Ahir)



MARINE WATER SAMPLE ANALYSIS REPORT TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024							
Name	e of the Industry		: M/s. Larsen & To				
			Hazira Works, Dis	st. Surat			
Samp	le Description		: Marine water for	Zooplankton Anal	ysis		
Samp	ling Location		: Tapi River Near Je	etty of ArcelorMitt	al Nippon Steel India Limited (AMNS)		
Samp	le Collected on		:01/08/2024				
Samp	le Received on		:02/08/2024				
Samp	le Analyzed & Co	mpletion	:02/08/2024 to 09	/08/2024			
Quan	tity/No. of Sampl	е	: 100ml concentrat	ted water sample i	n plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Proto	col (Purpose)		: As Per work orde	r			
Packi	ng/ Seal		: Packed				
Samp	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By		: ERM Team				
Sr.	Parameters	Unit	Res	sult	Test Method		
No	Parameters	Unit	High Tide	Low Tide			
1	Total Count	No/L	570	497	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
2	2 Protozoa %		81	74	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
3	Rotifera	%	9 13		APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
4	Nematoda	%	6	10	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
5	Copepoda	%	4	3	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		

**TEST REPORT** 

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# **AUTHORISED SIGNATORY** (Haresh Ahir)



## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/08-2024

	<u></u>				LK/L&T/KEV.0-00/00-2024		
Name	of the Industry	:	: M/s. Larsen & Toubro Limited				
			Hazira Works, Dist. Surat				
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis		
Samp	ling Location	:	Tapi River Near	Jetty of Arcelor	Mittal Nippon Steel India Limited (AMNS)		
Samp	le Collected on	:	01/08/2024				
Samp	le Received on	:	02/08/2024				
Samp	le Analyzed & Comp	letion :	02/08/2024 to 0	09/08/2024			
Quant	tity/No. of Sample	:	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Proto	col (Purpose)	:	: As Per work order				
Packir	ng/ Seal	:	: Packed				
Samp	ling Method	:	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Samp	le Collected By	:	ERM Team				
Sr.	Parameters	Unit	Result		Test Method		
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
1	Total Count	No/L	542	491	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
-			542	431	methods in Environmental studies by S.K.Maitti		
2 Cynophyceae		%	35	28	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
	-, -, -,				methods in Environmental studies by S.K.Maitti		
3	Chlorophyena	%	19	22	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
					methods in Environmental studies by S.K.Maitti		

Note: (1) These results relate to the sample tested only.

%

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50

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Bacillariophyceae

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APHA, 23<sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of

methods in Environmental studies by S.K.Maitti



# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

Hazira Works, Dist. Surat
Marine water
Tapi River Near Narmada Cement Jetty
02/09/2024
03/09/2024
03/09/2024 to 10/09/2024
2+1+1 L in plastic carboys (Each Location) /6 Nos.
As Per work order
Packed
APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B
ERM Team

Sr.	Devenuenteve	l la th	Res	sult	Test Mathed
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	25	24	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	7.93	8.06	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Colodi	pr.co.scale	12	10	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	40	89	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1860	2270	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	88	116	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	399	481	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	154	178	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	8.5	17.6	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	Sulphoto os 50	mg/L	553	661	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	0 Sulphate as SO <sub>4</sub>				(Turbidimetric Method)
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.7	0.85	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.5	0.6	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	<2	<2	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.5	0.6	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.07	0.08	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.4	0.5	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.2	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

	_				<u>-&amp;1/Rev.u-uu/u9-2024</u>			
Name	e of the Industry		: M/s. Larsen & Toubro Limited					
			Hazira Works, Dis	t. Surat				
Samp	le Description		: Marine water for	Zooplankton Ana	lysis			
Samp	ling Location		: Tapi River Near Na	armada Cement J	etty			
Samp	le Collected on		:02/09/2024					
Samp	le Received on		:03/09/2024					
Samp	le Analyzed & Co	mpletion	:03/09/2024 to 10	/09/2024				
Quan	tity/No. of Sampl	e	: 100ml concentrat	ed water sample	in plastic carboys (During High Tide & Low			
			Tide)/2 Nos.					
Proto	col (Purpose)		: As Per work order					
Packi	ng/ Seal		: Packed					
Samp	ling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	le Collected By		: ERM Team					
Sr.	Parameters	Unit	Res	ult	Test Method			
No	Parameters	Unit	High Tide	Low Tide	Test Method			
1	Total Count	No/L	550	505	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
2	Protozoa	oa % 85		76	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
3	Rotifera	%	10 14		APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
4	Nematoda	%	3	6	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti			
	T				APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of			

4

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%

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Copepoda

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methods in Environmental studies by S.K.Maitti



	MARINE WATER SAMPLE ANALYSIS REPORT							
	TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024							
Name	of the Industry	:	M/s. Larsen & T	oubro Limited				
		I	Hazira Works, D	ist. Surat				
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis			
Samp	ling Location	:	Tapi River Near	Narmada Ceme	ent Jetty			
Samp	le Collected on	:(	02/09/2024					
Samp	le Received on	:(	03/09/2024					
Samp	le Analyzed & Comp	letion : (	03/09/2024 to 1	LO/09/2024				
Quant	tity/No. of Sample	::	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low			
			Tide)/2 Nos.					
Proto	col (Purpose)	:/	As Per work ord	er				
Packir	ng/ Seal	:	: Packed					
Samp	ling Method	:/	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A					
Samp	le Collected By	:	ERM Team					
Sr.	Parameters	Unit	Result		Test Method			
No.	Parameters	Unit	High Tide	Low Tide				
1	Total Count	No/L	520	478	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
_		1072	520	-70	methods in Environmental studies by S.K.Maitti			
2	2 Cynophyceae %		35	30	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
	-, -, ,	-			methods in Environmental studies by S.K.Maitti			
3	Chlorophyena	%	17	24	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of			
					methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of			
4	Bacillariophyceae	%	48	46	methods in Environmental studies by S.K.Maitti			

**TEST REPORT** 

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water				
Sampling Location	: Tapi River Near Jetty of L&T Ltd.				
Sample Collected on	: 02/09/2024				
Sample Received on	: 03/09/2024				
Sample Analyzed & Completion	: 03/09/2024 to 10/09/2024				
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	: Packed				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B				
Sample Collected By	: ERM Team				

Sr.	Devementere	11	Result		Test Method
No.	Parameters	Unit	Low Tide	High Tide	Test Method
1	Temperature	٥C	25	26	IS 3025 (Part 9): 1984 (Thermometer )
2	pH at 25 ⁰C	pH Unit	7.97	8.11	IS 3025 (Part 11): 2022 (Electrometric Method)
3	Colour	pt.co.scale	12	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017
3	Coloui	pt.co.scale	12	10	(Spectrophotometric - Single Wavelength Method)
4	Total Suspended Solids	mg/L	36	89	IS 3025 (Part 17): 2022 (Gravimetric Method)
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1070	3580	IS 3025 (Part 21): 2009 (EDTA Method)
6	Calcium as Ca	mg/L	96	128	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)
7	Magnesium as Mg	mg/L	202	792	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	150	162	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)
9	Salinity	ppt	10.8	21.6	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520
10	10 Sulabeta es 50	mg/L	625	672	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017
10	Sulphate as SO <sub>4</sub>				(Turbidimetric Method)
11	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)
13	Total Nitrogen	mg/L	0.8	1.0	IS 3025 (Part 34) : 1988 (Titrimetric Method)
14	Phosphate as PO <sub>4</sub>	mg/L	0.5	0.4	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017
15	BOD (3 Days at 27°C)	mg/L	3.3	3.1	IS 3025 (Part 44) :1993
16	Iron as Fe	mg/L	0.3	0.4	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)
17	Copper as Cu	mg/L	0.08	0.09	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)
19	Zinc as Zn	mg/L	0.5	0.7	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)
21	Boron as B	mg/L	0.2	0.1	IS 3025 (Part 57): 2021 (Curcumin Method)

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AUTHORISED SIGNATORY (Haresh Ahir)



# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

Name of the Industry		: M/s. Larsen & Toubro Limited			
		Hazira Works, Dis	t. Surat		
Sample Description		: Marine water for	Zooplankton Analy	sis	
Sampling Location		: Tapi River Near Je	tty of L&T Ltd.		
Sample Collected on		:02/09/2024			
Sample Received on		:03/09/2024			
Sample Analyzed & Comp	oletion	: 03/09/2024 to 10/09/2024			
Quantity/No. of Sample		: 100ml concentrated water sample in plastic carboys (During High Tide & Low Tide)/2 Nos.			
Protocol (Purpose)		: As Per work order			
Packing/ Seal		: Packed			
Sampling Method		: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A			
Sample Collected By		: ERM Team			
Sr. Parameters	Unit	Res	sult	Tast Mathed	
No	Unit	High Tide	Low Tide	Test Method	

5	Parameters	rameters Unit		Test Method		
No	Faiameters	Onit	High Tide	Low Tide	Test Method	
1	Total Count	No/L	620	535	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
2	Protozoa	%	75	70	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
3	Rotifera	%	14	11	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
4	Nematoda	%	7	8	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	
5	Copepoda	%	4	11	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti	

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

Name of the Industry			: M/s. Larsen & Toubro Limited				
		I	Hazira Works, Dist. Surat				
Samp	le Description	:	Marine water fo	or Phytoplankto	n Analysis		
Samp	ling Location	:	Tapi River Near	Jetty of L&T Lto	I.		
Samp	le Collected on	:	02/09/2024				
Samp	le Received on	:	03/09/2024				
Samp	le Analyzed & Comp	letion :	03/09/2024 to 1	10/09/2024			
Quant	tity/No. of Sample	:	100ml concentr	ated water sam	ple in plastic carboys (During High Tide & Low		
		-	Tide)/2 Nos.				
Proto	col (Purpose)	:	: As Per work order				
Packing/ Seal			: Packed				
	0,	•	lacited				
	ling Method			on 2017, Part-90	000, Section: 9060 A		
Samp	•	:		on 2017, Part-90	000, Section: 9060 A		
Samp	ling Method le Collected By	:	APHA 23 <sup>rd</sup> Editic ERM Team	on 2017, Part-90	·		
Samp Samp	ling Method	:	APHA 23 <sup>rd</sup> Editic ERM Team		D00, Section: 9060 A Test Method		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	esult Low Tide	·		
Samp Samp Sr.	ling Method le Collected By	:	APHA 23 <sup>rd</sup> Editic ERM Team Re	esult	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1	ling Method le Collected By Parameters Total Count	: . Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 565	sult Low Tide 510	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
Samp Samp Sr. No.	ling Method le Collected By Parameters	: Unit	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide	esult Low Tide	Test Method APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1	ling Method le Collected By Parameters Total Count Cynophyceae	: . Unit No/L	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 565	sult Low Tide 510	Test MethodAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
Samp Samp Sr. No. 1 2	ling Method le Collected By Parameters Total Count	Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 565 36	<b>Low Tide</b> 510 30	Test MethodAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti		
Samp Samp Sr. No. 1 2	ling Method le Collected By Parameters Total Count Cynophyceae	Unit No/L %	APHA 23 <sup>rd</sup> Editic ERM Team Re High Tide 565 36	<b>Low Tide</b> 510 30	Test MethodAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.MaittiAPHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		

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# <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> <u>TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024</u>

Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water				
Sampling Location	: Tapi River Near Jetty of ArcelorMittal Nippon Steel India Limited (AMNS)				
Sample Collected on	: 02/09/2024				
Sample Received on	: 03/09/2024				
Sample Analyzed & Completion	: 03/09/2024 to 10/09/2024				
Quantity/No. of Sample	: 2+1+1 L in plastic carboys (Each Location) /6 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	: Packed				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part 1000 Section 1060 B				
Sample Collected By	: ERM Team				
C	Desult				

Sr.	Parameters	Unit	Result		Test Method	
No.	Parameters	Onit	Low Tide	High Tide		
1	Temperature	°C	24	25	IS 3025 (Part 9): 1984 (Thermometer )	
2	pH at 25 °C	pH Unit	8.11	8.23	IS 3025 (Part 11): 2022 (Electrometric Method)	
3	Colour	pt.co.scale	11	18	APHA 23rd Edition, (Part 2000) Section: 2120, C : 2017	
		pricoiscale		-	(Spectrophotometric - Single Wavelength Method)	
4	Total Suspended Solids	mg/L	42	90	IS 3025 (Part 17): 2022 (Gravimetric Method)	
5	Total Hardness as CaCO <sub>3</sub>	mg/L	1100	3760	IS 3025 (Part 21): 2009 (EDTA Method)	
6	Calcium as Ca	mg/L	112	152	IS 3025 (Part 40): 1991 (EDTA Titrimetric method)	
7	Magnesium as Mg	mg/L	199	821	IS 3025 (Part 46): 1994 (Volumetric Method using EDTA)	
8	Total Alkalinity as CaCO <sub>3</sub>	mg/L	152	170	IS 3025 (Part 23): 1986 (Color Indicator Titration Method)	
9	Salinity	ppt	12.5	22.7	APHA 23 <sup>rd</sup> Edition- 2017, Section: 2520	
10	Culubata as CO	mg/L	630	654	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section 4500-SO4-2, E : 2017	
10	Sulphate as SO <sub>4</sub>				(Turbidimetric Method)	
	Phenolic compounds as		10.01	-0.01	IS 3025 (Part 43/Section 1) : 2022 (4 -Aminoantipyrine method	
11	(C₀H₅OH)	mg/L	<0.01	<0.01	without Chloroform Extraction)	
12	Oil and Grease	mg/L	<0.1	<0.1	IS 3025 (Part 39): 2021 (Partition Gravimetric Method)	
13	Total Nitrogen	mg/L	0.7	1.1	IS 3025 (Part 34) : 1988 (Titrimetric Method)	
14	Phosphate as PO <sub>4</sub>	mg/L	1.6	1.8	APHA 23 <sup>rd</sup> Edition, (Part 4000) Section:4500-P, D: 2017	
15	BOD (3 Days at 27°C)	mg/L	3	2.6	IS 3025 (Part 44) :1993	
16	Iron as Fe	mg/L	0.4	0.5	IS 3025 (Part 53): 2003 (1,10 Phenanthroline Method)	
17	Copper as Cu	mg/L	0.06	0.07	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
18	Chromium as Cr	mg/L	<0.03	<0.03	IS 3025 (Part 52): 2003 (Diphenylcarbazide Method)	
19	Zinc as Zn	mg/L	0.5	0.6	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
20	Cadmium as Cd	mg/L	<0.05	<0.05	APHA 23 <sup>rd</sup> Edition, (Part-3000) Section: 3111, B: 2017 (AAS Method)	
21	Boron as B	mg/L	0.1	0.15	IS 3025 (Part 57): 2021 (Curcumin Method)	

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## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024

Name of the Industry	: M/s. Larsen & Toubro Limited				
	Hazira Works, Dist. Surat				
Sample Description	: Marine water for Zooplankton Analy	sis			
Sampling Location	: Tapi River Near Jetty of ArcelorMitta	l Nippon Steel India Limited (AMNS)			
Sample Collected on	: 02/09/2024				
Sample Received on	: 03/09/2024				
Sample Analyzed & Completion	: 03/09/2024 to 10/09/2024				
Quantity/No. of Sample	: 100ml concentrated water sample in plastic carboys (During High Tide & Low				
	Tide)/2 Nos.				
Protocol (Purpose)	: As Per work order				
Packing/ Seal	: Packed				
Sampling Method	: APHA 23 <sup>rd</sup> Edition 2017, Part-9000, Section: 9060 A				
Sample Collected By	: ERM Team				
Sr. Parameters Unit	Result	Test Method			

Sr. Parameters		Unit	Result		- Test Method
No	Farameters	High Tide Low Tide			
1	Total Count	No/L	630	540	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
2	Protozoa	%	85	78	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
3	Rotifera	%	10	13	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
4	Nematoda	%	3	5	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti
5	Copepoda	%	2	4	APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of methods in Environmental studies by S.K.Maitti

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## <u>TEST REPORT</u> <u>MARINE WATER SAMPLE ANALYSIS REPORT</u> TEST REPORT NO:QF/7.8/01 A/MARINE WATER/L&T/Rev.0-00/09-2024

	11.3		NO.QI / 7.8/01 A		ER/LQ1/REV.0-00/09-2024		
Name	e of the Industry	:	M/s. Larsen & T	oubro Limited			
			Hazira Works, D	)ist. Surat			
Sample Description			Marine water fo	or Phytoplankto	n Analysis		
Samp	ling Location	:	Tapi River Near	Jetty of Arcelor	Mittal Nippon Steel India Limited (AMNS)		
Samp	le Collected on	:	02/09/2024				
Samp	le Received on	:	03/09/2024				
Samp	le Analyzed & Comp	letion :	03/09/2024 to 1	10/09/2024			
Quan	tity/No. of Sample	:	100ml concentra	ated water sam	ple in plastic carboys (During High Tide & Low		
			Tide)/2 Nos.				
Proto	col (Purpose)	:	As Per work ord	er			
Packi	ng/ Seal	:	: Packed				
Samp	ling Method	:	APHA 23 <sup>rd</sup> Editic	on 2017, Part-90	000, Section: 9060 A		
Samp	le Collected By	:	ERM Team				
Sr.	Parameters	Unit	Result		Test Method		
No.	Parameters	Unit	High Tide	Low Tide	Test Method		
1	Total Count	No/L	562	510	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
-			502	510	methods in Environmental studies by S.K.Maitti		
2 Cynophyceae		nophyceae %	37 31	31	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
	- / - [ /		-	-	methods in Environmental studies by S.K.Maitti		
3	Chlorophyena	%	13	22	APHA, 23 <sup>rd</sup> Ed 2017, Part-9000 & Handbook of		
					methods in Environmental studies by S.K.Maitti APHA, 23 <sup>rd</sup> Ed. – 2017 Part-9000 & Handbook of		
4	Bacillariophyceae	%	50	47	methods in Environmental studies by S.K.Maitti		

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