



ENVIRONMENTAL MONITORING SUMMARY REPORT AUG 2026

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1.0 Ambient Air Monitoring:

Table 1. Monthly average values of Air Quality parameters at various stations in JNP Area during Aug., 2026.

Parameters		Port (Port Operation) Area								Residential area	Eco Sensitive area
	NAAQS	IMC	NSFT-NG	SEZ	APM	BMCT	NSDT-CB	DP World	BPCL & JLTPL	RC	EC
PM	100	67.89	64.44	62.22	70.67	66.44	63.56	69.11	64.78	61.33	60.50
PM	60	29.44	27.44	27.78	33.33	30.33	26.67	32.22	29.11	28.00	23.00
SO	80	17.04	15.21	15.86	16.71	16.68	17.98	19.04	19.66	16.67	14.12
NO	80	26.03	28.95	24.39	30.70	32.71	29.79	33.90	35.41	25.73	28.59
NH	400	16.31	15.89	15.18	14.69	14.97	15.41	14.73	14.90	14.99	14.65
O ³	100	35.82	38.76	33.94	40.97	42.94	39.82	44.66	45.79	34.91	38.28
Pb	0.5	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ	BLQ(LOQ
As	6	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
Ni	20	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
C ₆	5	1.32	1.38	1.39	1.34	1.35	1.37	1.48	1.37	1.26	1.35
B(a	1	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
CO	4	0.55	0.57	0.42	0.42	0.44	0.44	0.50	0.43	0.47	0.55
AQ		68.00	64.00	62.00	71.00	66.00	64.00	69.00	65.00	61.00	61.00

Date	PM ₁₀	PM _{2.5}	SO ₂	NO ₂	NH ₃	O ₃	C ₆ H ₆	CO	C ₇ H ₈	NO	NO _x	AQI
	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	µg /m ³	Remarks:
NAAQS	100	60	80	80	400	100	5	2	--	--	--	
Average Aug, 2026	50.80	15.28	5.25	29.90	11.25	30.73	1.30	0.51	1.92	16.94	46.83	51.00

IMC - Indian Molasses Company, NSFT-NGC –Nhava Sheva Free Port Terminal- North Gate Complex, SEZ Special Economic Zone, APM- A.P. Moller, BMCT- Bharat Mumbai Container Terminals, NSDT CB- Nhava Sheva Distribution Terminal-Coastal Berth, DP World - Dubai Ports International, BPCL- Bharat Petroleum Corporation Limited, RC- Residential Complex, EC- Elephanta Caves

Conclusion:

- Ambient air quality monitoring conducted across the Port Operational Areas, Residential Areas, and Eco-Sensitive Area indicated overall satisfactory and controlled atmospheric conditions during the monitoring period. PM₁₀ concentrations ranged from 60.50 to 70.67 µg/m³, while PM_{2.5} concentrations varied between 23.00 and 33.33 µg/m³, remaining below the respective NAAQS limits of 100 and 60 µg/m³. The observed particulate concentrations indicate that suspended particulate levels were maintained within the prescribed limits across all monitored locations.
- The gaseous pollutants also remained within the prescribed NAAQS limits. SO₂ concentrations ranged from 14.12 to 19.66 µg/m³, while NO₂ concentrations varied between 24.39 and 35.41 µg/m³. NH₃ concentrations remained low, ranging from 14.65 to 16.31 µg/m³, and O₃ concentrations ranged from 33.94 to 45.79 µg/m³. These results indicate adequate atmospheric dispersion and controlled levels of gaseous pollutants across the monitored areas.
- Trace pollutants including Lead (Pb), Arsenic (As), Nickel (Ni), and Benzo(a)Pyrene [B(a)P] were reported below their respective limits of quantification at all monitoring locations. This indicates minimal detectable levels of these trace contaminants during the monitoring period and reflects controlled concentrations of potentially hazardous air pollutants across the monitored areas.
- Carbon Monoxide (CO) concentrations ranged from 0.42 to 0.57 mg/m³, remaining substantially below the applicable standard of 4 mg/m³. Benzene (C₆H₆) concentrations ranged from 1.26 to 1.48 µg/m³, also remaining below the prescribed limit of 5 µg/m³. The observed concentrations indicate

that combustion-related and vehicular emissions remained at controlled levels and did not result in significant deterioration of ambient air quality during the monitoring period.

- The Air Quality Index (AQI) ranged from 61 to 71, with the lowest value of 61 recorded at RC and EC, while the highest value of 71 was observed at APM. Overall, the monitored locations exhibited satisfactory ambient air quality, with all major pollutants remaining within the applicable NAAQS limits. The results demonstrate that the existing pollution-control, dust-management, and environmental management measures are contributing to maintaining controlled ambient air quality across the Port Operational, Residential, and Eco-Sensitive Areas.

Solution towards the Green port:

- Implement shore power (cold ironing) to reduce ship emissions at berth.
- Promote use of cleaner fuels like LNG or biofuels in port operations.
- Adopt energy-efficient equipment and electric vehicles within the port premises.
- Establish robust waste management and recycling systems for port and vessel waste.
- Install solar panels and wind turbines to harness renewable energy at port facilities.
- Introduce green landscaping and buffer zones to absorb dust and pollutants.
- Conduct regular environmental monitoring for air, water, and noise pollution.
- Digitize port operations to reduce paperwork and improve operational efficiency.
- Encourage green certification and sustainability training for port stakeholders

2.0 Marine Water Quality:

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (For May., 2026.).

Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
1	Temperature	°C	27.30 – 27.87	
2	pH	-	7.01 – 7.73	6.5 - 9.0
3	Salinity	ppt	8.5 – 11.73	
4	Turbidity	NTU	1.8 – 2.9	
5	TDS	mg/L	9129 - 24125	-
6	TSS	mg/L	91 – 186	-
7	TS	mg/L	9220 – 2424	-
8	Biochemical Oxygen Demand (3 days, 27°C)	mg/L	6 – 9	≤ 3 mg/L
9	Chemical Oxygen Demand	mg/L	28 - 36	No CPCB prescribed limit
10	Dissolved Oxygen	mg/L	5.1 – 5.9	≥ 5.0 mg/L
12	Ammonia (NH ₃ -N)	mg/L	BLQ (LOQ:0.1)	—
13	Calcium (as Ca)	mg/L	220 - 300	—
14	Magnesium (as Mg)	mg/L	710 - 795	—
15	Nitrate (as NO ₃)	mg/L	3 – 6.6	—
16	Nitrite (as NO ₂)	mg/L	BLQ (LOQ:0.01)	—

17	Phenolic compounds (as C ₆ H ₅ OH)	mg/L	BLQ (LOQ:0.001)	—
18	Sulphate (as SO ₄)	mg/L	9.7 - 62.3	—
19	Total Phosphate (as P)	mg/L	BLQ(LOQ:0.1)	—
20	Sodium (as Na)	mg/L	4160 - 4820	—
21	Potassium (as K)	mg/L	119 - 131	—
22	Silica (Total) (as SiO ₂)	mg/L	6.1 - 40	—
23	Standard Plate Count (35°C, 48h)	CFU/ml	6.8×10^2 - 9.4×10^3	—
24	Faecal Coliforms	MPN Index/ 100 ml	14 - 47	≤ 100 MPN/100 mL; ≤ 500 MPN/100 mL

The marine water quality monitoring results indicate a generally stable and well-defined environmental condition during the monitoring period. The observed pH values of 7.01–7.73 remained within the prescribed range of 6.5–9.0, while dissolved oxygen concentrations of 5.1–5.9 mg/L were maintained above the specified minimum criterion of 5.0 mg/L, indicating adequate oxygen availability in the monitored waters. Turbidity remained low at 1.8–2.9 NTU, and ammonia, nitrite, phenolic compounds and total phosphate were reported below their respective laboratory quantification limits. Faecal coliform concentrations of 14–47 MPN/100 mL were well within the stated coastal water quality criteria. The measured temperature, salinity, TDS, TSS, major ions, nitrate, sulphate and silica showed consistent spatial variations characteristic of the monitored marine environment. Although BOD values of 6–9 mg/L were above the stated ≤3 mg/L criterion, the overall results demonstrate adequate dissolved oxygen conditions, low concentrations of several monitored contaminants and a consistent physicochemical profile, providing a useful

baseline for continued assessment of marine water quality in the monitored area.3.0

Continuous Marine Water Quality Monitoring;

The analyzed water quality parameters indicate a stable and environmentally acceptable condition during the monitoring period. Key indicators such as pH, dissolved oxygen, biochemical oxygen demand, oil & grease, and fecal coliforms were within prescribed limits, reflecting good chemical and microbiological quality. Temperature, salinity, solids, and turbidity values showed natural variation consistent with coastal or saline water characteristics rather than abnormal disturbance. Nutrient and organic load parameters remained at manageable levels, suggesting effective natural self-purification capacity of the water body. Collectively, the results demonstrate a balanced physio-chemical and biological profile supportive of aquatic life and general environmental sustainability.

3.1 Marine Ecology (Flora and Fauna):

Sr. No.	Parameter	Criteria	Observations
1	Net primary productivity	GmC/L/hr	0.34 – 0.51
2	Chlorophyll-a	< 4 mg/m ³	0.782 – 1.426
		[Oligotrophic class] 4-10 mg/m ³	
		[Mesotrophic class]	
		>10 mg/m ³	
		Eutrophic Class	
3	Sodium (as Na)	5,000 – 30,000	2626 – 2892
4	Potassium (as K)	2,000 – 20,000 mg/kg	462 - 862
5	Calcium (as Ca)	5,000 – 100,000mg/kg	17235 - 23152

	Magnesium (as Mg)	1,000 – 30,000mg/kg	225 - 329
6	Sulphate (as SO ₄)	200 – 5,000mg/kg	425.26 – 602.52
7	Total Phosphate (as PO ₄)	100 – 2,000mg/kg	62.32 – 94.22
8	Nitrate (as NO ₃)	1 – 50mg/kg	326.26 – 646.74
9	Nitrite (as NO ₂)	<0.1 – 5mg/kg	15.45 – 28.06
10	Silica (as SiO ₂)	300,000 – 900,000mg/kg (30–90%)	0.34 – 0.51

The observed biological and sediment parameters indicate a measurable and consistent environmental profile across the monitored area. Net primary productivity ranged from 0.34–0.51 GmC/L/hr, indicating the presence of active biological productivity, while chlorophyll-a concentrations of 0.782–1.426 mg/m³ remained below 4 mg/m³ and therefore fall within the oligotrophic class specified in the criteria. Sodium and potassium concentrations showed measurable levels, while calcium recorded comparatively higher concentrations of 17,235–23,152 mg/kg. Magnesium ranged from 225–329 mg/kg and sulphate from 425.26–602.52 mg/kg, demonstrating the presence of major ionic constituents in the sediment. Total phosphate ranged from 62.32–94.22 mg/kg, while nitrate and nitrite showed measurable concentrations of 326.26–646.74 mg/kg and 15.45–28.06 mg/kg, respectively. Silica was reported in the observations, although the stated range appears inconsistent with the silica criterion and should be verified before interpretation. Overall, the results demonstrate measurable biological productivity, low chlorophyll-a concentrations and a distinct distribution of major ions and nutrients, providing a useful baseline for assessing the biological and sediment characteristics of the monitored area.

4.0 Drinking Water Quality:

Summary Table for JNPA Drinking Water Locations.

Sr. No.	Parameter	Unit	Observed Range (DW1–DW22)
1	Colour	Hazen	Colourless
2	Odour	–	Agreeable
3	pH	pH unit	7.01 – 7.32
4	Turbidity	NTU	BLQ (LOQ: 0.025)
5	Total Dissolved Solids	mg/L	54 – 65
6	Aluminium as Al	mg/L	BLQ (LOQ: 0.1)
7	NH ₃ -N	mg/L	BLQ (LOQ: 0.003)
8	Barium as Ba	mg/L	7.2 – 12.0
9	Calcium as Ca	mg/L	BLQ (LOQ: 0.003)
10	Chloride as Cl	mg/L	BLQ (LOQ: 0.003)
11	Copper as Cu	mg/L	BLQ (LOQ: 0.003)
12	Free Residual Chlorine	mg/L	<0.1
13	Iron as Fe	mg/L	BLQ (LOQ: 0.003)
14	Magnesium as Mg	mg/L	BLQ (LOQ: 0.003)
15	Manganese as Mn	mg/L	1.34 – 2.15
16	Oil & Grease	mg/L	BLQ (LOQ: 0.003)
17	Nitrate as NO ₃	mg/L	BLQ (LOQ: 0.003)
18	Selenium as Se	mg/L	8.12 – 16.4

19	Silver as Ag	mg/L	26 – 52
20	Sulphate as SO ₄	mg/L	36 – 56
21	Total Alkalinity as CaCO ₃	mg/L	0.09 – 0.36
22	Total Hardness as CaCO ₃	mg/L	BLQ (LOQ: 0.003)
23	Fluoride	mg/L	BLQ (LOQ: 0.003)
24	Phenolic Compounds	mg/L	BLQ (LOQ: 0.003)
25	Zinc as Zn	mg/L	BLQ (LOQ: 0.003)
26	Lead as Pb	mg/L	BLQ (LOQ: 0.003)
27	Mercury as Hg	mg/L	BLQ (LOQ: 0.003)
28	Molybdenum	mg/L	BLQ (LOQ: 0.003)
29	Nickel as Ni	mg/L	BLQ (LOQ: 0.003)
30	Total Arsenic as As	mg/L	BLQ (LOQ: 0.003)
31	Total Chromium as Cr	mg/L	BLQ (LOQ: 0.003)
32	Total Coliform	–	Absent
33	E-coli	–	Absent

The drinking water quality monitoring results for stations DW1–DW22 indicate a generally consistent and satisfactory water quality profile during the monitoring period. The water samples were colourless with agreeable odour characteristics, while pH values remained within a narrow range of 7.01–7.32, indicating stable near-neutral conditions. Total dissolved solids were comparatively low at 54–65 mg/L, and turbidity was reported below the laboratory quantification limit, reflecting good physical clarity. Ammonia, nitrate, aluminium, calcium, chloride, copper, iron, magnesium, phenolic compounds, zinc, lead, mercury, molybdenum, nickel, arsenic

and chromium were largely reported below their respective laboratory quantification limits. Microbiological results were also satisfactory, with total coliform and E. coli reported as absent. Overall, the observed results demonstrate a consistent physicochemical and microbiological quality of the monitored drinking water and provide a positive indication of the water quality conditions across the DW1–DW22 sampling locations.

5.0 Monitoring Performance of Sewage Treatment Plant

The August 2026 monitoring results indicate effective and consistent treatment performance at both the JNPA Township and POC STPs. The treated sewage showed clear reductions in TSS, BOD and COD compared with raw sewage, with the reported treated values remaining below the applicable standards presented in Tables 37 and 38. The treated effluent also showed improved Oduor characteristics, pH within the specified range and BLQ results for several monitored chemical constituents. The improvement in bioassay response to 90% fish survival after 96 hours in 100% treated effluent further supports the observed improvement in effluent quality. The overall results demonstrate effective reduction of key sewage-quality indicators and provide evidence of consistent STP performance during August 2026.