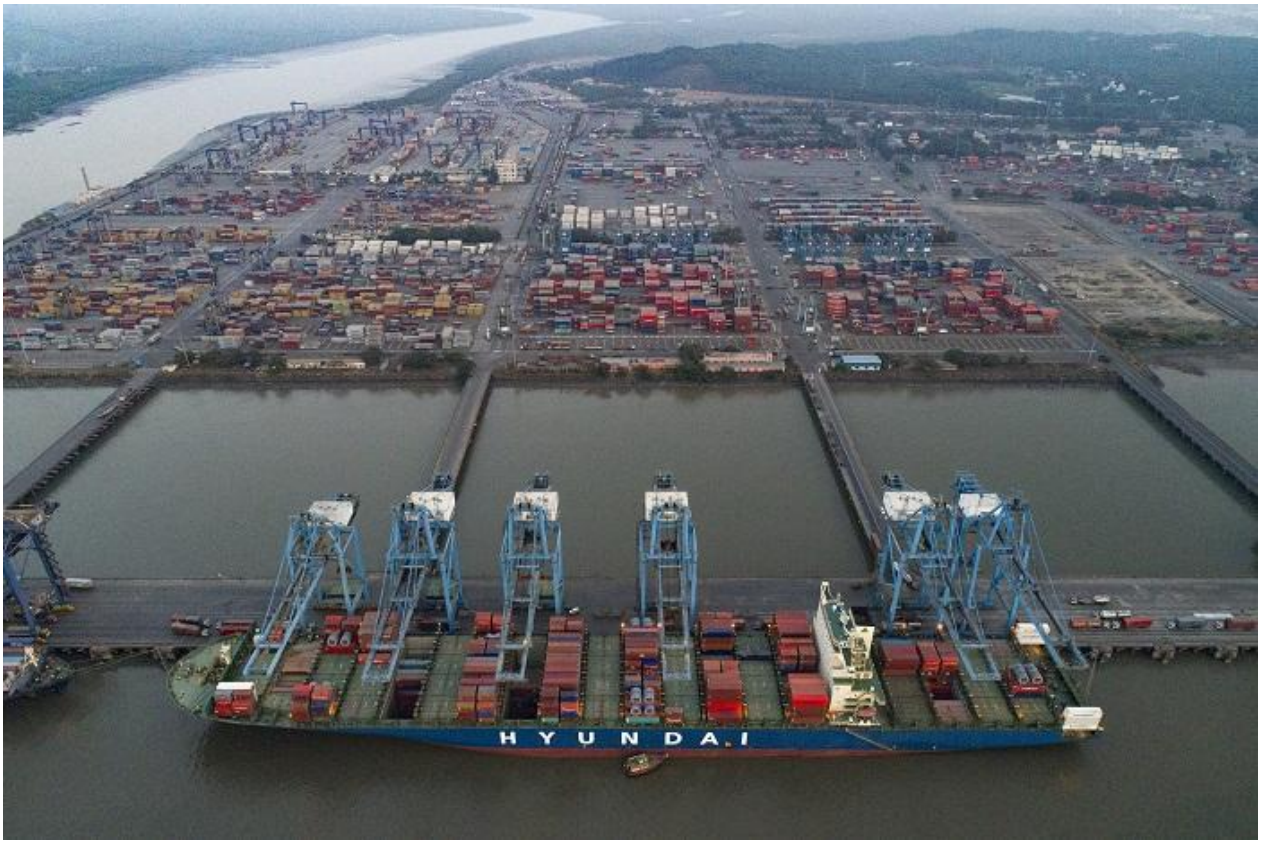

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT
ENVIRONMENTAL MONITORING REPORT- January, 2025
EXECUTIVE SUMMARY

REPORT NO: AEC/JNPA/Summary-01/JAN-25

MONTH & YEAR: JANUARY 2025

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1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNP Area during January, 2025.

Parameters		Industrial (Port Operation) Area								Residential area	Eco Sensitive area
	NAAQ Units	IMC	NSFT-NG	SEZ	APM	BMCT	NSDT-CB	DP World	BPCL	RC	EC
PM_{10}	100 µg/m³	178.11	187.49	139.49	164.69	151.75	177.6	173.1	146.03	94.785	74.83
$PM_{2.5}$	60 µg/m³	66.76	66.9	61.36	68.25	61.76	70.79	65.37	57.97	51.2	37.96
SO_2	80 µg/m³	10.38	10.49	9.34	9.26	8.08	8.16	7.51	9.05	8.55	6.45
NO_2	80 µg/m³	34.45	21.38	28.4	21.83	24.24	26.8	21.26	26.8	22.45	17.8
NH_3	400 µg/m³	28.89	36.14	26.11	32.9	30.95	24.56	26	23.59	26.41	22.15
O^3	100 µg/m³	34.36	24.6	28.9	23.6	25.38	22.98	23.6	23.45	22.43	22.95
Pb	0.5 µg/m³	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
As	6 ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ni	20 ng/m³	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C_6H_6	5 µg/m³	2.53	1.31	2.19	3.05	2.11	2.1	1.96	4.39	1.38	1.06
B(a)P	1 ng/m³	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CO	4 mg/m³	1.46	1.51	1.34	1.26	1.21	1.17	0.82	1.02	1.33	0.88

AQI	**178**	**187**	**139**	**165**	**152**	**178**	**173**	**146**	**95**	**75**

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

1.1 Continuous Ambient Air Quality Monitoring:

Monthly average values of Air Quality parameters by Continuous Ambient Air Quality Monitoring Station at Port Operation Center (POC) - JNP area during January, 2025.

Date	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**NO_2**	**NH_3**	**O_3**	**C_6H_6**	**CO**	**C_7H_8**	**NO**	**NO_X**	**AQI**
	ug/ m^3	**ug/ m^3**	**ug/ m^3**	**ug/ m^3**	**ug/ m^3**	**ug/ m^3**	**ug/ m^3**	**mg/ m^3**	**ug/ m^3**	**ug/ m^3**	**ug/ m^3**	**Remarks :**
NAAQS	**100**	**60**	**80**	**80**	**400**	**100**	**5**	**2**	**--**	**--**	**--**	
Averag J2025	155.98	41.25	9.78	52.37	8.47	21.19	2.28	0.28	9.63	17.14	66.44	156.06

24-hr average concentration of PM10, PM2.5, SO2, NO2, NH3 and other parameters were measured at 11 locations with one continuous at POC and 10 fixed Monitoring station viz. IMC, NSFT-NGC, SEZ, APM, BMCT, NSDT-CB, DP World, BPCL, JNP residential township and EC area using high volume air samplers, Fine Particulate samplers (APM 460 NL and APM 550 MFC) and gaseous samplers.

During January, 2025. Overall ambient air quality of the JNP was observed Poor at IMC, NSFT-NGC, APM, BMCT, NSDT-CB and Moderate at SEZ, DP-World, BPCL, RC and EC location as per CPCB standards. To improve air quality the port is using number of precautionary measures, such as maintained a wide expanse of Green zone, initiated Inter Terminal Transfer (ITT) of tractor-trailers which not just help saving cost also eco-friendly to environment, installed solar panels on the roof tops of various building in the office premises which cumulatively reduces electricity consumption, the use of LED lights at JNP area helps in lower energy consumption and decreases the carbon foot prints in the environment, time to time cleaning of

paved and unpaved roads, use of tarpaulin sheets to cover dumpers at project sites etc. are helping to achieve the cleaner and green future at port.

JN Port goes green by implementing EV trucks to reduce vehicle emissions, noise pollution and deploys E-vehicles, including in the SEZ area. E-RTGs are implemented to reduce carbon emissions and decrease the environmental impact of port operations. The port is committed to sustainable growth to reduce its impact on the environment and neighboring communities. E-cars are zero-emission vehicles that enable the transition of JN Port to green and energy-efficient mobility solutions. The work of concretizing roads at JN Port will reduce fuel consumption, traveling time, and maintenance, ensuring smooth movement of traffic on the port road.

JN Port received no rainfall during the month of January, 2025. The observed lowest temperature is 23.88°C. The prominent wind direction (blowing from) was the East South East (ESE) in the port area. Average values of wind speed, temperature, relative humidity and solar radiation recorded were 2.64 Km/hr, 28.48°C, 71.19 % and 145.82 W/m2 respectively. The maximum wind speed recorded was 4.13 Km/hr.

1.3 Solution towards the Green port:

Enhanced Noise Pollution Control Measures for Ports

1. **Regular Maintenance & Upgrades**
   - Ensure regular servicing and tuning of vehicles, cranes, and machinery to minimize excessive noise.
   - Install silencers and noise suppressors on trucks, cargo-handling equipment, and ships.
   - Upgrade to low-noise machinery and adopt noise-reducing materials in port infrastructure.
2. **Operational Modifications**
   - Implement restricted operational hours for high-noise activities, especially near residential areas.
   - Introduce zoning regulations to separate high-noise operations from administrative and public areas.
   - Use rubber or composite materials in container handling to reduce impact noise.
3. **Alternative & Sustainable Technology**
   - Transition from diesel-powered cranes to electric or hybrid models (E-RTGCs, electric forklifts, and battery-powered equipment).
   - Implement automated and remote-controlled operations to minimize human exposure to high-noise areas.
   - Use rubberized or composite pavement to absorb noise from vehicle movements.
4. **Monitoring & Compliance**

- Conduct regular noise level assessments to ensure compliance with environmental standards.
- Implement real-time noise monitoring systems with alerts for excessive noise levels.
- Enforce strict regulations on horn usage and unnecessary revving of engines.

2.0 Marine Water Quality:

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (For January, 2025.).

Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
1	Temperature	°C	26.32 - 29.7	-
2	pH	-	7.01-7.42	6.5 - 9.0
3	Salinity	ppt	33.09 – 34.18	-
4	Turbidity	NTU	26.5 - 146	-
5	TDS	mg/L	21875-37556	-
6	TSS	mg/L	220 - 324	-
7	TS	mg/L	22160 - 37824	-
8	DO	mg/L	3.15 – 4.94	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	22.9 – 84	-
10	BOD	mg/L	0.67 – 2.92	5
11	Ammonia	mg/L	0.0251-0.2218	-
12	Phenol	mg/L	0.021- 0.071	-
13	Oil & Grease	mg/L	0.181- 0.698	10 (max.)
14	Total Plate Count	CFU/ml	100 - 416	-
15	Fecal Coliforms	MPN/100ml	165 - 696	500 (max.)

Conclusion:

The values of various parameters such as pH, Dissolved Oxygen, BOD and Oil & Grease are within the prescribed limits. From the above results it can be concluded

that, the Port's working does not affect the Quality of the Marine water. The overall Marine Water Quality of the Harbor is in good category.

2.2 Continuous Marine Water Quality Monitoring;

A Continuous Marine Water Quality Monitoring system was installed at the JNPA berth bridge location to monitor parameters such as Temperature, pH, Dissolved Oxygen, Ammonia, Conductivity, Nitrate, Salinity, Turbidity, and Total Dissolved Solids. These parameters are found satisfactory as per prescribed limits.

3.0 Marine Ecology (Flora and Fauna):

Sr. No.	Parameter	Observed Range	Criteria
1	Net Primary Productivity	66.3 – 125.4 mgC/m3/day	<1500 mg C/m3/day at surface
2	Chlorophyll A	1.121 – 1.322 mg/m3	<4 mg/m3 (Oligotrophic class), 4-10 mg/m3 (Mesotrophic class), >10 mg/m3 (Eutrophic class)
3	Phosphate	49. 80- 98.80 µg /L	0.1-90 µg/L
4	Nitrate	481.45 – 894.47 µg/L	1.0-500 µg/L
5	Nitrite	18.22 - 52.7 µg/L	<125 µg/ L
6	Particulate Organic Carbon	15.820-32.40 mg/m3	10-100 mg/m3
7	Silicate	30.0-63.50 µg/L	10-5000 µg/L

The results obtained from the study for the month of January, 2025. Nitrates and phosphate 10-5000 µg/L were observed higher than prescribed standards limit of ecological parameters for Arabian Sea disturbance in sediment leading to increase of these nutrients. Net Primary Productivity and Chlorophyll-a were well within prescribed standards for ecological parameters for Arabian Sea. However, considering the activities in JNP Harbor, it is seen that the marine ecosystem is not adversely affected by Port activities. Proper care should be

taken for treatment of sewage and industrial waste before discharging into the open sea by nearby concerned cities, industrial estates and villages etc.

4.0 Drinking Water Quality:

The Drinking water being supplied to JN Port is safe for drinking purpose. At all drinking water monitoring stations around port area are found to be as per the drinking water specifications given in IS 10500:2012 and also on the basis of analysis parameter.

5.0 Monitoring Performance of Sewage Treatment Plant

It is seen that the performance of STP at JNP Township and POC is satisfactory by overall. The treatment plant was well maintained during [January, 2025.] with considerable removal efficiency achieving the standards prescribed for final disposal.