

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT ENVIRONMENTAL MONITORING REPORT- JULY 2021 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNPT area
during July, 2021

Parameters			Industrial (Port Operation) Area						Residential Area	Eco Sensitive area
			IMC	NG	SEZ	APM	BMCT	CB	RC	EC
	Units	NAAQS								
PM ₁₀	µg/m ³	100	81.34	73.47	75	72.81	71.35	65.59	47.23	17.03
PM _{2.5}	µg/ m ³	60	36.79	33.23	29.68	28.8	33.4	30.17	17.9	8.67
SO ₂	µg/ m ³	80	4.59	4.15	4.09	4.11	4.13	3.70	2.66	1.89
NO ₂	µg/ m ³	80	9.32	8.42	8.3	8.34	8.32	7.51	5.41	3.5
NH ₃	µg/ m ³	80	13.46	12.16	12	12.05	12.02	10.86	7.82	3.5
O ₃	µg/ m ³	100	15.13	13.67	13.48	13.54	13.51	12.2	8.78	5.72
Pb	µg/m ³	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
As	ng/m ³	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ni	ng/m ³	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
C ₆ H ₆	µg/ m ³	5	2.15	1.95	1.92	1.93	1.94	1.74	1.25	0.6
B(a)P	ng/ m ³	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CO	mg/m ³	4	0.51	0.46	0.46	0.45	0.49	0.41	0.29	0.34
AQI			81.3	73.5	75.0	72.8	71.4	65.6	47.2	25.5

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) - JNPT area during July, 2021

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
	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	--	--	--	Remarks: Satisfactory
Average July-21	40.05	19.54	2.08	9.05	10.22	2.2	2.38	1.23	1.98	8.85	18.01	40.59

Conclusion:

- 24-hr average concentration of PM₁₀, PM_{2.5}, SO₂, NO₂, NH₃ other parameters were measured at nine locations viz. POC, IMC, NG, SEZ, APM, BMCT, CB, JNP residential township and EC area using high volume air samplers, respirable dust sampler (APM 460 NL and APM 550 MFC) and gaseous sampler.
- During July, 2021 overall ambient air quality of the JN Port area is within CPCB permissible limits. To maintain air quality, the port is using number of precautionary measures, such as maintained a wide expanse of Green zone, nine e-vehicles under green port initiatives, initiated Inter-Terminal Transfer (ITT) of tractor-trailers port, switched from diesel to electrically powered e-RTGCs which not just help saving cost but are 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.. For cleaner and greener future.
- JN Port received heavy rainfall around 927.66 mm during July, 2021 and the entire rainfall is about 1827.16mm the prominent wind direction (blowing from) was the West (W) in the port area. Average values of wind speed, temperature, relative humidity and solar radiation recorded were 6.98 Km/Hr, 25.36°C, 87.47% and 66.20 W/m² respectively. The maximum wind speed recorded was 11.45 Km/Hr.

Corrective Action Suggested:

- In case of heavy continued rain, follow weather forecasts.
- Make sure the emergency and first aid bags are ready.
- Stay sanitized of public transport and all basic items at public interaction places as much as possible.
- During a thunderstorm, avoid standing under trees and electricity poles.
- Perform periodic maintenance for electrical and water systems.
- Display of Environmental Initiative Boards should be increased as like JNPT township, to create awareness towards public.
- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- Avoid excessive idling of automobiles and ships.

- To avoid airborne disease must maintain a safe distance from anyone who is coughing or sneezing.
- Use of renewable energy like solar energy should be optimal and ensure to work continuously.
- New Services and technology like Electric cart, Inter-Terminal Transfer (ITT) are worthy selection to reduce Port operation efficiency and fuel cost.
- Conventional RTGCs should be altered as E-RTGCs counting inside the port completely.
- New scanning technology and new high power Tugs are reducing operation timing and CO₂ Emission are good creativity.
- Initiate Natural Gas (CNG) only as fuel by all buses and trucks.

2.0 Marine Water Quality

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (*For July, 2021*).

Sr. No.	Parameter	Observed	Unit	Prescribed Limits
1	Temperature	°C	27.9-31.8	-
2	pH	-	8.35-8.68	6.5 - 9.0
3	Salinity	ppt	27.6-31.2	-
4	Turbidity	NTU	22-48	-
5	TDS	mg/L	28356-40512	-
6	TSS	mg/L	110-255	-
7	TS	mg/L	28474-40707	-
8	DO	mg/L	5.42-6.53	3.0 mg/L(min.) or 40% of saturation
9	COD	mg/L	69.4-110	-
10	BOD	mg/L	0.82-2.1	5 (max.)
11	NH ₃ -N	mg/L	0.0042-0.0129	-
12	Phenol	mg/L	0.004-0.024	-
13	Oil & Grease	mg/L	0.023-0.462	10 (max.)
14	Total Plate	CFU/ml	72-202	-
15	Fecal Coliforms	MPN/100ml	63-120	500 (max.)

Conclusion:

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 Harbour is in good category.

3.0 Marine Ecology (Flora and Fauna):

Sr. No.	Parameter	Observed Range	Criteria
1	Net Primary Productivity	2.083-10.875 mg C/m ³ /day	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	8.9445-28.6224 mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 mg/m ³ (Eutrophic class)
3	Phosphate	24.90-71.03 µg/L	0.1-90 µg/L
4	Nitrate	230.51-323.52 µg/L	1.0-500 µg/L
5	Nitrite	31.5-44.2 µg/L	<125 µg/L
6	Particulate Organic Carbon	5.3-7.6 mg/m ³	10-100 mg/m ³
7	Silicate	17.010-49.577 µg/L	10-5000 µg/L

The results obtained from the study for the month of July, 2021. Nitrates, Nitrite and Silicate are well within prescribing standards for ecological parameters for Arabian Sea except Phosphate. Net Primary Productivity and Chlorophyll-a were well within prescribed standards for ecological parameters for Arabian Sea. However, considering the activities in JNP Harbour, it is seen that the marine ecosystem is not adversely affected by Port activities.

Corrective Action Suggested:

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 of Performance of Sewage Treatment Plant

It is seen that the performance of STP at JNP Township is satisfactory. The treatment plant was well maintained during [July 2021] with considerable removal efficiency achieving the standards prescribed for final disposal.