

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT-SEPTEMBER 2019 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNPT area during September, 2019

Parameters			Industrial (Port Operation) Area						Residential Area	Eco Sensitive Area
			Station Name							
	Units	NAAQS	POC	IMC	NG	SEZ	APM	BMCT	RC	EC
PM ₁₀	µg/m ³	100	55.5	87.3	77.4	69.1	80.4	69.3	40.1	27.8
PM _{2.5}	µg/m ³	60	35.1	37.6	42.3	44.9	33.0	35.1	27.8	23.0
SO _x	µg/m ³	80	16.6	17.8	19.6	18.8	18.6	17.3	15.2	10.5
NO _x	µg/m ³	80	12.3	12.8	13.6	14.6	16.2	15.1	13.4	9.3
O ₃	µg/m ³	100	9.7	9.4	9.6	9.9	9.3	9.4	8.9	7.3
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	1.3	1.4	1.4	1.4	1.0	1.3	1.2	1.1
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	1.3	1.4	1.3	1.4	1.5	1.3	1.2	1.0
CO ₂	ppm	-	280.9	269.6	272.8	275.2	279.2	261.6	253.6	231.5
AQI			58.4	87.3	77.4	74.8	80.5	69.3	46	38

Conclusion:

- 24-hr average concentration of PM₁₀, PM_{2.5}, SO₂ and NO₂ and other parameters were measured at eight locations viz. POC, IMC, North Gate, SEZ, APM terminals, BMCT, JNP residential township and EC area using high volume samplers (APM 460 NL and APM 550 MFC).
- During September 2019 overall ambient air quality of the JN Port area is within CPCB permissible limits. PM₁₀ and PM_{2.5} values were found in normal range at all location. To overcome Particulate Matter reduction, the port is using number of precautionary measures, such as maintained a wide expanse of Green zone, procured Electric Cart 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.

The prominent wind direction (blowing from) was West South West (WSW) in the port area. average values of wind speed, temperature, relative humidity, solar radiation and total rainfall recorded were 2.29m/s, 27.18°C, 89.44%, 0.098CCM and 558mm respectively.

Corrective Action Suggested:

- New Services and technology like Electric cart, Inter-Terminal Transfer (ITT) are worthy selection to reduce Port operation efficiency and fuel cost.
- Regular maintenance of roads is necessary during rainy season, due to continues trailer movement paved road become unpaved.
- Keep cars, boat, ships and other engines properly tuned.
- Due to rainy season stagnant water in road side pits increases, so regular cleaning and time to time collection of wreckage should be done.
- Be sure vehicles exhausts are properly maintained.
- Water pit at entry and exit points of construction site for washing of truck tyres.
- Dumper carrying construction material and earth filing material must be covered with tarpaulin sheet to reduce dispersal of dust in the air.
- During renovation work at JNP Township green mesh cloth should be used to minimize dust generated.

2.0 Marine Water Quality:

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (For September, 2019).

Sr.	Parameter	Observed	Unit	Prescribed Limits
1	Temperature	°C	25.6-28.7	-
2	pH	-	7.6-8.13	6.5 - 9.0
3	Salinity	Ppt	8.37-20.22	-

4	Turbidity	NTU	14.2-77.7	-
5	TDS	mg/L	9268-45746	-
6	TSS	mg/L	74-365	-
7	TS	mg/L	9344-46076	-
8	DO	mg/L	4.86-6.08	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	27-268	-
10	BOD	mg/L	0.75-2.72	5 (max.)
11	NH ₃ -N	mg/L	0.258-1	-
12	Phenol	mg/L	<0.001	-
13	Oil & Grease	mg/L	0.147-0.847	10 (max.)
14	Total Plate Count	CFU/ml	75-123	-
15	Fecal Coliforms	MPN/100ml	58-124	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	67.85-103.6 mg C/m ³ /day	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	0.264-1.363 mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 mg/m ³ (Eutrophic class)
3	Phosphate	34.97-90.09 µg/L	0.1-90 µg/L
4	Nitrate	48.71-121.6 µg/L	1.0-500 µg/L
5	Nitrite	<10 µg/L	<125 µg/L
6	Particulate Organic Carbon	217-312 mg/m ³	10-100 mg/m ³
7	Silicate	274-986 µg/L	10-5000 µg/L

The results obtained from the study for the month of September 2019. Phosphate, Nitrates, Nitrite and Silicate are also well within prescribing standards for ecological parameters for Arabian Sea. Net Primary Productivity and Chlorophyll-a were well within prescribe standards for ecological parameters for Arabian Sea. The values for Particulate Organic Carbon (POC) exceeds the prescribed standards high due to detritus material originating from mangrove swamps, detritus plankton, benthos, fish etc. as well as untreated sewage discharges from nearby municipal corporations, industrial estates and villages around the area. 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.