

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT- OCTOBER 2020 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNPT area during October, 2020

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	27.8	51.3	39.9	30.3	32.5	34.8	30.4	22.1
SO _x	µg/ m ³	80	19.3	20.5	21.3	19.0	19.5	18.4	18.4	12.6
NO _x	µg/ m ³	80	17.1	18.1	19.2	17.3	16.9	16.5	14.9	10.3
O ₃	µg/ m ³	100	9.44	8.88	9.14	9.07	10.05	8.45	8.88	7.84
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	1.2	1.3	1.3	1.2	1.1	1.4	1.1	1.0
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	1.2	1.3	1.2	1.3	1.3	1.2	1.1	1.0
CO ₂	ppm		264	259	260	265	267	247	249	221
AQI			55.5	87.3	77.4	69.1	80.4	69.3	50.7	36.9

Conclusion:

24-hr average concentration of PM₁₀, PM_{2.5}, SO₂ and NO₂ and other parameters were measured at eight locations viz. POC, IMC, NG, SEZ, APM, JNP residential township and EC area using high volume samplers, respirable sampler (APM 460 NL and APM 550 MFC) and gaseous sampler.

During October, 2020 overall ambient air quality of the JN Port area is within CPCB permissible limits. Anyway to overcome Particulate Matter problem, the port is using number of precautionary measures, such as maintained a wide expanse of Green zone, procured Electric Cart, 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.

During the month of October, 2020; the prominent wind direction (blowing from) was the West (W) in the port area. JN Port received the rainfall of 112 mm during the month of October, 2020 and the entire seasonal rainfall is 2972 mm. Average values of wind speed, temperature, relative humidity and solar radiation recorded were 2.57 m/s, 30.54°C, 73.75% and 110.00 W/m² respectively.

Corrective Action Suggested:

- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- Stay sanitized of public transport as much as possible.
- Use of renewable energy like solar energy should be optimal and ensure to work continuously.
- To avoid airborne disease Port workers must maintain a safe distance from anyone who is coughing or sneezing.
- Take care of green treasure by proper maintenance during rainy period is very important.
- Implementation of New technology RFID (Radio Frequency Identification) by incorporate PUC certificate status to minimize the vehicle emission are good initiative.
- Avoid excessive idling of automobiles and ships.
- Initiate Natural Gas (CNG) only as fuel by all buses and trucks.
- Dumper carrying construction material and earth filing material must be covered with tarpaulin sheet to reduce dispersal of dust in the air.
- New Services and technology like Electric cart, Inter-Terminal Transfer (ITT) are worthy selection to reduce Port operation efficiency and fuel cost.

2.0 Marine Water Quality

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (For October, 2020).

Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
1	Temperature	°C	30-31.9	-
2	pH	-	8.21-8.62	6.5 - 9.0
3	Salinity	ppt	28.8-30.9	-
4	Turbidity	NTU	14.5-43.6	-
5	TDS	mg/L	32147-41819	-
6	TSS	mg/L	158-361	-
7	TS	mg/L	32406-42080	-
8	DO	mg/L	4.57-6.91	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	12-96	-
10	BOD	mg/L	1.56-2.93	5 (max.)
11	NH ₃ -N	mg/L	0.0031-0.0097	-
12	Phenol	mg/L	0.00022-0.00082	-
13	Oil & Grease	mg/L	0.014-0.159	10 (max.)
14	Total Plate Count	CFU/ml	32-156	-
15	Fecal Coliforms	MPN/100ml	49-98	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	2.67-21.08 mg C/m ³ /day	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	0.020-1.98 mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 mg/m ³ (Eutrophic class)
3	Phosphate	27.76-57.15 µg/L	0.1-90 µg/L
4	Nitrate	58-197 µg/L	1.0-500 µg/L
5	Nitrite	41.4-96.7 µg/L	<125 µg/L
6	Particulate Organic Carbon	8.40-17.54 mg/m ³	10-100 mg/m ³
7	Silicate	23-281 µg/L	10-5000 µg/L

The results obtained from the study for the month of October, 2020. 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.