

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT
ENVIRONMENTAL MONITORING REPORT-MARCH 2019
EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

Monthly average values of air quality parameters at various stations in JNPT area during March, 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	126.6	157.9	171.5	126.3	124.0	110.8	80.4	56.7
PM _{2.5}	µg/m ³	60	54.1	59.9	55.3	51.7	58.0	55.0	52.5	48.3
SO _x	µg/m ³	80	35.2	35.1	34.9	32.0	30.5	29.6	30.2	26.0
NO _x	µg/m ³	80	39.5	41.5	41.0	36.0	37.0	32.2	36.6	29.1
O ₃	µg/m ³	100	9.9	11.0	11.7	11.2	11.1	11.4	11.3	10.6
C ₆ H ₆	µg/m ³	5	1.8	1.7	1.9	1.9	1.2	1.6	1.3	<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	1.9	2.0	2.0	1.9	1.7	1.6	1.3	<1.0
CO ₂	ppm		345.6	349.0	346.3	341.4	342.8	346.3	311.0	301.0
AQI			118.0	139.0	148.0	118.0	116.0	107.0	88.0	81.0

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 March 2019 overall ambient air quality of the JN Port area is within CPCB permissible limits. It is noticed that concentration of PM₁₀ above permissible limits at all location except RC and EC. PM_{2.5} values were slightly higher at North gate location and IMC. To overcome particulate matter problem, the port is using number of precautionary measures, such as maintained proper green cover, electricity supply for port crafts and E-RTGCs, use of water sprinklers on project and road site, time to time cleaning of paved and unpaved roads, inter terminal tractor movement facility, use of tarpaulin sheets to cover dumpers etc.
- The prominent wind direction (blowing from) was North (N) in the port area. Average values of wind speed, temperature, relative humidity, and solar radiation recorded were 8.18m/s, 27.040C, 63.76% and 0.12CCM respectively.

Corrective Action Suggested:

- Due to summer season dust dispersion in road increases, so regular cleaning and time to time collection of wreckage should be done from paved and unpaved road as well construction sites to decrease PM₁₀ concentration.
- Use of water sprinklers should be made compulsory at the heavy traffic region and project operation site.
- Mandatory practice initiated for strict inspection of PUC document and maintenance of vehicle entering into the port region.
- Dumper carrying construction material and earth filling material must be covered with tarpaulin sheet to reduce dispersal of dust in the air.
- Avoid excessive idling of automobiles and ships.
- Evacuation of tractor trailers traffic as early as possible.
- Water pit at entry and exit points of construction site for washing of truck tyres.
- During renovation work at JNP Township green mesh cloth should be used to minimize dust generated.
- New Services and technology like inter terminal tractor movement facility 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 March, 2019).

Sr.	Parameter	Observed	Unit	Prescribed Limits
1	Temperature	°C	25.9-27.3	-
2	pH	-	7.81-7.98	6.5 - 9.0
3	Salinity	ppt	30.7-36.6	-
4	Turbidity	NTU	7.3-26.1	-
5	TDS	mg/L	31414-39905	-
6	TSS	mg/L	125-299	-
7	TS	mg/L	31568-40104	-
8	DO	mg/L	5.87-7.02	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	53-78	-
10	BOD	mg/L	<2.0	5 (max.)
11	NH ₃ -N	mg/L	<1	-
12	Phenol	mg/L	<0.001	-
13	Oil & Grease	mg/L	<4.0	10 (max.)
14	Total Plate Count	CFU/ml	60-102	-

15	Fecal Coliforms	MPN/100ml	55-93	500 (max.)
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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	214.6-296 mg C/m ³	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	0.236-0.996 mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 (Eutrophic class)
3	Phosphate	17.91-89.9 µg/L	0.1-90 µg/L
4	Nitrate	83-296.44 µg/L	1.0-500 µg/L
5	Nitrite	<10 µg/L	<125 µg/L
6	Particulate Organic Carbon	203-256 mg/m ³	10-100 mg/m ³
7	Silicate	124-168 µg/L	10-5000 µg/L

The results obtained from the study for the month of March 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 corporation, MIDCs 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, MIDCs 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 parameters.