

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT- FEBRUARY 2020 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring: February

Monthly average values of Air Quality parameters at various stations in JNPT area during February, 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	157.0	196.9	208.2	147.7	134.3	161.5	94.5	32.2
PM _{2.5}	µg/m ³	60	34.5	51.6	50.1	48.9	40.3	48.0	37.1	25.6
SO _x	µg/m ³	80	9.6	14.3	16.5	11.5	18.6	10.8	8.0	5.3
NO _x	µg/m ³	80	27.7	30.6	51.2	28.8	26.2	30.1	16.9	11.6
O ₃	µg/m ³	100	27.7	48.6	50.1	25.8	39.	34.2	22.9	9.8
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	3.29	4.30	4.66	3.48	3.20	3.46	2.48	1.03
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	1.6	1.4	1.2	1.3	1.5	1.2	1.0
CO ₂	ppm		276.8	294.5	287.4	269.7	264.5	268.9	246.5	206.5
AQI			138.0	164.6	172.1	131.8	122.9	141.0	94.5	42.7

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 February 2020 overall ambient air quality of the JN Port area is within CPCB permissible limits. Except PM₁₀ (POC, IMC, NG, SEZ, APM, BMCT and RC) at and PM_{2.5} (POC, IMC and NG) other values were found in normal range at all location. 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 under green port initiatives, initiated Inter-Terminal Transfer (ITT) of tractor-trailers, switched from diesel

to electrically powered e-RTGCs, installed solar panels on the roof tops of various building in the office premises, 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 South West (SW) in the port area. Average values of wind speed, temperature, relative humidity and solar radiation recorded were 15.75m/s, 26.420C, 58.74% and 0.113CCM respectively.

Corrective Action Suggested:

- Water sprinklers should be used on heavy traffic road to settle the dust particle.
- 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.
- Avoid excessive idling of automobiles and ships.
- Dumper carrying construction material and earth filling 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.
- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- Boats and Ships in coastal stretch should Meet MARPOL-VI under global emission standards.
- Promoting public transport as much as possible.
- Initiate Natural Gas (CNG) only as fuel by all buses and trucks.
- At JNP Township Green mesh cloth should be used to minimize dust generated during renovation work.
- Each and every vehicles entering into the port region must be strictly checked PUC documents and encourage for regular maintenance of vehicle to minimize emission.
- New initiation like Dwell time of import containers moved by rail should improve further more.

2.0 Marine Water Quality

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

Sr.	Parameter	Observed	Unit	Prescribed Limits
1	Temperature	°C	24.2-26.9	-
2	pH	-	7.92-8.31	6.5 - 9.0
3	Salinity	Ppt	31.2-35.7	-
4	Turbidity	NTU	21-58.8	-
5	TDS	mg/L	34762-45404	-
6	TSS	mg/L	154-254	-
7	TS	mg/L	34996-45648	-
8	DO	mg/L	5.89-6.44	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	12-53	-
10	BOD	mg/L	1.4-2.4	5 (max.)
11	NH ₃ -N	mg/L	0.0091-0.0918	-
12	Phenol	mg/L	0.0001-0.0015	-
13	Oil & Grease	mg/L	0.017-0.536	10 (max.)
14	Total Plate Count	CFU/ml	39-94	-
15	Fecal Coliforms	MPN/100ml	32-85	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	3.12-7.66 mg C/m ³ /day	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	0.061-3.435 mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 mg/m ³ (Eutrophic class)
3	Phosphate	49.4-82.47 µg/L	0.1-90 µg/L
4	Nitrate	50.39-82.91 µg/L	1.0-500 µg/L
5	Nitrite	36.4-70.5 µg/L	<125 µg/L
6	Particulate Organic Carbon	201-254 mg/m ³	10-100 mg/m ³
7	Silicate	13.9-212.04 µg/L	10-5000 µg/L

The results obtained from the study for the month of February 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, 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 parameter.