

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT-JUNE 2020 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

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

Parameters			Industrial (Port Operation) area	Tank Farm Area	Port expansion Area	Residential Area	Eco sensitive area
			Station name				
	Units	NAAQS	POC	IMC	BMCT	RC	EC
PM ₁₀	µg/m ³	100	71.11	87.92	86.90	66.98	25.78
PM _{2.5}	µg/m ³	60	27.36	40.77	42.78	24.23	15.97
SO _x	µg/m ³	80	9.47	28.23	13.33	9.57	6.47
NO _x	µg/m ³	80	19.63	31.88	25.01	18.80	8.56
Pb	µg/m ³	100	<0.05	<0.05	<0.05	<0.05	<0.05
As	ng/m ³	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ni	ng/m ³	6	<1.0	<1.0	<1.0	<1.0	<1.0
O ₃	µg/m ³	20	8.49	19.92	21.71	7.89	2.58
C ₆ H ₆	µg/m ³	5	2.62	3.66	3.94	2.44	0.91
B(a)P	ng/m ³	1	<0.5	<0.5	<0.5	<0.5	<0.5
CO	mg/m ³	4	0.58	2.12	2.17	0.55	0.47
CO ₂	Ppm		245.28	270.87	276.62	240.37	193.50
AQI			71.11	87.92	86.9	66.98	26.62

Conclusion:

- 24-hr average concentration of PM₁₀, PM_{2.5}, SO₂ and NO₂ and other parameters were measured at five locations viz. POC, IMC, JNP residential township and EC area using high volume samplers, respirable sampler (APM 460 NL and APM 550 MFC) and gaseous sampler.
- During June, 2020 overall ambient air quality of the JN Port area is within CPCB permissible limits. To overcome Particulate Matter level, 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, 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 South West (SSW) with entirely 597 mm rainfall in the port area. Average values of wind speed, temperature, relative humidity and solar radiation were 4.32 m/s, 28.25°C, 86.16% and 261.83 W/m² respectively.

Corrective Action Suggested:

- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- Implementation RFID (Radio Frequency Identification) by incorporate PUC certificate status to minimize the vehicle emission are good initiative.
- To avoid airborne disease Port workers must maintain a safe distance.
- Use of renewable energy like solar energy should be optimal and ensure to work continuously.
- Initiate Natural Gas (CNG) only as fuel by all buses and trucks.
- Electric cart, Inter-Terminal Transfer (ITT) are worthy selection to reduce Port operation efficiency and fuel cost.
- Avoid excessive idling of automobiles and ships.
- Water sprinklers should be used on heavy traffic road to settle the dust particle.
- Dumper carrying construction material and earth filing material must be covered with tarpaulin sheet to reduce dispersal of dust in the air.
- Boats and Ships in coastal stretch should Meet MARPOL-VI under global emission standards.
- 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.
- Promoting public transport as much as possible.

2.0 Marine Water Quality

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

Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
1	Temperature	°C	29.3-31.2	-
2	pH	-	7.89-8.19	6.5 - 9.0

3	Salinity	ppt	31.2-33	-
4	Turbidity	NTU	25.5-260	-
5	TDS	mg/L	36186-42609	-
6	TSS	mg/L	201-484	-
7	TS	mg/L	24628-41384	-
8	DO	mg/L	4.67-5.81	3.0 mg/L(min.) or 40% of saturation value
9	COD	mg/L	8-128	-
10	BOD	mg/L	0.59-2.5	5 (max.)
11	NH ₃ -N	mg/L	0.003-0.015	-
12	Phenol	mg/L	0.004-0.0011	-
13	Oil & Grease	mg/L	0.008-0.222	10 (max.)
14	Total Plate Count	CFU/ml	54-85	-
15	Fecal Coliforms	MPN/100ml	48-73	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	26.36-63.28 mg C/m ³ /day	<1500 mg C/m ³ /day at surface
2	Chlorophyll a	0.059-3.434mg/m ³	<4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 mg/m ³ (Eutrophic class)
3	Phosphate	27.76-90.07 µg/L	0.1-90 µg/L
4	Nitrate	51.2-208.84 µg/L	1.0-500 µg/L
5	Nitrite	4.293-7.423 µg/L	<125 µg/L
6	Particulate Organic Carbon	20.53-43.83 mg/m ³	10-100 mg/m ³
7	Silicate	13.05-25.33 µg/L	10-5000 µg/L

The results obtained from the study for the month of JUNE, 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.