

## MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

### ENVIRONMENTAL MONITORING REPORT- FEBRUARY 2019-EXECUTIVE SUMMARY

#### 1.0 Ambient Air Monitoring:

Monthly average values of air quality parameters at various stations in JNPT area during February, 2019

Parameters			Industrial (Port Operation) area						Residential Area	Eco sensitive area
			Station name							
	Units	NAAQS	POC	IMC	NG	SEZ	APM	BMCT	RC	EC
PM <sub>10</sub>	(µg/m <sup>3</sup> )	100	198.56	149.80	235.25	204.71	150.51	139.32	94.40	59.15
PM <sub>2.5</sub>	(µg/m <sup>3</sup> )	60	60.41	58.21	62.51	65.19	59.17	55.11	48.72	46.89
SO <sub>x</sub>	(µg/m <sup>3</sup> )	80	33.05	32.75	35.32	35.32	30.45	31.90	30.50	23.75
NO <sub>x</sub>	(µg/m <sup>3</sup> )	80	39.39	41.66	43.42	39.95	38.81	34.82	36.44	28.15
O <sub>3</sub>	(µg/m <sup>3</sup> )	100	10.17	11.17	12.17	11.76	11.53	11.92	11.71	10.24
C <sub>6</sub> H <sub>6</sub>	(µg/m <sup>3</sup> )	5	1.79	1.71	2.07	2.08	1.69	1.81	1.41	<1.0
B(a)P	(ng/m <sup>3</sup> )	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
CO	(mg/m <sup>3</sup> )	4	1.81	1.87	1.96	2.03	1.86	1.82	1.40	<1.0
CO <sub>2</sub>	(ppm)		353	371	365	370	376	379	341	306
AQI			165.70	133.20	190.17	169.81	133.67	126.21	94.40	78.15

#### **Conclusion:**

- 24-hr average concentration of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> 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 2019 overall ambient air quality of the JN Port area is within CPCB permissible limits. It is noticed that concentration of PM<sub>10</sub> above permissible limits at all location except RC and EC. PM<sub>2.5</sub> values were slightly higher at SEZ, North Gate location and POC. 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 7.68m/s, 25.16°C, 56.44% and 0.11CCM respectively.

### Corrective Action Suggested:

- To lessen PM<sub>10</sub> concentration timely collection of wreckage and frequent cleaning should be done from paved and unpaved road as well construction sites.
- Strict inspection of PUC document and maintenance of all the vehicles entering into the port premises.
- Avoid excessive idling of automobiles and ships.
- Use of water sprinklers should be made compulsory at the heavy traffic region and project operation site.
- To avoid spreading of dust particle in the air dumpers carrying construction material and earth filling material must be covered with tarpaulin sheet.
- During renovation and maintenance 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 February, 2019).

Sr.	Parameter	Unit	Observed range	Prescribed Limits
1	Temperature	°C	23.3-27.6	-
2	pH	-	7.72-8.05	<b>6.5 - 9.0</b>
3	Salinity	Ppt	23.5-35.1	-
4	Turbidity	NTU	16.3-79.6	-
5	TDS	mg/L	36698-41777	-
6	TSS	mg/L	33-364	-
7	TS	mg/L	36492-41992	-
8	DO	mg/L	5.5-6.74	<b>3.0 mg/L(min.) or 40% of saturation value</b>
9	COD	mg/L	52-85	-
10	BOD	mg/L	<2.0	<b>5 (max.)</b>
11	NH <sub>3</sub> -N	mg/L	<1	-
12	Phenol	mg/L	<0.001	-
13	Oil & Grease	mg/L	<4.0	<b>10 (max.)</b>
14	Total Plate	CFU/ml	58-98	-
15	Fecal Coliforms	MPN/100ml	52-95	<b>500 (max.)</b>

### 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	75-275.4 mg C/m <sup>3</sup>	<1500 mg C/m <sup>3</sup> /day at surface
2	Chlorophyll a	0.489-3.269 mg/m <sup>3</sup>	<4 mg/m <sup>3</sup> (Oligotrophic class), 4-10 mg/m <sup>3</sup> (Mesotrophic class), >10 (Eutrophic class)
3	Phosphate	58.6-88 µg/L	0.1-90 µg/L
4	Nitrate	187-236 µg/L	1.0-500 µg/L
5	Nitrite	<10 µg/L	<125 µg/L
6	Particulate Organic Carbon	208-287 mg/m <sup>3</sup>	10-100 mg/m <sup>3</sup>
7	Silicate	120-166 µg/L	10-5000 µg/L

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