

## MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

### ENVIRONMENTAL MONITORING REPORT- JANUARY 2021 EXECUTIVE SUMMARY

#### 1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNPT area during January, 2021

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	140.43	164.31	157.29	155.35	163.64	160.65	98.14	39.53
PM <sub>2.5</sub>	µg/ m <sup>3</sup>	60	51.91	60.73	58.14	57.42	57.68	57.52	38.68	12.45
SO <sub>2</sub>	µg/ m <sup>3</sup>	80	27.10	31.71	30.36	23.59	23.69	23.63	15.89	5.49
NO <sub>2</sub>	µg/ m <sup>3</sup>	80	25.75	30.13	28.84	24.31	24.42	24.35	16.38	5.38
NH <sub>3</sub>	µg/ m <sup>3</sup>	400	35.00	40.95	39.20	38.67	38.85	38.74	26.06	8.55
O <sub>3</sub>	µg/ m <sup>3</sup>	100	7.55	8.83	8.46	11.25	11.30	11.27	7.58	3.27
Pb	µg/m <sup>3</sup>	0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
As	ng/m <sup>3</sup>	6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ni	ng/m <sup>3</sup>	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
C <sub>6</sub> H <sub>6</sub>	µg/ m <sup>3</sup>	5	7.22	8.45	8.09	8.82	8.78	8.79	5.91	2.12
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>	2	0.95	1.11	1.06	1.16	1.16	1.16	0.78	0.34
CO <sub>2</sub>	ppm		201.26	217.94	213.54	209.58	192	190.925	170.9	165
AQI			126.96	142.87	138.19	136.90	142.43	140.43	98.14	39.59

#### 1.1 Continuous Ambient Air Quality Monitoring:

Monthly average values of Air Quality parameters of Continuous Ambient Air Quality Monitoring Station at Port Operation Center - JNPT area during January, 2021

Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	C <sub>6</sub> H <sub>6</sub>	CO	C <sub>7</sub> H <sub>8</sub>	NO	NO <sub>x</sub>	AQI
	ug/ m <sup>3</sup>	mg/ m <sup>3</sup>	mg/ m <sup>3</sup>	ug/ m <sup>3</sup>	ug/ m <sup>3</sup>							
NAAQS	100	60	80	80	400	100	5	2	--	--	--	Remark: Moderate AQI
Average Jan-21	147.9	68	7.3	17	35	8	7.6	0.36	7.3	6	23	131.9

#### **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, NG, SEZ, APM, BMCT, JNP residential township and EC area using high volume samplers, respirable sampler (APM 460 NL and APM 550 MFC) and gaseous sampler.

- During January, 2021 overall ambient air quality of the JN Port area is within CPCB permissible limits. Except Particulate Matter anyway to overcome Particulate Matter problem, the port is using number of precautionary measures, such as maintained a wide expanse of Green zone, procurement of Electric Cart under green port initiatives, initiated Inter-Terminal Transfer (ITT) of tractor-trailers port saving huge fuel cost till date, 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.
- To reduce both fuel and money JNPT procure 15 Nos of E-RTGCs, this has been helping to reduce the consumption of diesel of 15-20 liters per hour.
- JNPT newly installed container scanner will improve turnaround by saving both cost and time for our stakeholders with less dwell time also induced Tug boat to speed up the operation timing.
- The prominent wind direction (blowing from) was North West (NW) in the port area, Average values of wind speed, temperature, relative humidity, solar radiation and total rainfall were 0.89 m/s, 27.19°C, 68.68% ,64.15W/m<sup>2</sup> and 8.5 mm respectively.

#### **Corrective Action Suggested:**

- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- New Services and technology like Electric cart, Inter-Terminal Transfer (ITT) are worthy selection to reduce Port operation efficiency and fuel cost.
- Conventional RTGCs should be altered as E-RTGCs counting inside the port completely.
- Stay sanitized of public transport and all basic items at public interaction places as much as possible.
- New scanning technology and new high power Tugs are reducing operation timing and CO<sub>2</sub> Emission are good creativity.

- Use of renewable energy like solar energy should be optimal and ensure to work continuously.
- 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 filling material must be covered with tarpaulin sheet to reduce dispersal of dust in the air.
- 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.

## **2.0 Marine Water Quality**

Observed concentration ranges of Marine Water for various parameters for JNP area during tidal cycle (For January, 2021).

Sr.	Parameter	Observed	Unit	Prescribed Limits
1	Temperature	°C	24.39-26.87	-
2	pH	-	7.38-7.58	<b>6.5 - 9.0</b>
3	Salinity	ppt	34.0-35.1	-
4	Turbidity	NTU	21.2-37.5	-
5	TDS	mg/L	35398-42365	-
6	TSS	mg/L	222-373	-
7	TS	mg/L	35628-42644	-
8	DO	mg/L	5.28-7.02	<b>3.0 mg/L(min.) or 40% of saturation value</b>
9	COD	mg/L	86.1-124.7	-
10	BOD	mg/L	0.86-2.11	<b>5 (max.)</b>
11	NH <sub>3</sub> -N	mg/L	0.0065-0.0174	-
12	Phenol	mg/L	0.00059-0.00196	-
13	Oil & Grease	mg/L	0.032-0.325	<b>10 (max.)</b>
14	Total Plate Count	CFU/ml	76-110	-
15	Fecal Coliforms	MPN/100ml	59-92	<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	1.91-5.33 mg C/m <sup>3</sup> /day	<1500 mg C/m <sup>3</sup> /day at surface
2	Chlorophyll a	0.077-0.273 mg/m <sup>3</sup>	<4 mg/m <sup>3</sup> (Oligotrophic class), 4-10 mg/m <sup>3</sup> (Mesotrophic class), >10 mg/m <sup>3</sup> (Eutrophic class)
3	Phosphate	44.91-89.76 µg/L	0.1-90 µg/L
4	Nitrate	152.5-398.3 µg/L	1.0-500 µg/L
5	Nitrite	92.9-116.8 µg/L	<125 µg/L
6	Particulate Organic Carbon	12.96-32.08 mg/m <sup>3</sup>	10-100 mg/m <sup>3</sup>
7	Silicate	24.88-61.47 µg/L	10-5000 µg/L

The results obtained from the study for the month of January, 2021. 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. 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.