MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT-MAY 2020 EXECUTIVE SUMMARY

1.0 Ambient Air Monitoring:

Monthly average values of Air Quality parameters at various stations in JNPT area during MAY, 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}	$\mu g/m^3$	100	55.49	78.36	67.45	52.94	22.20
$PM_{2.5}$	$\mu g/m^3$	60	18.80	24.28	23.13	20.36	12.65
SO_x	$\mu g/m^3$	80	10.70	13.97	12.18	8.57	6.31
NO_x	$\mu g/m^3$	80	8.36	12.91	9.91	7.69	6.26
Pb	$\mu g/m^3$	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	$\mu g/m^3$	20	24.29	27.14	25.81	22.48	17.82
C_6H_6	$\mu g/m^3$	5	2.03	2.92	2.43	1.67	0.92
B(a)P	ng/m^3	1	<0.5	<0.5	<0.5	<0.5	<0.5
CO	mg/m^3	4	1.12	1.24	1.16	1.05	0.99
CO_2	ppm		274.70	291.84	282.3	263.37	231.25
AQI			55.49	78.36	67.45	52.94	37.50

Conclusion:

- 24-hr average concentration of PM_{10}, $PM_{2.5}$, SO_2 and NO_2 and other parameters were measured at five locations viz. POC, IMC, BMCTPL, JNP residential township and EC area using high volume samplers, respirable sampler (APM 460 NL and APM 550 MFC) and gaseous sampler.

- During May, 2020 overall ambient air quality of the JN Port area is within CPCB permissible limits. To overcome Particulate Matter reductions, 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 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.

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 were 4.50 m/s, 30.94^{0}C, 76.17% and 362.15 W/m^2 respectively.

Corrective Action Suggested:

- To avoid airborne disease Port workers must maintain a social distancing and to wear masks to reduce risk of Covid-19.
- Use of renewable energy like solar energy should be optimal and ensure to work continuously.
- Practice should be initiated for using mask as preventative measure, to avoid inhalation of dust particle.
- 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 PM_{10} concentration.
- Promoting public transport as much as possible.
- Initiate Natural Gas (CNG) only as fuel by all buses and trucks.
- 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 Services and technology like Electric cart, Inter-Terminal Transfer (ITT) 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 May, 2020).

Sr. No.	Parameter	Unit	Observed Range	Prescribed Limits
1	Temperature	˚C	26.1-27.0	-
2	pH	-	8.01-8.19	6.5 - 9.0
3	Salinity	ppt	31.3-35.7	-
4	Turbidity	NTU	65.9-176	-
5	TDS	mg/L	24189-41067	-
6	TSS	mg/L	317-439	-
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	12-64	-
10	BOD	mg/L	1.76-2.67	5 (max.)
11	NH_3-N	mg/L	0.0032-0.0098	-
12	Phenol	mg/L	0.0018-0.0065	-
13	Oil & Grease	mg/L	0.056-0.911	10 (max.)
14	Total Plate Count	CFU/ml	72-86	-
15	Fecal Coliforms	MPN/100ml	66-74	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	10.56-16.29 mg C/m^3/day	<1500 mg C/m^3/day at surface
2	Chlorophyll a	0.0018-0.0076 mg/m^3	<4 mg/m^3 (Oligotrophic class), 4-10 mg/m^3 (Mesotrophic class), >10 mg/m^3 (Eutrophic class)
3	Phosphate	35.11-53.48 µg/L	0.1-90 µg/L
4	Nitrate	22.3-35.0 µg/L	1.0-500 µg/L
5	Nitrite	1.53-2.94 µg/L	<125 µg/L
6	Particulate Organic Carbon	214-310 mg/m^3	10-100 mg/m^3
7	Silicate	24.20-26.18 µg/L	10-5000 µg/L

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