

MONITORING OF ENVIRONMENTAL PLAN FOR JN PORT

ENVIRONMENTAL MONITORING REPORT- Executive Summary

1. Ambient Air Monitoring

Monthly Average Values of Air Pollutants at Various Stations in JNP Area during May, 2016

STATION	PM ₁₀ , [µg/m ³]	PM _{2.5} , [µg/m ³]	SO ₂ , [µg/m ³]	NO _x , [µg/m ³]	NH ₃ , [µg/m ³]	O ₃ , [µg/m ³]	Pb [µg/m ³]	C ₆ H ₆ , [µg/m ³]	CO, [mg/m ³]	CO ₂ , [ppm]
NAAQMS	100	60	80	80	400	100	1	5	4	-
INDUSTRIAL AREA										
POC	198 ± 59	56 ± 8	30.11 ± 3.53	45.67 ± 4.63	32.07 ± 4.73	10.85 ± 1.57	<0.01	1.29 ± 0.12	1.29 ± 0.09	300 ± 32
IMC	213 ± 67	59 ± 13	34.44 ± 3.42	46.90 ± 5.72	29.64 ± 5.21	11.85 ± 1.71	<0.01	1.26 ± 0.11	1.26 ± 0.11	288 ± 23
NG	194 ± 88	62 ± 11	31.67 ± 4.93	46.42 ± 10.99	31.316 ± 4.47	11.81 ± 1.94	<0.01	1.39 ± 0.13	1.27 ± 0.12	312 ± 37
SG	192 ± 68	57 ± 12	33.71 ± 4.72	48.49 ± 3.27	29.52 ± 3.92	12.34 ± 2.19	<0.01	1.23 ± 0.15	1.26 ± 0.16	296 ± 31
RESIDENTIAL AREA										
RC	219 ± 46	53 ± 11	30.49 ± 5.84	47.70 ± 5.88	33.96 ± 6.40	11.43 ± 1.74	<0.01	1.28 ± 0.16	1.19 ± 0.09	299 ± 31
ECO-SENSITIVE AREA										
EC	110	36	11.38	28.26	21.59	11.29	<0.01	<1.0	<1.0	327

Conclusion:

From the results obtained for the month of May 2016, it can be concluded that overall Ambient Air quality of the JN Port is within CPCB limits, except the levels of PM₁₀ and PM_{2.5}, which are higher at all locations due to port development activities.

2. Marine Water Quality

Observed Concentration Ranges of Marine Water for Various Parameters for JNP Harbour Area during Tidal Cycle

Sr. No.	Parameter	Observed Range	Unit	Prescribed Limits
1	Temperature	26.1 – 31.4	°C	-
2	pH	7.25 – 7.94	-	6.5 - 9.0
3	Salinity	30.2 – 36.3	ppt	-
4	Turbidity	10.7 – 34.7	NTU	-
5	TDS	32314 – 40627	mg/L	-
6	TSS	56 – 148	mg/L	-
7	TS	44059 - 48933	mg/L	-
8	DO	5.3 – 6.3	mg/L	3.0 mg/L(min.) or 40% of saturation value
9	COD	43 - 132	mg/L	-
10	BOD	<2.0	mg/L	5 (max.)
11	NH ₃ -N	<1.0	mg/L	-
12	Phenol	< 0.001	mg/L	-
13	Oil & Grease	<4.0	mg/L	10 (max.)
14	Total Plate Count	46 - 112	CFU/ml	-
15	Fecal Coliforms	12 - 63	MPN/100 mL	500 (max.)

Observed Concentration Ranges of Marine Water for Various Parameters for Nhava Creek Area during Tidal Cycle

Sr. No.	Parameter	Observed Range	Unit	Prescribed Limits
1	Temperature	29.7 – 30.6	°C	-
2	pH	7.39 – 7.51	-	6.5 - 9.0
3	Salinity	31.8 – 34.1	ppt	-
4	Turbidity	16.7 – 38.2	NTU	-
5	TDS	34263 – 37716	mg/L	-
6	TSS	45 – 94	mg/L	-
7	TS	43229 – 48157	mg/L	-
8	DO	5.2 – 5.9	mg/L	3.0 mg/L(min.) or 40% of saturation value
9	COD	64 – 103	mg/L	-
10	BOD	<2.0	mg/L	5 (max.)
11	NH ₃ -N	<1.0	mg/L	-
12	Phenol	< 0.001	mg/L	-
13	Oil & Grease	<4.0	mg/L	10 (max.)
14	Total Plate Count	73 - 106	CFU/ml	-
15	Fecal Coliforms	28 – 81	MPN/100 mL	500 (max.)

Conclusion:

Considering the activities in the Harbour area and the results obtained during Tidal Cycle for the month of May 2016, 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 Port's Harbour and Creek waters is in good category.

3. Marine Ecology (Flora and Fauna)

Observations and Conclusions

Considering the various activities in JNP Harbour and NHAVA Creek area, it is seen from the following table that apparently the marine ecosystem is not adversely affected by following activities.

- ✓ *Construction of 4th Container Terminal on South side of JNPT:* Earth Filling work of 4thC.T. is underway.
- ✓ *Construction of NSIGT Yard is underway to the North side of JNPT.*
- ✓ *Plying of Ferry Boats:* There were large numbers of ferry boats plying in the area from Gateway of India to Elephanta.

It is seen from the data of Marine Ecology, as reported in Tables and subsequently discussed in above paragraphs, the major parameters comply with recommended ranges of the ecological parameters for Arabian Sea during May, 2016

Some Observations related to the impact on quality of marine water and ecology:

- ❖ There are four lotic water bodies; viz. Thane creek, Ulhas river, Panvel creek and Patalganga river that join the sea in the vicinity of the sampling area. Amongst these four, most of the sampling points are either within or close to Thane and Panvel creek confluence, resulting in direct impact on harbour water.
- ❖ The creek is narrow at Northern end, where it is fed partially by River Ulhas. Along the east and west sides of the creek, many industrial units have come up. Thane and Panvel creek is the ultimate recipient of all the liquid discharges from these industries and mostly untreated sewage discharges. The discharges into the creek on its western side are dominated by Mumbai city sewerage and wastes from petrochemical, fertilizer and thermal plants at Chembur, besides the pharmaceutical and chemical complexes at Vikhroli, Bhandup and Mulund.
- ❖ It may be mentioned that JN Port is not handling any dry bulk cargo containing Phosphate.

Based on observations of the overall ecological parameters in JNP Harbor and Nhava Creek area, it can be inferred that the marine ecosystem is not affected due to port operational activities. Untreated discharges of sewage and industrial waste from the towns / villages around the area, like Navi-Mumbai, Thane, and Panvel etc., may probably affect nitrate and phosphate levels.