

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 January, 2017

| 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 | 207±68 | 59±11 | 30.27±2.68 | 35.75±4.42 | 31.83±2.69 | 11.12±2.49 | <0.05 | 1.82±0.23 | 1.73±0.22 | 307±27 |
| IMC | 228±96 | 56±13 | 32.07±2.02 | 37.57±2.68 | 32.54±5.42 | 12.03±1.89 | <0.05 | 1.95±0.16 | 1.73±0.17 | 310±25 |
| NG | 261±94 | 55±8 | 33.17±3.05 | 38.42±4.82 | 33.90±3.54 | 12.21±2.46 | <0.05 | 1.84±0.19 | 1.70±0.19 | 295±30 |
| SG | 224±53 | 50±10 | 33.33±1.23 | 38.80±2.23 | 34.61±2.64 | 12.20±2.65 | <0.05 | 1.84±1.73 | 1.73±0.16 | 301±25 |
| RESIDENTIAL AREA | | | | | | | | | | |
| RC | 101±22 | 43±9 | 28.77±2.01 | 31.14±2.38 | 29.38±2.82 | 10.54±2.86 | <0.05 | 1.52±0.98 | 1.63±0.17 | 301±32 |
| ECO-SENSITIVE AREA | | | | | | | | | | |
| EC | 83 | 39 | 24.52 | 26.69 | 23.83 | 10.11 | <0.05 | <1.0 | <1.0 | 284 |

Conclusion and Non-confirmatory:

Ambient Air Quality results of the JN Port for the month of January 2017 found within CPCB standards except the levels of PM₁₀ which is above permissible limit at all locations which might be due to overall development activities, except at Elephanta Caves.

Corrective Action Suggested:

- ✓ Dumpers carrying earth filling material and debris must be covered with tarpaulin sheets during transportation, to prevent dusting in the nearby areas.
- ✓ Necessary preventive and mitigation measures need to take up like concretization of roads, plantation, covering the trucks carrying construction materials is necessary to reduce the pollution level.
- ✓ Renovation work at JNP Township should be executed under controlled conditions like covering the close-by area with mesh cloth to prevent dust flow near the construction area. Debris should be disposed periodically.
- ✓ Up-gradation/Concretization of roads and adequate cleaning, collection of debris from road sides and regular maintenance of paved and unpaved roads should be done, as significant amount of dust is generated due to vehicular movement which might be the source of particulate matter in the nearby areas.

2.0 Marine Water Quality

Observed Concentration Ranges of Marine Water for Various Parameters for JNP Area during Tidal Cycle (For January, 2017)

| Sr. No. | Parameter | Unit | Observed Range (Harbour) | Observed Range (Creek) | Prescribed Limits |
|---------|--------------------|-----------|--------------------------|------------------------|---|
| 1 | Temperature | °C | 24.0-25.9 | 24.9-25.7 | - |
| 2 | pH | - | 7.02-7.89 | 7.25-7.91 | 6.5 - 9.0 |
| 3 | Salinity | ppt | 33.2-35.6 | 33.2-35.8 | - |
| 4 | Turbidity | NTU | 16.4-42.6 | 37.5-55.9 | - |
| 5 | TDS | mg/L | 24175-26892 | 25136-26831 | - |
| 6 | TSS | mg/L | 62-136 | 76-148 | - |
| 7 | TS | mg/L | 24272-26979 | 25284-26907 | - |
| 8 | DO | mg/L | 5.5-6.9 | 5.2- 5.9 | 3.0 mg/L(min.) or 40% of saturation value |
| 9 | COD | mg/L | 41-92 | 61-94 | - |
| 10 | BOD | mg/L | <2.0 | <2.0 | 5 (max.) |
| 11 | NH ₃ -N | mg/L | <1.0 | <1.0 | - |
| 12 | Phenol | mg/L | < 0.001 | < 0.001 | - |
| 13 | Oil & Grease | mg/L | <4.0 | <4.0 | 10 (max.) |
| 14 | Total Plate Count | CFU/ml | 53-145 | 62-108 | - |
| 15 | Fecal Coliforms | MPN/100ml | 37-126 | 53-95 | 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 and Creek waters is in good category.

3.0 Marine Ecology (Flora and Fauna)

| Sr. No. | Parameter | Observed Range | Criteria |
|---------|----------------------------|-----------------------------------|--|
| 1 | Net Primary Productivity | 150.0 – 225.0 mg C/m ³ | <1500 mg C/m ³ /day at surface |
| 2 | Chlorophyll <i>a</i> | 2.820-7.764 mg/m ³ | <4 mg/m ³ (Oligotrophic class), 4-10 mg/m ³ (Mesotrophic class), >10 (Eutrophic class) |
| 3 | Phosphate | 46-93 µg/L | 0.1-90 µg/L |
| 4 | Nitrate | 2049 – 2783 µg/L | 1.0-500 µg/L |
| 5 | Nitrite | < 10 µg/L | <125 µg/L |
| 6 | Particulate Organic Carbon | 376 – 659 mg/m ³ | 10-100 mg/m ³ |
| 7 | Silicate | 1111-1944 µg/L | 10-5000 µg/L |

The observations recorded during month January 2017, showed that the values of Phosphate was slightly higher whereas Nitrates and Particulate Organic Carbon (POC) exceeds the prescribe standards which may be usual phenomenon occurred due to discharge of untreated sewage and industrial waste into the sea water from the concerned authorities like Brihanmumbai Municipal Corporation, Thane Municipal Corporation and Panvel Municipal Corporation etc. On the other hand, Net Primary Productivity, Chlorophyll-a, Nitrite and Silicate are well within prescribe standards for ecological parameters for Arabian Sea.

Considering the activities in JNP Harbour and Nhava Creek area, it is seen that the marine ecosystem is not adversely affected by Port activities.

Corrective Action Suggested:

Utmost care should be taken for treatment of sewage and industrial waste before discharging into the open sea by concerned authorities like Brihanmumbai Municipal Corporation (BMC), Thane Municipal Corporation (TMC) and Panvel Municipal Corporation (PMC) 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 as per the drinking water specifications given in **IS 10500:2012** and also on the basis of analysis parameters.