

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 June, 2016

| STATION | PM10, [$\mu\text{g}/\text{m}^3$] | PM2.5, [$\mu\text{g}/\text{m}^3$] | SO ₂ , [$\mu\text{g}/\text{m}^3$] | NO _x , [$\mu\text{g}/\text{m}^3$] | NH ₃ , [$\mu\text{g}/\text{m}^3$] | O ₃ , [$\mu\text{g}/\text{m}^3$] | Pb, [$\mu\text{g}/\text{m}^3$] | C ₆ H ₆ , [$\mu\text{g}/\text{m}^3$] | CO, [mg/m ³] | CO ₂ , [ppm] |
|---------------------------|---------------------------------------|--|---|---|---|--|-------------------------------------|---|-----------------------------|----------------------------|
| NAAQMS | 100 | 60 | 80 | 80 | 400 | 100 | 1 | 5 | 4 | - |
| INDUSTRIAL AREA | | | | | | | | | | |
| POC | 213 ± 55 | 67 ± 10 | 29.50 ± 4.65 | 40.99 ± 7.85 | 34.69 ± 4.67 | 11.67 ± 1.75 | <0.01 | 1.24 ± 0.12 | 1.23 ± 0.09 | 299 ± 30 |
| IMC | 191 ± 68 | 57 ± 9 | 29.52 ± 5.07 | 39.54 ± 7.41 | 30.49 ± 5.36 | 11.09 ± 1.46 | <0.01 | 1.28 ± 0.15 | 1.16 ± 0.08 | 302 ± 29 |
| NG | 219 ± 118 | 59 ± 13 | 33.14 ± 3.68 | 40.13 ± 2.29 | 31.78 ± 7.52 | 11.22 ± 1.77 | <0.01 | 1.24 ± 0.07 | 1.19 ± 0.11 | 305 ± 29 |
| SG | 199 ± 68 | 64 ± 15 | 29.41 ± 5.04 | 39.18 ± 5.26 | 32.96 ± 9.17 | 10.87 ± 1.19 | <0.01 | 1.15 ± 0.13 | 1.29 ± 0.07 | 302 ± 30 |
| RESIDENTIAL AREA | | | | | | | | | | |
| RC | 188 ± 58 | 59 ± 9 | 31.76 ± 5.91 | 38.97 ± 4.45 | 30.10 ± 2.95 | 10.67 ± 1.67 | <0.01 | 1.23 ± 0.09 | 1.25 ± 0.06 | 305 ± 30 |
| ECO-SENSITIVE AREA | | | | | | | | | | |
| EC | 124 | 41 | 19.08 | 25.17 | 18.81 | 9.65 | <0.01 | <1.0 | <1.0 | 280 |

Conclusion:

From the results obtained for the month of June 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 | 27.6 – 31.2 | °C | - |
| 2 | pH | 6.14 – 7.81 | - | 6.5 - 9.0 |
| 3 | Salinity | 30.7 – 34.9 | ppt | - |
| 4 | Turbidity | 24.3 – 76.2 | NTU | - |
| 5 | TDS | 32988 – 39879 | mg/L | - |
| 6 | TSS | 62 – 153 | mg/L | - |
| 7 | TS | 33116 – 40018 | mg/L | - |
| 8 | DO | 5.6 – 6.7 | mg/L | 3.0 mg/L(min.) or 40% of saturation value |
| 9 | COD | 31 – 75 | 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 | 59 – 136 | CFU/ml | - |
| 15 | Fecal Coliforms | 16 – 78 | 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 | 29.2 – 30.8 | °C | - |
| 2 | pH | 7.06 – 7.79 | - | 6.5 - 9.0 |
| 3 | Salinity | 30.4 – 33.1 | ppt | - |
| 4 | Turbidity | 36.9 – 73.4 | NTU | - |
| 5 | TDS | 35288 – 39317 | mg/L | - |
| 6 | TSS | 123 – 264 | mg/L | - |
| 7 | TS | 35411 – 39466 | mg/L | - |
| 8 | DO | 4.6 – 5.2 | mg/L | 3.0 mg/L(min.) or 40% of saturation value |
| 9 | COD | 45 – 73 | 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 | 76 – 131 | CFU/ml | - |
| 15 | Fecal Coliforms | 28 – 76 | MPN/100 mL | 500 (max.) |

Conclusion:

Considering the activities in the Harbour area and the results obtained during Tidal Cycle for the month of June 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 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 and from JNPT to Ferry Wharf.
- ✓ *Construction of 4th Container Terminal on South side of JNPT:* Construction work of 4th Container Terminal is continued in June 2016.

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 June, 2016

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., probably affect nitrate and phosphate levels during June 2016.