



MONITORING & ANALYSIS OF ENVIRONMENTAL PARAMETERS OF RAIL WHEEL PLANT BELA

Sampling & Analysis done by, EMTRC Consultants Pvt. Ltd.

- REF:** (i) Ministry of Environment and Forest (MoEF)/GOI environmental Clearance no. J-11011/527/2010-IA.II(I) dated 12.01.2012.
ii) Bihar State Pollution Control Board (BSPCB) Discharge Consent Order Letter No. pt 2-116/11 t-6094, dated 03.08.2016.
(iii) BSPCB Emission Consent Order letter No. PT(NOC)-628/09 T-6095, dated 03.08.2016.

1. MONTH WISE ANALYSIS OF GROUND WATER OCTOBER 2018

| Ground Water sample | UNIT | Limit as per IS10500:2012 | | OCTOBER 2018 | |
|--|------------|------------------------------|--|----------------|----------------|
| | | Limit (Max) (mg/l) Desirable | Permissible limit in the absence of alternative source | Borewell No. 1 | Borewell No. 2 |
| 1. pH | -- | 6.5 to 8.5 | -- | 7.49 | 7.55 |
| 2. Colour | Hazen | 5 | 15 | Colorless | Colorless |
| 3. Turbidity on NTU | NTU | 1 | 5 | <1 | <1 |
| 4. Total Dissolved Solids (TDS) | mg/l. | 500 | 2000 | 520 | 530 |
| 5. Total Alkalinity as CaCO ₃ | mg/l. | 200 | 600 | 180 | 210 |
| 6. Total Hardness as CaCO ₃ | mg/l. | 200 | 600 | 210 | 230 |
| 7. Calcium as Ca | mg/l. | 75 | 200 | 56 | 64 |
| 8. Magnesium as Mg | mg/l. | 30 | 100 | 17 | 17 |
| 9. Sulphate as SO ₄ | mg/l. | 200 | 400 | 20 | 45 |
| 10. Chloride as Cl | mg/l. | 250 | 1000 | 22 | 32 |
| 11. Nitrate as NO ₃ | mg/l. | 45 | --- | 4.8 | 4.5 |
| 12. Iron as Fe | mg/l. | 0.3 | --- | 0.14 | 0.16 |
| 13. Arsenic as As | mg/l. | 0.01 | 0.05 | <0.001 | <0.001 |
| 14. Fluoride as F | mg/l. | 1.0 | 1.5 | 0.76 | 0.74 |
| 15. Total Coliform | MPN/100 ml | 0 | -- | 0 | 0 |

2. MONTH WISE ANALYSIS OF NOISE SAMPLE OCTOBER -2018

| Monitoring Location | Limit (Max) Leq: dBA | Test result | |
|----------------------|--|-------------------|---------------------|
| | | Day time Leq: dBA | Night time Leq: dBA |
| 1. Near Main Gate | Day time- 75 dBA Night time- 70 dBA | 53.2 | 43.8 |
| 2. Near ADM Building | | 51.4 | 43.6 |

| Monitoring Location | Limit (Max) | Test result |
|-------------------------------------|---|-------------|
| 3. Near Final Wheel Processing Sec. | Up to 90 dBA as per Bihar Factories Rules, 1950 | 83.6 |
| 4. Near Electric Arc Furnace | | 84.2 |

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3. MONTH WISE ANALYSIS OF STACK EMISSION MONITORING OCTOBER 2018

| Stack connected to NORMALIZING FURNACE | Prescribed Standard Limit | Test result OCTOBER 2018 |
|--|---------------------------|--------------------------|
| Gas Temp °C | --- | 310 |
| Velocity m/s | ---- | 11.5 |
| PM mg / NM ³ | 50 | 18 |
| SO ₂ mg / NM ³ | Not specified | < 1 (BDL) |
| NO _x mg / NM ³ | Not specified | 40 |

| Stack connected to DG 1 | Prescribed Standard Limit as per EP Act 1986 GSR 280E, Dated 11-04-2008 | Test result OCTOBER 2018 |
|---|---|--------------------------|
| a. Gas Temp °C | --- | 210 |
| b. Velocity m/s | ---- | 21.2 |
| c. PM mg / NM ³ | 75 | 70 |
| d. SO ₂ mg / NM ³ | S in fuel < 2 % | 40 |
| e. NO _x ppm | 710 | 90 |
| f. NMHC, mg/ NM ³ | 100 | 80 |
| g. Co, mg/ NM ³ | 150 | 305 |

4. MONTH WISE ANALYSIS OF WASTE WATER FROM CANTEEN (BEFORE TREATMENT) OCTOBER - 2018

| S.N | Parameters | Unit | Test Method | Result | General discharge standard Inland surface water |
|-----|------------------------------|------------|-------------|--------|---|
| 1. | pH | - | APHA-4500 | 6.79 | 5.5 -9.0 |
| 2. | Colour | Hazen Unit | APHA-2120B | 6 | - |
| 3. | Total suspended solids | Mg/l | APHA-2540D | 78 | 100 |
| 4. | Total dissolved solids | Mg/l | APHA-2540B | 760 | 2100 |
| 5. | BOD | Mg/l | APHA-5210B | 22 | 30 |
| 6. | COD | Mg/l | APHA-5220D | 72 | 250 |
| 7. | Oil and grease | Mg/l | APHA4500D | 5.6 | 10 |
| 8. | Chloride as Cl | Mg/l | APHA-4500B | 75 | 1000 |
| 9. | Sulphate as SO ₂ | Mg/l | APHA-4500E | 45 | 1000 |
| 10. | Ammonical N as N | Mg/l | APHA-5220D | 14.8 | 50 |
| 11. | Total Kjeldahl Nitrogen as N | Mg/l | APHA-4500B | 27.2 | 100 |
| 12. | Dissolved Phosphate | Mg/l | APHA-4500C | 2.8 | 5.0 |

5. MONTH WISE ANALYSIS OF POUND WATER TEST RESULT OCTOBER -2018

| S.N | Parameters | Unit | Test Method | Result | General discharge standard Inland surface water |
|-----|------------------------------|------------|-------------|--------|---|
| 1. | pH | - | APHA-4500 | 7.46 | 5.5 -9.0 |
| 2. | Colour | Hazen Unit | APHA-2120B | 3 | - |
| 3. | Total suspended solids | Mg/l | APHA-2540D | 24 | 100 |
| 4. | Total dissolved solids | Mg/l | APHA-2540B | 680 | 2100 |
| 5. | BOD | Mg/l | APHA-5210B | 6.8 | 30 |
| 6. | COD | Mg/l | APHA-5220D | 45 | 250 |
| 7. | Oil and grease | Mg/l | APHA4500D | 1.5 | 10 |
| 8. | Chloride as Cl | Mg/l | APHA-4500B | 48 | 1000 |
| 9. | Sulphate as SO ₂ | Mg/l | APHA-4500E | 36 | 1000 |
| 10. | Ammonical N as N | Mg/l | APHA-5220D | 5.2 | 50 |
| 11. | Total Kjeldahl Nitrogen as N | Mg/l | APHA-4500B | 15.6 | 100 |
| 12. | Dissolved Phosphate | Mg/l | APHA-4500C | 1.4 | 5.0 |

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6. MONTH WISE MONITORING & ANALYSIS OF AMBIENT AIR QUALITY OCTOBER 2018

| Month | Parameters | Limit(Max) | Near Main Gate | Near East Side Boundary Wall (Store Yard) | Near Main Store 2 | Near ADM Building | Near Main Gate | Near East Side Boundary Wall (Store Yard) | Near Main Store 2 | Near ADM Building |
|--|-----------------------------------|---|----------------|---|-------------------|-----------------------------------|----------------|---|-------------------|-------------------|
| 24 Hrs. Average Concⁿ in $\mu\text{g}/\text{m}^3$ | | | | | | | | | | |
| OCTOBER 2018 | 01st Monitoring | | | | | 02nd Monitoring | | | | |
| | PM ₁₀ | 100 $\mu\text{g}/\text{m}^3$ (24 hours average) | 65 | 58 | 68 | 60 | 68 | 64 | 74 | 56 |
| | PM _{2.5} | 60 $\mu\text{g}/\text{m}^3$ (24 hours average) | 32 | 28 | 35 | 28 | 35 | 30 | 36 | 26 |
| | SO ₂ | 80 $\mu\text{g}/\text{m}^3$ (24 hours average) | 6.8 | 6.0 | 7.5 | 6.2 | 7.2 | 6.5 | 7.8 | 5.8 |
| | NO ₂ | 80 $\mu\text{g}/\text{m}^3$ (24 hours average) | 12.5 | 11.2 | 13.6 | 11.2 | 12.8 | 11.8 | 14.2 | 10.5 |

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