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|  | **NUMALIGARH REFINERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF SEPTEMBER’2015**

**DATE OF SAMPLING : 21.09.2015**

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| **Sl No.**  **No** | **Parameters** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | Nil | Nil | Nil | Nil |
| **2** | **pH Value** | 7.5 | 7.0 | 7.5 | 7.5 |
| **3** | **Iron (as Fe), mg/lit** | 0.61 | 0.52 | 0.51 | 0.51 |
| **4** | **Chlorides (as Cl) mg/lit** | 34.2 | 36.4 | 32.8 | 36.2 |
| **5** | **Residual free chlorine, mg/lit** | Nil | Nil | Nil | Nil |
| **6** | **Copper (as Cu), mg/lit** | 0.052 | 0.064 | 0.066 | 0.066 |
| **7** | **Manganese (as Mn), mg/lit** | Nil | Nil | Nil | Nil |
| **8** | **Nitrate (as NO3), mg/lit** | 0.42 | 0.44 | 0.40 | 0.40 |
| **9** | **Fluoride (as F), mg/lit** | 0.22 | 0.20 | 0.20 | 0.20 |
| **10** | **Cadmium (as Cd), mg/lit** | Nil | Nil | Nil | Nil |
| **11** | **Arsenic (as As). mg/lit** | Nil | Nil | Nil | Nil |
| **12** | **Cyanide (as CN), mg/lit** | Nil | Nil | Nil | Nil |
| **13** | **Lead (as Pb), mg/lit** | 0.018 | 0.016 | 0.014 | 0.022 |
| **14** | **Zinc (as Zn), mg/lit** | 0.24 | 0.26 | 0.21 | 0.21 |
| **15** | **Chromium(asCr)mg/lit** | Nil | Nil | Nil | Nil |

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|  | **NUMALIGARH REFINERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF OCTOBER’2015**

**DATE OF SAMPLING : 21.10.2015**

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| **Sl No.**  **No** | **Parameters** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | Nil | Nil | Nil | Nil |
| **2** | **pH Value** | 7.5 | 7.0 | 7.0 | 7.0 |
| **3** | **Iron (as Fe), mg/lit** | 0.64 | 0.58 | 0.54 | 0.56 |
| **4** | **Chlorides (as Cl) mg/lit** | 34.8 | 34.6 | 34.6 | 36.8 |
| **5** | **Residual free chlorine, mg/lit** | Nil | Nil | Nil | Nil |
| **6** | **Copper (as Cu), mg/lit** | 0.056 | 0.061 | 0.067 | 0.063 |
| **7** | **Manganese (as Mn), mg/lit** | Nil | Nil | Nil | Nil |
| **8** | **Nitrate (as NO3), mg/lit** | 0.44 | 0.46 | 0.42 | 0.44 |
| **9** | **Fluoride (as F), mg/lit** | 0.24 | 0.22 | 0.19 | 0.18 |
| **10** | **Cadmium (as Cd), mg/lit** | Nil | Nil | Nil | Nil |
| **11** | **Arsenic (as As). mg/lit** | Nil | Nil | Nil | Nil |
| **12** | **Cyanide (as CN), mg/lit** | Nil | Nil | Nil | Nil |
| **13** | **Lead (as Pb), mg/lit** | 0.016 | 0.018 | 0.018 | 0.020 |
| **14** | **Zinc (as Zn), mg/lit** | 0.28 | 0.22 | 0.26 | 0.27 |
| **15** | **Chromium(asCr)mg/lit** | Nil | Nil | Nil | Nil |

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|  | **NUMALIGARH REFINERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF NOVEMBER’2015**

**DATE OF SAMPLING : 23.11.2015**

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| **Sl No.**  **No** | **Parameters** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | Nil | Nil | Nil | Nil |
| **2** | **pH Value** | 7.0 | 7.0 | 7.5 | 7.5 |
| **3** | **Iron (as Fe), mg/lit** | 0.44 | 0.52 | 0.56 | 0.54 |
| **4** | **Chlorides (as Cl) mg/lit** | 36.2 | 36.2 | 32.8 | 38.2 |
| **5** | **Residual free chlorine, mg/lit** | Nil | Nil | Nil | Nil |
| **6** | **Copper (as Cu), mg/lit** | 0.046 | 0.058 | 0.068 | 0.058 |
| **7** | **Manganese (as Mn), mg/lit** | Nil | Nil | Nil | Nil |
| **8** | **Nitrate (as NO3), mg/lit** | 0.48 | 0.42 | 0.48 | 0.48 |
| **9** | **Fluoride (as F), mg/lit** | 0.22 | 0.20 | 0.22 | 0.21 |
| **10** | **Cadmium (as Cd), mg/lit** | Nil | Nil | Nil | Nil |
| **11** | **Arsenic (as As). mg/lit** | Nil | Nil | Nil | Nil |
| **12** | **Cyanide (as CN), mg/lit** | Nil | Nil | Nil | Nil |
| **13** | **Lead (as Pb ), mg/lit** | 0.012 | 0.016 | 0.014 | 0.018 |
| **14** | **Zinc (as Zn), mg/lit** | 0.32 | 0.28 | 0.27 | 0.29 |
| **15** | **Chromium(as Cr)mg/lit** | Nil | Nil | Nil | Nil |

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|  | **NUMALIGARH REFNIERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF JAN , 2016**

**DATE OF SAMPLING : 18.02.2016**

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| **SL**  **No** | **Substance or Characteristic** | **Analysis data of ground water around SLF generated before commissioning of**  **SLF(max)** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **2** | **pH Value** | **7.6** | **8.0** | **8.0** | **8.5** | **8.0** |
| **3** | **Iron (as Fe), mg/lit (Max.)** | **1. 5** | **0.21** | **0.20** | **0.21** | **0.23** |
| **4.** | **Chlorides (as Cl) mg/lit (Max.)** | **28** | **26.0** | **29.0** | **27.6** | **25.8** |
| **5.** | **Residual free chlorine, mg/lit (Min.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **6.** | **Copper (as Cu), mg/lit (Max.)** | **0.04** | **0.020** | **0.021** | **0.020** | **0.029** |
| **7.** | **Manganese (as Mn), mg/lit (Max.)** | **0.03** | **Nil** | **Nil** | **Nil** | **Nil** |
| **8** | **Nitrate (as NO3), mg/lit (Max.)** | **0.4** | **0.26** | **0.26** | **0.20** | **0.26** |
| **9.** | **Fluoride (as F), mg/lit (Max.)** | **0.3** | **0.16** | **0.20** | **0.22** | **0.28** |
| **10.** | **Cadmium (as Cd), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **11.** | **Arsenic (as As). mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **12.** | **Cyanide (as CN), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **13.** | **Lead (as Pb), mg/lit (Max.)** | **0.05** | **0.021** | **0.029** | **0.030** | **0.024** |
| **14.** | **Zinc (as Zn), mg/lit (Max.)** | **0.2** | **0.14** | **0.21** | **0.19** | **0.22** |
| **15.** | **Chromium(asCr)**  **Mg/lit (Max)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |

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|  | **NUMALIGARH REFNIERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF FEBRUARY, 2016**

**DATE OF SAMPLING : 16.02.2016**

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| **SL**  **No** | **Substance or Characteristic** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | **Nil** | **Nil** | **Nil** | **Nil** |
| **2** | **pH Value** | **8.0** | **7.5** | **8.0** | **8.0** |
| **3** | **Iron (as Fe), mg/lit (Max.)** | **0.26** | **0.18** | **0.24** | **0.22** |
| **4.** | **Chlorides (as Cl) mg/lit (Max.)** | **26.0** | **24.5** | **22.6** | **19.0** |
| **5.** | **Residual free chlorine, mg/lit (Min.)** | **Nil** | **Nil** | **Nil** | **Nil** |
| **6.** | **Copper (as Cu), mg/lit (Max.)** | **0.022** | **0.023** | **0.020** | **0.018** |
| **7.** | **Manganese (as Mn), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** |
| **8** | **Nitrate (as NO3), mg/lit (Max.)** | **0.24** | **0.26** | **0.22** | **0.20** |
| **9.** | **Fluoride (as F), mg/lit (Max.)** | **0.24** | **0.22** | **0.20** | **0.24** |
| **10.** | **Cadmium (as Cd), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** |
| **11.** | **Arsenic (as As). mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** |
| **12.** | **Cyanide (as CN), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** |
| **13.** | **Lead (as Pb), mg/lit (Max.)** | **0.022** | **0.024** | **0.020** | **0.028** |
| **14.** | **Zinc (as Zn), mg/lit (Max.)** | **0.14** | **0.16** | **0.12** | **0.18** |
| **15.** | **Chromium(asCr)**  **Mg/lit (Max)** | **Nil** | **Nil** | **Nil** | **Nil** |

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|  | **NUMALIGARH REFNIERY LIMITED**  **(Quality Control Department)** |

**ANALYSIS OF GROUND WATER AROUND SECURED LAND FILL**

**FOR THE MONTH OF MARCH , 2016**

**DATE OF SAMPLING : 14.03.2016**

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| **SL**  **No** | **Substance or Characteristic** | **Analysis data of ground water around SLF generated before commissioning of**  **SLF(max)** | **Results of piezometric tubes** | | | |
| **No. # 1** | **No. # 2** | **No. # 3** | **No. # 4** |
| **1** | **Odour** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **2** | **pH Value** | **7.6** | **8.0** | **8.5** | **8.5** | **8.0** |
| **3** | **Iron (as Fe), mg/lit (Max.)** | **1. 5** | **0.35** | **0.31** | **0.27** | **0.21** |
| **4.** | **Chlorides (as Cl) mg/lit (Max.)** | **28** | **27.5** | **28.0** | **24.5** | **26.0** |
| **5.** | **Residual free chlorine, mg/lit (Min.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **6.** | **Copper (as Cu), mg/lit (Max.)** | **0.04** | **0.030** | **0.028** | **0.026** | **0.024** |
| **7.** | **Manganese (as Mn), mg/lit (Max.)** | **0.03** | **Nil** | **Nil** | **Nil** | **Nil** |
| **8** | **Nitrate (as NO3), mg/lit (Max.)** | **0.4** | **0.26** | **0.22** | **0.24** | **0.30** |
| **9.** | **Fluoride (as F), mg/lit (Max.)** | **0.3** | **0.24** | **0.19** | **0.21** | **0.26** |
| **10.** | **Cadmium (as Cd), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **11.** | **Arsenic (as As). mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **12.** | **Cyanide (as CN), mg/lit (Max.)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |
| **13.** | **Lead (as Pb), mg/lit (Max.)** | **0.05** | **0.027** | **0.025** | **0.022** | **0.024** |
| **14.** | **Zinc (as Zn), mg/lit (Max.)** | **0.2** | **0.17** | **0.19** | **0.17** | **0.15** |
| **15.** | **Chromium(asCr)**  **Mg/lit (Max)** | **Nil** | **Nil** | **Nil** | **Nil** | **Nil** |