

**NATIONAL WATER & SEWERAGE CORPORATION**

**QUALITY CONTROL DEPARTMENT**

**WATER QUALITY MONITORING SUMMARY**

**FOR THE MONTH OF: APRIL 2013**

**AREA: JINJA**

**Table 1: Physic – chemical quality**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **pH** | **Electrical Conductivity *µS/cm*** | **Colour:**  **Apparent**  ***PtCo*** | **Turbidity**  ***NTU*** | **Alkalinity:**  **Total**  ***mg/l***  ***CaCO3*** | **Hardness:**  **Total**  ***mg/l***  ***CaCO3*** | **Iron**  ***mg/l*** | **Res. Al**  ***mg/l*** | **Chlorine:**  **Free Residual**  ***mg/l*** |
| **Raw Water** | - | 64.4 | 42.9 | 6.3 | 66 | 32 | 0.063 | - | - |
| **Final Water** | - | 65.5 | 5.5 | 1.1 | 62 | 31 | 0.009 | 0.012 | 0.28 |

***\* All figures depict monthly averages***

**Table 2: Performance of Treatment Units**

|  |  |  |  |
| --- | --- | --- | --- |
| **Treatment Stage** | **%Colour** | **% Turbidity** | **% Iron Removal** |
| Aeration |  |  |  |
| Clarification |  |  |  |
| Filtration |  |  |  |
| Overall | 87.2% | 82.5% | 85,7% |

**Table 3: Cleaning schedules frequency**

|  |  |
| --- | --- |
|  | **Remarks** |
| Cascade aerators. | Cascade aerator once a week |
| Reservoirs, clear well | Quarterly cleaned |
| Clarifiers | New sedimentation tank is cleaned monthly, old clarifier is due for cleaning |
| Filters walls | once a week |
| Backwash interval | Twice a day |
| Alum mixing tanks | Before every mixing |
| Salt dissolving/solution tanks | Drained and cleaned 1day per 30 days |

**Table 4: Chemical consumption and dose rates (mg/l)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Chemical used (kg/mth).** | | | | **Dose Rates, mg/litre** | | | |
| Treatment | Pre – Treatment | Post Treatment | Total | Min | Max | Average | Average Lab Test |
| **HTH** | - | - |  | 135 | 2mg/l | 3mg/l | 2.3mg/l | 3mg/l |
| **Alum** | nil | - | - | - | - | - | - | - |
| **Polymer** | 2250 | - | “ | 2250 | 5.5 mg/l | 7 mg/l | 6.5mg/l | 7mg/l |
| **NaCl** | **1200** | - | “ | 1200 | -- | - | 3.5mg/l | 3.5mg/l |

**Raw Water Pumped (m3): 601356 m3**

**Treated Water (m3): 559154 m3**

**Service Water (m3):**

**Table 5: Compliance to quality: % No. of samples meeting the standard**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Colour** | **Turbidity** | **E-coli** | **Free Chlorine** |
| ***Standard*** | ***15 ptu*** | ***5 Ntu*** | ***0 CFU/100ml*** | ***0.20-0.50 mg/l*** |
| **Final Water** | 100 | 100 | 100 | 100 |
| **Reservoirs** | ,, | ,, | ,, | ,, |
| **Water in supply** | ,, | ,, | ,, | ,, |

**Table 6: Number of Samples tested**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Examination** |  | **Raw Water** | **Intermediate** | **Final Water** | **Reservoirs/Boosters** | **Water in Supply** | **Sewage** |
| **Physic Chemical** | Area Lab | 30 | 93 | 30 | 0 | 7 |  |
| Central Lab | 1 | - | 1 | 8 | 6 | 9 |
| **Bacteriological** | Area Lab | ND | ND | ND | 8 | 0 |  |
| Central | 1 | - | 1 | 8 | 6 | 4 |

**DAILY RECORDER**

**AREA: JINJA MONTH: APRIL 2013**

**Physical – Chemical Characteristics**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***RAW WATER*** | | | | | | | | | ***FINAL WATER*** | | | | | | | | | |
| ***PARAMETERS*** | | | | | | | | | ***PARAMETERS*** | | | | | | | | | |
| **DAY** | **pH** | **EC** | **Colour** | | **Turb** | **T.Alk.** | **T.Hard** | **Iron** | **pH** | **EC** | **Colour (appt)** | **Turb.** | **TSS** | **T.Alk** | **T.har** | **iron** | **Res.**  **Alum** | **Free Cl2** |
| **(Appt)** | **TSS** |
|  | **(uS/cm)** | **(PtCo)** | **(mg/l** | **(NTU)** | **(mg/l** | **(mg/l)** | **(mg/l)** |  | **(uS/cm)** | **(Pt)** | **(NTU)** | **(mg/l** | **(mg/l)** | **(mg/l** | **mg/l** | **mg/l** | **(mg/l)** |
| 1 | **ND** | 69.6 | 49 | 6 | 7 |  |  |  | **ND** | 70.0 | 5 | 1 | 1 |  |  |  |  | 0.4 |
| 2 |  | 62.3 | 39 | 5 | 5 |  |  |  |  | 67.7 | 9 | 2 | 1 |  |  |  |  | 0.2 |
| 3 |  | 68.7 | 48 | 4 | 7 |  |  |  |  | 66.9 | 9 | 3 | 0 |  |  |  |  | 0.8 |
| 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  | 71.3 | 43 | 4 | 8 | 80 | 40 | 0.19 |  | 63.5 | 8 | 2 | 1 | 68 | 36 | 0.006 |  | 0.2 |
| 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  | 70 | 52 | 5 | 8 |  |  |  |  | 67.2 | 3 | 1 | 0 |  |  |  |  | 0.3 |
| 8 |  | 71.3 | 37 | 3 | 5 |  |  |  |  | 61.5 | 0 | 0 | 0 |  |  |  |  | 0.3 |
| 9 |  | 69.9 | 52 | 5 | 7 |  |  |  |  | 64.2 | 0 | 1 | 0 |  |  |  |  | 0.2 |
| 10 |  | 64.3 | 43 | 4 | 7 |  |  |  |  | 63.6 | 4 | 1 | 0 |  |  |  |  | 0.1 |
| 11 |  | 65.5 | 47 | 5 | 7 |  |  |  |  | 61.9 | 9 | 0 | 0 |  |  |  |  | 0.1 |
| 12 |  | 71.8 | 49 | 5 | 6 | 56 | 28 | 0.029 |  | 62.0 | 8 | 1 | 1 | 60 | 28 | 0.018 | 0.025 | 0.4 |
| 13 |  | 60.0 | 55 | 4 | 6 |  |  |  |  | 63.0 | 6 | 0 | 0 |  |  |  |  | 0.2 |
| 14 |  | 66.9 | 46 | 5 | 10 |  |  |  |  | 67.8 | 0 | 1 | 0 |  |  |  |  | 0.6 |
| 15 |  | 63.4 | 45 | 5 | 7 |  |  |  |  | 65.6 | 3 | 0 | 0 |  |  |  |  | 0.2 |
| 16 |  | 59.9 | 26 | 4 | 3 |  |  |  |  | 68.1 | 0 | 1 | 0 |  |  |  |  | 0.2 |
| 17 |  | 62.9 | 41 | 6 | 9 |  |  |  |  | 67.5 | 6 | 3 | 0 |  |  |  |  | 0.6 |
| 18 |  | 63.0 | 61 | 6 | 11 |  |  |  |  | 62.1 | 8 | 2 | 0 |  |  |  |  | 0.2 |
| 19 |  | 65.5 | 49 | 6 | 6 | 68 | 32 | 0.016 |  | 71.7 | 4 | 1 | 1 | 60 | 28 | 0.006 | 0.006 | 0.3 |
| 20 |  | 69.4 | 39 | 5 | 5 |  |  |  |  | 70.0 | 4 | 1 | 0 |  |  |  |  | 0.3 |
| 21 |  | 69.4 | 50 | 6 | 8 |  |  |  |  | 68.1 | 14 | 2 | 1 |  |  |  |  | 0.1 |
| 22 |  | 60.6 | 33 | 5 | 5 |  |  |  |  | 70.3 | 8 | 1 | 1 |  |  |  |  | 0.2 |
| 23 |  | 66.7 | 30 | 3 | 6 |  |  |  |  | 68.1 | 7 | 1 | 0 |  |  |  |  | 0.2 |
| 24 |  | 53.1 | 34 | 2 | 3 |  |  |  |  | 67.6 | 0 | 0 | 0 |  |  |  |  | 0.3 |
| 25 |  | 60.0 | 34 | 3 | 3 |  |  |  |  | 68.7 | 4 | 0 | 0 |  |  |  |  | 0.3 |
| 26 |  | 69.1 | 34 | 4 | 5 | 60 | 28 | 0.018 |  | 63.0 | 4 | 1 | 1 | 60 | 32 | 0.007 | 0.005 | 0.2 |
| 27 |  | 58.9 | 63 | 7 | 7 |  |  |  |  | 69.7 | 2 | 0 | 1 |  |  |  |  | 0.2 |
| 28 |  | 45.3 | 40 | 4 | 6 |  |  |  |  | 50.0 | 16 | 3 | 1 |  |  |  |  | 0.1 |
| 29 |  | 67.0 | 43 | 6 | 5 |  |  |  |  | 64.9 | 7 | 1 | 0 |  |  |  |  | 0.3 |
| 30 |  | 58.1 | 20 | 3 | 4 |  |  |  |  | 58.4 | 6 | 1 | 0 |  |  |  |  | 0.2 |
| **Total** |  | **1803.9** | **1202** | **130** | **176** | **264** | **128** | **0.253** |  | **1833.1** | **154** | **31** | **10** | **248** | **124** | **0.037** | **0.035** | **7.7** |
| **Aver** |  | **64.4** | **42.9** | **4.6** | **6.3** | **66** | **32** | **0.063** |  | **65.5** | **5.5** | **1.1** | **0.36** | **62** | **31** | **0.009** | **0.012** | **0.275** |
| **Max** |  | **71.8** | **63** | **7** | **11** | **68** | **32** | **0.19** |  | **71.7** | **16** | **3** | **1** | **68** | **32** | **0.018** | **0.025** | **0.8** |
| **Min** |  | **45.3** | **20** | **3** | **3** | **56** | **28** | **0.016** |  | **50** | **0** | **0** | **0** | **60** | **28** | **0.006** | **0.006** | **0.1** |

**DAILY WATER PRODUCTION AND CHEMICAL CONSUMPATION**

**AREA: JINJA MONTH: APRIL 2013**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **DATE** | **TOTAL RAW WATER**  **m3/day** | **TOTAL TREATED WATER**  **m3/day** | **CHEMICALS USED** | | |
|  |  |  | **POLYMER** | **HTH** | **Na Cl** |
| 1 | 19278 | 18360 |  |  |  |
| 2 | 20328 | 19360 | 500 |  | 400 |
| 3 | 22890 | 21800 |  |  |  |
| 4 | 11351 | 10810 |  |  |  |
| 5 | 25106 | 23910 |  | 45 |  |
| 6 | 13472 | 12830 |  |  |  |
| 7 | 23877 | 22740 |  |  | 400 |
| 8 | 22365 | 21300 | 500 |  |  |
| 9 | 19184 | 18270 |  |  |  |
| 10 | 20381 | 19410 |  |  |  |
| 11 | 20319 | 19180 |  |  |  |
| 12 | 19877 | 18930 | 500 |  | 400 |
| 13 | 19079 | 18170 |  |  |  |
| 14 | 18921 | 18020 |  | 45 |  |
| 15 | 18701 | 17810 | 500 |  |  |
| 16 | 20349 | 19380 |  |  |  |
| 17 | 18743 | 18743 |  | 45 |  |
| 18 | 23909 | 23909 |  |  |  |
| 19 | 21767 | 21767 |  |  |  |
| 20 | 21893 | 21893 |  |  |  |
| 21 | 20528 | 2052 |  |  |  |
| 22 | 19740 | 18800 | 250 |  |  |
| 23 | 22344 | 21280 |  |  |  |
| 24 | 20150 | 19190 |  |  |  |
| 25 | 16790 | 15990 |  |  |  |
| 26 | 20255 | 19290 |  |  |  |
| 27 | 18911 | 18010 |  |  |  |
| 28 | 21315 | 20300 |  |  |  |
| 29 | 19457 | 18530 |  |  |  |
| 30 | 20076 | 19120 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| **Total** | **601356** | **559154** | **2250** | **135** | **1200** |
| **Average/day** | **20045** | **18638.5** | **80.4** |  | **42.9** |
|  |  |  |  |  |  |

**Note**: The figures for treated water are used to compute raw water with a multiple of 1.05 corrected to a whole number in the process.

**CHEMICAL USAGE SUMMARY**

|  |  |  |
| --- | --- | --- |
| **CHEMICAL** | **TOTAL** **WEIGHT**  Kg/month | **DAILY** **AVERAGE**  Kg/day |
| HTH | 135 | N/A |
| POLYMER | 2250 | 80.4 |
| SODIUM CHLORIDE | 1200 | 42.9 |
| ALUM | NIL | NIL |

* .

|  |  |
| --- | --- |
| **CONSTITUENT** | **GUIDELINE VALUE** |
| Aluminium | <0.2 mg/l |
| Colour | <15 PtCo |
| Hardness: total as CaCO3 | <500 mg/l |
| Alkalinity: total as CaCO3 | <500 mg/l |
| Iron | <0.3 mg/l |
| Ph | 6.5 – 8.5 |
| Turbidity | <5.0 NTU |

**W H O GUIDELINES**

**REMARKS FOR THE MONTH**

* Naminya water tank is due cleaning as there are many suspended solids in the water
* The old clarifier is due cleaning

Complied by

Babirye Deborah

(Quality Control Technician, Jinja)

Cc: Senior Quality Control Officer, Central lab

Cc: Area Manager/ Principal Engineer