

Annex F6

Effluent Quality Monitoring Results

Table F6.1 Effluent Monitoring Results

| | | 1 Apr 22 | 2 Apr 22 | 3 Apr 22 | 4 Apr 22 | 5 Apr 22 | 6 Apr 22 | 7 Apr 22 | 8 Apr 22 | 9 Apr 22 | 10 Apr 22 | 11 Apr 22 |
|---------------------------------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| On-site Measurements | | | | | | | | | | | | |
| Temperature | °C | 28.7 | 21.2 | 22.6 | 27.8 | 26.7 | 28.6 | 29.9 | 32 | 26.8 | 27.4 | 30.9 |
| pH Value | pH Unit | 8.6 | 8.7 | 8.7 | 8.6 | 8.7 | 8.6 | 8.6 | 8.7 | 8.6 | 8.6 | 8.6 |
| Volume Discharged | m ³ | 952 | 1109 | 865 | 438 | 869 | 374 | 1285 | 695 | 88 | 299 | 443 |
| Laboratory Analysis | | | | | | | | | | | | |
| Suspended Solids (SS) | mg/L | 30.6 | 56.4 | 52.6 | 21.8 | 37.3 | 20.4 | 26.4 | 23.5 | 19.1 | 53.6 | 32.7 |
| Alkalinity | mg/L | 2220 | 2180 | 2120 | 2230 | 2190 | 2340 | 2280 | 2280 | 2400 | 2350 | 2320 |
| Ammoniacal-nitrogen | mg/L | 0.3 | 0.26 | 0.3 | 0.52 | 0.3 | 0.47 | 0.31 | 0.31 | 0.39 | 0.94 | 0.58 |
| Chloride | mg/L | 2210 | 2070 | 1850 | 1930 | 1910 | 2010 | 2350 | 2380 | 2210 | 2560 | 2480 |
| Nitrite-nitrogen | mg/L | 0.17 | 0.19 | 0.14 | 0.45 | 0.21 | 0.45 | 0.21 | 0.19 | 0.38 | 0.26 | 0.47 |
| Phosphate | mg/L | 9.6 | 8.84 | 8.41 | 9.35 | 7.83 | 9.53 | 8.08 | 9.5 | 10.2 | 9.6 | 9.28 |
| Sulphate | mg/L | 151 | 147 | 123 | 123 | 133 | 121 | 150 | 152 | 144 | 152 | 155 |
| Total Nitrogen | mg/L | 103 | 116 | 127 | 119 | 113 | 93.9 | 103 | 98.4 | 91.7 | 108 | 99.2 |
| Nitrate-nitrogen | mg/L | 51 | 57.3 | 72.1 | 64.6 | 57.9 | 41.7 | 48.6 | 45.1 | 42.8 | 47.9 | 45.4 |
| Total Inorganic Nitrogen | mg/L | 51.47 | 57.75 | 72.54 | 65.57 | 58.41 | 42.62 | 49.12 | 45.6 | 43.57 | 49.1 | 46.45 |
| Biochemical Oxygen Demand (BOD) | mg/L | 14 | 14 | 33 | 9 | 15 | 9 | 10 | 10 | 6 | 12 | 9 |
| Chemical Oxygen Demand (COD) | mg/L | 1200 | 1140 | 1180 | 1180 | 1010 | 1040 | 1160 | 1230 | 1200 | 1350 | 1160 |
| Oil & Grease | mg/L | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Total Organic Carbon (TOC) | mg/L | 428 | 484 | 362 | 475 | 349 | 350 | 453 | 449 | 466 | 445 | 439 |
| Boron | µg/L | 5160 | 5030 | 5040 | 5150 | 5460 | 5650 | 5640 | 5540 | 5790 | 5790 | 5410 |
| Calcium | mg/L | 28.2 | 33.1 | 27.3 | 25.2 | 30.3 | 26.6 | 32.1 | 28.5 | 27.3 | 26 | 25.9 |
| Iron | mg/L | 1.71 | 1.77 | 1.6 | 1.63 | 1.68 | 1.79 | 2.11 | 2.09 | 2.04 | 2 | 2.05 |
| Magnesium | mg/L | 30 | 30.7 | 25.3 | 26.4 | 28 | 26.5 | 31.4 | 31 | 31.3 | 28.6 | 29.6 |
| Potassium | mg/L | 898 | 955 | 785 | 846 | 836 | 816 | 932 | 921 | 947 | 885 | 892 |
| Cadmium | µg/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chromium | µg/L | 131 | 135 | 137 | 136 | 120 | 129 | 132 | 135 | 132 | 134 | 134 |
| Copper | µg/L | <10 | <10 | 44 | <10 | <10 | <10 | <10 | <10 | <10 | 24 | <10 |
| Nickel | µg/L | 120 | 122 | 121 | 122 | 118 | 126 | 124 | 129 | 127 | 130 | 128 |
| Zinc | µg/L | 75 | 88 | 111 | 69 | 88 | 70 | 81 | 80 | 71 | 95 | 82 |

| | | 12 Apr 22 | 13 Apr 22 | 14 Apr 22 | 15 Apr 22 | 16 Apr 22 | 17 Apr 22 | 18 Apr 22 | 19 Apr 22 | 20 Apr 22 | 21 Apr 22 | 22 Apr 22 | 23 Apr 22 |
|---------------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| On-site Measurements | | | | | | | | | | | | | |
| Temperature | °C | 32.4 | 30.3 | 31.5 | 27.3 | 27.7 | 27.3 | 26.7 | 26.5 | 29.2 | 29 | 32 | 29.4 |
| pH Value | pH Unit | 8.6 | 8.5 | 8.6 | 8.5 | 8.5 | 8.6 | 8.6 | 8.6 | 8.7 | 8.6 | 9 | 8.5 |
| Volume Discharged | m ³ | 580 | 227 | 242 | 1225 | 1064 | 648 | 368 | 1001 | 265 | 337 | 815 | 1137 |
| Laboratory Analysis | | | | | | | | | | | | | |
| Suspended Solids (SS) | mg/L | 39.6 | 17.6 | 16.5 | 18.9 | 23.7 | 19.9 | 30.2 | 11.7 | 15.4 | 12.7 | 36.1 | 41 |
| Alkalinity | mg/L | 2320 | 2350 | 2430 | 2320 | 2360 | 2320 | 2360 | 2440 | 2440 | 2400 | 2410 | 2390 |
| Ammoniacal-nitrogen | mg/L | 0.34 | 0.82 | 0.46 | 0.38 | 0.4 | 0.31 | 0.37 | 0.34 | 0.35 | 0.51 | 0.24 | 0.2 |
| Chloride | mg/L | 2120 | 2110 | 2120 | 2150 | 2190 | 2160 | 2190 | 2160 | 2220 | 2170 | 2620 | 2510 |
| Nitrite-nitrogen | mg/L | 0.18 | 0.61 | 0.55 | 0.22 | 0.23 | 0.23 | 0.32 | 0.21 | 0.21 | 0.46 | 0.17 | 0.17 |
| Phosphate | mg/L | 8.93 | 9.23 | 9.9 | 8.98 | 8.87 | 8.94 | 8.92 | 8.85 | 8.98 | 9.02 | 9.58 | 9.21 |
| Sulphate | mg/L | 161 | 157 | 144 | 164 | 154 | 144 | 144 | 136 | 140 | 130 | 140 | 142 |
| Total Nitrogen | mg/L | 101 | 96.4 | 84.6 | 95 | 97.8 | 110 | 105 | 87.4 | 83.1 | 79 | 85.1 | 89.2 |
| Nitrate-nitrogen | mg/L | 45.1 | 42.8 | 34.8 | 42.7 | 46.8 | 55 | 53.7 | 36.6 | 32.7 | 31.1 | 33.1 | 34.5 |
| Total Inorganic Nitrogen | mg/L | 45.62 | 44.23 | 35.81 | 43.3 | 47.43 | 55.54 | 54.39 | 37.15 | 33.26 | 32.07 | 33.51 | 34.87 |
| Biochemical Oxygen Demand (BOD) | mg/L | 14 | 5 | 6 | 12 | 10 | 10 | 8 | 7 | 6 | 10 | 5 | 5 |
| Chemical Oxygen Demand (COD) | mg/L | 1210 | 1090 | 1070 | 1230 | 1150 | 1120 | 1070 | 1070 | 1040 | 1120 | 1160 | 1150 |
| Oil & Grease | mg/L | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Total Organic Carbon (TOC) | mg/L | 457 | 420 | 553 | 426 | 431 | 409 | 530 | 441 | 425 | 438 | 439 | 391 |
| Boron | µg/L | 5940 | 6110 | 5640 | 5660 | 5900 | 5980 | 6080 | 6080 | 5830 | 5700 | 5630 | 5700 |
| Calcium | mg/L | 25 | 26.1 | 22.2 | 24.5 | 22.8 | 21.5 | 20.6 | 19.9 | 21.5 | 21.8 | 23 | 23.3 |
| Iron | mg/L | 2 | 2.29 | 2.05 | 2.29 | 2.21 | 2.04 | 1.92 | 2.05 | 1.95 | 1.92 | 2.06 | 2.19 |
| Magnesium | mg/L | 32 | 32.9 | 31.1 | 32.8 | 33.8 | 33.3 | 33.8 | 32.6 | 31.6 | 32.2 | 31.6 | 34.6 |
| Potassium | mg/L | 911 | 920 | 916 | 908 | 926 | 936 | 954 | 922 | 908 | 914 | 891 | 970 |
| Cadmium | µg/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chromium | µg/L | 138 | 134 | 140 | 139 | 139 | 140 | 139 | 141 | 140 | 137 | 136 | 140 |
| Copper | µg/L | 40 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | <10 | 47 |
| Nickel | µg/L | 131 | 133 | 136 | 132 | 133 | 136 | 134 | 139 | 128 | 126 | 127 | 132 |
| Zinc | µg/L | 97 | 84 | 79 | 93 | 91 | 91 | 80 | 86 | 80 | 80 | 74 | 96 |

| | | 24 Apr 22 | 25 Apr 22 | 26 Apr 22 | 27 Apr 22 | 28 Apr 22 | 29 Apr 22 | 30 Apr 22 |
|---------------------------------|----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| On-site Measurements | | | | | | | | |
| Temperature | °C | 32.1 | 33.6 | 35.3 | 35.2 | 33.9 | 33.6 | 29.9 |
| pH Value | pH Unit | 8.6 | 8.5 | 8.5 | 8.4 | 8.4 | 8.4 | 8.4 |
| Volume Discharged | m ³ | 627 | 244 | 757 | 216 | 277 | 218 | 806 |
| Laboratory Analysis | | | | | | | | |
| Suspended Solids (SS) | mg/L | 52.8 | 12 | 30.7 | 16 | 16.3 | 14.6 | 27.5 |
| Alkalinity | mg/L | 2400 | 2450 | 2430 | 2400 | 2400 | 2380 | 2410 |
| Ammoniacal-nitrogen | mg/L | 0.29 | 0.54 | 0.34 | 0.36 | 0.56 | 0.5 | 0.22 |
| Chloride | mg/L | 2480 | 2390 | 2200 | 2230 | 2080 | 2180 | 2300 |
| Nitrite-nitrogen | mg/L | 0.19 | 0.4 | 0.18 | 0.19 | 0.63 | 0.49 | 0.3 |
| Phosphate | mg/L | 9.32 | 9.44 | 9.07 | 9.14 | 8.73 | 9.06 | 9.35 |
| Sulphate | mg/L | 153 | 139 | 145 | 149 | 143 | 146 | 150 |
| Total Nitrogen | mg/L | 96.1 | 90.5 | 92.4 | 92.5 | 90.9 | 97.3 | 96.4 |
| Nitrate-nitrogen | mg/L | 39.2 | 37.3 | 39.8 | 40.9 | 41.4 | 44.3 | 44.4 |
| Total Inorganic Nitrogen | mg/L | 39.68 | 38.24 | 40.32 | 41.45 | 42.59 | 45.29 | 44.92 |
| Biochemical Oxygen Demand (BOD) | mg/L | 10 | 4 | 7 | 8 | 6 | 9 | 10 |
| Chemical Oxygen Demand (COD) | mg/L | 1040 | 1150 | 1200 | 1150 | 1110 | 1070 | 1080 |
| Oil & Grease | mg/L | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| Total Organic Carbon (TOC) | mg/L | 466 | 382 | 356 | 382 | 394 | 396 | 374 |
| Boron | µg/L | 5520 | 5680 | 5980 | 5650 | 5620 | 5860 | 5850 |
| Calcium | mg/L | 21.2 | 22.5 | 23.7 | 24.1 | 23.4 | 23.4 | 22.8 |
| Iron | mg/L | 1.95 | 1.81 | 1.91 | 1.81 | 1.84 | 1.86 | 1.8 |
| Magnesium | mg/L | 32.5 | 31.6 | 35.2 | 33.6 | 32.3 | 33.4 | 33.2 |
| Potassium | mg/L | 914 | 924 | 1000 | 958 | 924 | 949 | 942 |
| Cadmium | µg/L | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chromium | µg/L | 137 | 130 | 134 | 135 | 134 | 132 | 130 |
| Copper | µg/L | 53 | <10 | <10 | <10 | 19 | <10 | <10 |
| Nickel | µg/L | 131 | 123 | 131 | 125 | 124 | 124 | 122 |
| Zinc | µg/L | 105 | 69 | 76 | 77 | 86 | 76 | 77 |