

## **APPENDIX K**

### **Verification Testing Protocol**

**TCEQ March 4, 2013 E-Mail**

**Cost For 45 Day Verification Testing**

CVT  
+  
PASTE

# WWTP Effluent (Pre-Disinfection) + 1

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|                                                                                                                                               | Frequency      |                 |                |                    |                     |                      | Comments<br>(see footnote listed) |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------------|
|                                                                                                                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End       |
| Flow Rate (gpm)                                                                                                                               |                | X               |                |                    |                     |                      |                                   |
| Daily Flow Rate (gpd)                                                                                                                         |                |                 |                | X                  |                     |                      |                                   |
| Temperature (°C)                                                                                                                              |                | X               |                |                    |                     |                      |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> )                                                                                                 |                |                 |                |                    | X                   |                      |                                   |
| Total Suspended Solids (mg/L)                                                                                                                 |                |                 |                | X                  |                     |                      |                                   |
| 5-day Carbonaceous Biochemical Oxygen Demand (mg/L)                                                                                           |                |                 |                | X                  |                     |                      |                                   |
| \$290.118(b) Secondary Constituents                                                                                                           |                |                 |                |                    |                     |                      | X                                 |
| Total Dissolved Solids (mg/L)                                                                                                                 |                |                 |                |                    | X                   |                      |                                   |
| \$290.106(b) Inorganic Chemicals                                                                                                              |                |                 |                |                    |                     |                      | X                                 |
| Turbidity (NTU)                                                                                                                               |                | X               |                |                    |                     |                      |                                   |
| Metal Scan (mg/L)<br>(As, Ba, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, Zn)                                                                         |                |                 |                |                    | X                   |                      |                                   |
| Lead                                                                                                                                          |                |                 |                | X                  |                     |                      | X                                 |
| Nitrate (mg/L)                                                                                                                                |                |                 |                |                    |                     |                      |                                   |
| Bromide (mg/L)                                                                                                                                |                |                 |                |                    |                     | X                    | X                                 |
| \$290.107(b) Organic Chemicals                                                                                                                |                |                 |                |                    |                     |                      | X                                 |
| Total Trihalomethanes (ug/L)<br>(TTHM, Chloroform, Dibromochloromethane, Dichlorobromomethane, Bromoform)                                     |                |                 |                |                    |                     | X                    | X                                 |
| Haloacetic Acids (ug/L)<br>(HAA5, Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid) |                |                 |                |                    |                     | X                    | X                                 |
| Total Organic Carbon (mg/L)                                                                                                                   |                |                 |                |                    | X                   |                      |                                   |
| Dissolved Organic Carbon (mg/L)                                                                                                               |                |                 |                |                    | X                   |                      |                                   |
| \$290.108(b)(1) Radiological<br>(Ra-226, Ra-228, Uranium, Gross Alpha Activity)                                                               |                |                 |                |                    |                     |                      | X                                 |
| \$290.108(b)(2) & 40CFR §141.66(d) Radiological<br>(Gross Beta Particle & Photon Radioactivity, Tritium, Strontium-90)                        |                |                 |                |                    |                     |                      | X                                 |
| Algae Counts (cells/L)                                                                                                                        |                |                 |                |                    |                     |                      | X                                 |
| <i>Escherichia coli</i> ( <i>E. coli</i> ) enumeration (CFU/L)                                                                                |                |                 |                |                    |                     |                      | X                                 |
| <i>Giardia</i> (cysts/L)                                                                                                                      |                |                 |                |                    |                     |                      | X                                 |
| <i>Cryptosporidium</i> (oocysts/L)                                                                                                            |                |                 |                |                    |                     |                      | X                                 |
| Enterovirus (CFU/L)                                                                                                                           |                |                 |                |                    |                     |                      | X                                 |
| Norovirus (CFU/L)                                                                                                                             |                |                 |                |                    |                     |                      | X                                 |
| Nitroso-dimethylamine (NDMA) (ng/L)                                                                                                           |                |                 |                |                    |                     |                      | X                                 |
| Notroso-pyrolidine (NPYR) (ng/L)                                                                                                              |                |                 |                |                    |                     |                      | X                                 |
| Pharmaceuticals (ug/L)                                                                                                                        |                |                 |                |                    |                     |                      | X                                 |
| Hormones (ng/L)                                                                                                                               |                |                 |                |                    |                     |                      | X                                 |
| Personal Care Products (ng/L)                                                                                                                 |                |                 |                |                    |                     |                      | X                                 |
| Fluorinated Alkyl-Acids (ng/L)<br>(PFOS, PFOA, PFNA, PFHxS, PFHpA, & PFBS)                                                                    |                |                 |                |                    |                     |                      | X                                 |
| Sucralose (ug/L)                                                                                                                              |                |                 |                |                    |                     |                      | X                                 |
| Perchlorate (ug/L)                                                                                                                            |                |                 |                |                    |                     |                      | X                                 |

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### Beginning of Effluent Transmission Pipeline Disinfection Zone + 2 (@2.9 MGD = 1,140 minute detention time)

|                                 | Frequency      |                 |                |                 |                     |                      |  | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|---------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|--|-----------------------------|-----------------------------------|
|                                 | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |  |                             |                                   |
| pH                              |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Temperature (°C)                |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Total Chlorine Residual (mg/L)  |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Monochloramine Residual (mg/L)  |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Free Chlorine Residual (mg/L)   |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Free Ammonia (mg/L)             |                |                 | X              |                 |                     |                      |  |                             |                                   |
| Bromide (mg/L)                  |                |                 |                |                 | X                   |                      |  |                             |                                   |
| Quantity of Chlorine used (ppd) |                |                 |                | X               |                     |                      |  |                             |                                   |

Note: The City of Wichita Falls will be utilizing the Ammonia that pre-exists in the Wastewater Stream for combination with Chlorine to form Chloramines. Therefore, the City has removed the "Ammonia Feed Pump Dosage Rate" and the "Quantity of Ammonia Used" from the TCEQ recommended monitoring.

Note: "Total Trihalomethanes" and "Haloacetic Acids" were dropped from the TCEQ recommended monitoring at this point, since it is the same value that was monitored at the "WWTP Effluent (Pre-Disinfection)". "Total Trihalomethanes" and "Haloacetic Acids" will be monitored again at the end of the transmission pipeline.

### End of Effluent Transmission Pipeline Disinfection Zone (at Flow Control Vault) + 3

|                                | Frequency      |                 |                |                 |                     |                      |  | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|--------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|--|-----------------------------|-----------------------------------|
|                                | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |  |                             |                                   |
| pH                             |                | X               |                |                 |                     |                      |  |                             |                                   |
| Temperature (°C)               |                | X               |                |                 |                     |                      |  |                             |                                   |
| Total Chlorine Residual (mg/L) |                | X               |                |                 |                     |                      |  |                             |                                   |
| Monochloramine Residual (mg/L) |                | X               |                |                 |                     |                      |  |                             |                                   |
| Free Chlorine Residual (mg/L)  |                | X               |                |                 |                     |                      |  |                             |                                   |
| Free Ammonia (mg/L)            |                | X               |                |                 |                     |                      |  |                             |                                   |

Beginning of MF/RO Clarifier Disinfection Zone (inside Clarifier Mix Zone) <sup>+4</sup> (end of page X-3)

(@2.9 MGD = 2,504 min detention time to end of DZ)

|                                                               | Frequency      |                 |                |                 |                     |                      |                             | Comments<br>(see footnote listed) |
|---------------------------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |
| Flow Rate (gpm)                                               |                | X               |                |                 |                     |                      |                             |                                   |
| pH                                                            |                |                 | X              |                 |                     |                      |                             |                                   |
| Temperature (°C)                                              |                |                 | X              |                 |                     |                      |                             |                                   |
| Total Chlorine Residual after NH <sub>3</sub> addition (mg/L) |                |                 | X              |                 |                     |                      |                             |                                   |
| Monochloramine Residual after NH <sub>3</sub> addition (mg/L) |                |                 | X              |                 |                     |                      |                             |                                   |
| Free Chlorine Residual after NH <sub>3</sub> addition (mg/L)  |                |                 | X              |                 |                     |                      |                             |                                   |
| Free Ammonia after NH <sub>3</sub> addition (mg/L)            |                |                 | X              |                 |                     |                      |                             |                                   |
| Chlorine Dosage (mg/L)                                        |                |                 | X              |                 |                     |                      |                             |                                   |
| Quantity of Chlorine Used (ppd)                               |                |                 |                | X               |                     |                      |                             |                                   |
| Ammonia Dosage (mg/L)                                         |                |                 | X              |                 |                     |                      |                             |                                   |
| Quantity of Ammonia Used (ppd)                                |                |                 |                | X               |                     |                      |                             |                                   |

1.86 mg/L  
5/14/07

# MF/RO Clarifier +5

(X)

from page K4

|                                  | Frequency      |                 |                |                 |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|----------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                  | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| pH                               |                |                 | X              |                 |                     |                      |                             |                                   |
| Temperature (°C)                 |                |                 | X              |                 |                     |                      |                             |                                   |
| Total Alkalinity (mg/L)          |                |                 | X              |                 |                     |                      |                             |                                   |
| Coagulant Dose (mg/L)            |                |                 | X              |                 |                     |                      |                             |                                   |
| Quantity of Coagulant Used (gpd) |                |                 |                | X               |                     |                      |                             | 1                                 |
| Effluent Turbidity (NTU)         |                |                 | X              |                 |                     |                      |                             |                                   |
| Effluent TOC (mg/L)              |                |                 |                |                 | X                   |                      |                             |                                   |
| Effluent DOC (mg/L)              |                |                 |                |                 | X                   |                      |                             |                                   |

Calculated Flocculator Hydraulic Detention Time (mins)

Calculated Surface Overflow Rate (gpm/sq.ft.)

1 The Hydraulic Detention Time through the MF/RO Clarifier at 2.9 MGD (Full Scale Verification Flow Rate) is 2,483 minutes (41 hours 23 minutes). However, the City of Wichita Falls as a standard practice samples the Effluent Turbidity from all of its Clarifiers every 2 hours and is recommending this frequency for the Verification phase.

2 Since the Full Scale Verification will be run at a constant flow, the City does not see the need to calculate these values every 4 hours. Therefore, we are recommending they be calculated once, at startup.

Note: Flow Rate was dropped from the TCEQ recommended monitoring at this point, since it is the same value that was monitored at the "Beginning of MF/RO Clarifier Disinfection Zone".

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# Feed Water of Selected MF Membrane Unit (MF Feed Trough) +6

(X)

|                          | Frequency      |                 |                |                 |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|--------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                          | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Flow Rate (gpm)          |                | X               |                |                 |                     |                      |                             |                                   |
| Silt Density Index (SDI) |                |                 |                | X               |                     |                      |                             |                                   |

Note: The City of Wichita Falls uses a MicroFiltration system (Siemens Memcor) that is not pressurized, but rather uses a vacuum. Therefore, the City removed the "Pressure" from the TCEQ recommended monitoring.

Note: The "Turbidity" that the TCEQ has recommended be monitored at this point is the same as the "Effluent Turbidity" that was monitored for at the "MF/RO Clarifier" point. Therefore, the City has elected not to monitor it again at this point.

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K5

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**Filtrate Water of Selected MF Membrane Unit +7**  
(@2.9 MGD = 21 min detention time)

| @2.9 MGD = 21 min detention time                     |        |       |         |      |      |       |                             |                                   |      |
|------------------------------------------------------|--------|-------|---------|------|------|-------|-----------------------------|-----------------------------------|------|
| Frequency                                            |        |       |         |      |      |       |                             |                                   |      |
| Every                                                | Every  | Every | Once    | Once | Once | Twice | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |      |
| 5 Min                                                | 15 Min | 4 Hrs | per Day | Week | Week | Week  | Week                        | Week                              | Week |
| Flow Rate (gpm)                                      | X      |       |         |      |      |       |                             |                                   |      |
| pH                                                   |        |       | X       |      |      |       |                             |                                   |      |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> )        |        |       |         | X    |      |       |                             |                                   |      |
| Turbidity (mNTU)                                     | X      |       |         |      |      |       |                             |                                   |      |
| Total Organic Carbon (mg/L)                          |        |       |         | X    |      |       |                             |                                   |      |
| Dissolved Organic Carbon (mg/L)                      |        |       |         | X    |      |       |                             |                                   |      |
| Escherichia coli (E. coli) enumeration (CFU/L)       |        |       |         |      |      |       | X                           |                                   |      |
| Giardia (cysts/L)                                    |        |       |         |      |      |       | X                           |                                   |      |
| Cryptosporidium (oocysts/L)                          |        |       |         |      |      |       | X                           |                                   |      |
| Enterovirus (CFU/L)                                  |        |       |         |      |      |       | X                           |                                   |      |
| Norovirus (CFU/L)                                    |        |       |         |      |      |       | X                           |                                   |      |
| Calculated TransMembrane Pressure (TMP, psi)         |        | X     |         |      |      |       |                             |                                   |      |
| Calculated Flux Rate (gal/sq.ft./day)                |        | X     |         |      |      |       |                             |                                   |      |
| Calculated Specific Flux Rate @ measured temperature |        | X     |         |      |      |       |                             |                                   |      |
| Calculated Specific Flux normalized to 20°C          |        | X     |         |      |      |       |                             |                                   |      |

Note: The City of Wichita Falls uses a MicroFiltration system (Siemens Memcor) that is not pressurized, but rather uses a vacuum. Therefore, the City removed the "Pressure" from the TCEQ recommended monitoring.

Note: The City of Wichita Falls currently monitors its Post MicroFiltration SDI after the Break Tank. Therefore, the City removed the "SDI" from this TCEQ recommended monitoring point and moved it to the "Break Tank" monitoring point.

FROM  
page 16

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## Frequency

Frequency

# Break Tank (RO Feed Tank) +10

|                                            | Frequency      |                 |                |                 |                     |                      | Comments<br>(see footnote listed) |
|--------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------------|
|                                            | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                                   |
| Flow Rate (gpm)                            |                | X               |                |                 |                     |                      |                                   |
| Water Level (ft)                           |                |                 | X              |                 |                     |                      |                                   |
| Silt Density Index                         |                |                 |                | X               |                     |                      |                                   |
| Effluent Free Chlorine Residual (mg/L)     |                |                 | X              |                 |                     |                      |                                   |
| Effluent Total Chlorine Residual (mg/L)    |                |                 | X              |                 |                     |                      |                                   |
| Calculated Hydraulic Detention Time (mins) |                |                 | X              |                 |                     |                      |                                   |

# Sulfuric Acid Feed +11

|                                      | Frequency      |                 |                |                 |                     |                      | Comments<br>(see footnote listed) |
|--------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------------|
|                                      | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                                   |
| Sulfuric Acid Dosage (mg/L)          |                |                 | X              |                 |                     |                      |                                   |
| Quantity of Sulfuric Acid Used (gpd) |                |                 | X              | X               |                     |                      |                                   |
| pH after Sulfuric Acid Injection     |                |                 |                |                 |                     |                      |                                   |

# Antiscalant Feed +12

|                                    | Frequency      |                 |                |                 |                     |                      | Comments<br>(see footnote listed) |
|------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------------|
|                                    | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                                   |
| Antiscalant Dosage (mg/L)          |                |                 | X              |                 |                     |                      |                                   |
| Quantity of Antiscalant Used (gpd) |                |                 |                | X               |                     |                      |                                   |

# Feed Water of Selected RO Membrane Unit #13

|                                               | Frequency      |                 |                |                    |                     |                      |                             | Comments<br>(see footnote listed) |
|-----------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |
| Flow Rate (gpm)                               |                | X               |                |                    |                     |                      |                             |                                   |
| Inlet Pressure (psi)                          |                |                 | X              |                    |                     |                      |                             |                                   |
| Temperature (°C)                              |                |                 | X              |                    |                     |                      |                             |                                   |
| Turbidity (NTU)                               |                | X               |                |                    |                     |                      |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> ) |                |                 |                | X                  |                     |                      |                             |                                   |
| Total Hardness (mg/L as CaCO <sub>3</sub> )   |                |                 |                | X                  |                     |                      |                             |                                   |
| Total Organic Carbon (mg/L)                   |                |                 |                |                    | X                   |                      |                             |                                   |
| Dissolved Organic Carbon (mg/L)               |                |                 |                |                    | X                   |                      |                             |                                   |
| Total Suspended Solids (mg/L)                 |                |                 |                | X                  |                     |                      |                             |                                   |
| Total Dissolved Solids (mg/L)                 |                |                 |                | X                  |                     |                      |                             |                                   |
| Nitrate (mg/L)                                |                |                 |                | X                  |                     |                      |                             |                                   |
| Nitrite (mg/L)                                |                |                 |                |                    |                     |                      | X                           |                                   |
| Silica (mg/L)                                 |                |                 |                |                    |                     |                      | X                           |                                   |

Note: The "pH" and "Silt Density Index" that the TCEQ has recommended be monitored at this point is the same as the "pH" and "Silt Density Index" that was monitored for at the "Sulfuric Acid Feed" and "Break Tank" points, respectively. Therefore, the City has elected not to monitor them again at this point.

## First Stage Filtrate Water of Selected RO Membrane Unit #14

|                                                               | Frequency      |                 |                |                    |                     |                      |                             | Comments<br>(see footnote listed) |
|---------------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |
| Flow Rate (gpm)                                               |                |                 |                |                    |                     |                      |                             |                                   |
| Calculated Flux Rate (gal/sq.ft./day) at measured temperature |                |                 |                | X                  |                     |                      |                             |                                   |
| Calculated Specific Flux (gfd/psi) normalized to 20°C         |                |                 |                | X                  |                     |                      |                             |                                   |
| Calculated net driving pressure (psi)                         |                |                 |                | X                  |                     |                      |                             |                                   |

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## Second Stage Filtrate Water of Selected RO Membrane Unit #15

|                                                               | Frequency      |                 |                |                 |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|---------------------------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Flow Rate (gpm)                                               |                |                 |                | X               |                     |                      |                             |                                   |
| Calculated Flux Rate (gal/sq.ft./day) at measured temperature |                |                 |                | X               |                     |                      |                             |                                   |
| Calculated Specific Flux (gfd/psi) normalized to 20°C         |                |                 |                | X               |                     |                      |                             |                                   |
| Calculated net driving pressure (psi)                         |                |                 |                | X               |                     |                      |                             |                                   |

## Reject (Concentrate) Water of Selected RO Membrane Unit #16

|                                                                       | Frequency      |                 |                |                 |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|-----------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                                       | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Flow Rate (gpm)                                                       |                | X               |                |                 |                     |                      |                             |                                   |
| Pressure (psi)                                                        |                | X               |                |                 |                     |                      |                             |                                   |
| pH                                                                    |                |                 |                |                 |                     | X                    |                             |                                   |
| Temperature (°C)                                                      |                |                 |                |                 |                     | X                    |                             |                                   |
| Turbidity (NTU)                                                       |                |                 |                |                 |                     | X                    |                             |                                   |
| Total Dissolved Solids (mg/L)                                         |                |                 |                | X               |                     |                      |                             |                                   |
| Nitrate (mg/L)                                                        |                |                 |                | X               |                     |                      |                             |                                   |
| Free Ammonia (mg/L)                                                   |                |                 |                | X               |                     |                      |                             |                                   |
| 5-day Carbonaceous Biochemical Oxygen Demand (mg/L)                   |                |                 |                |                 |                     | X                    |                             |                                   |
| Metal Scan (mg/L)<br>(As, Ba, Cd, Cr, Cu, Pb, Mn, Hg, Ni, Se, Ag, Zn) |                |                 |                |                 |                     | X                    |                             |                                   |

# Filtrate Water of Selected RO Membrane Unit #17

|                                                                                                                                               | Frequency      |                 |                |                 |                  |                      |  | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|------------------|----------------------|--|-----------------------------|-----------------------------------|
|                                                                                                                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per Week | Twice<br>per<br>Week |  |                             |                                   |
| Flow Rate (gpm)                                                                                                                               |                | X               |                |                 |                  |                      |  |                             |                                   |
| Effluent Pressure (psi)                                                                                                                       |                | X               |                |                 |                  |                      |  |                             |                                   |
| Temperature (°C)                                                                                                                              |                |                 | X              |                 |                  |                      |  |                             |                                   |
| Calculated Net Driving Pressure (psi)                                                                                                         |                |                 | X              |                 |                  |                      |  |                             |                                   |
| Calculated Average Flux Rate (gfd) at measured temperature                                                                                    |                |                 |                | X               |                  |                      |  |                             |                                   |
| Calculated Average Specific Flux (gfd/psi) normalized to 20°C                                                                                 |                |                 |                | X               |                  |                      |  |                             |                                   |
| pH                                                                                                                                            |                |                 | X              |                 |                  |                      |  |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> )                                                                                                 |                |                 |                |                 | X                |                      |  |                             |                                   |
| \$290.118(b) Secondary Constituents                                                                                                           |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Total Dissolved Solids (mg/L)                                                                                                                 |                | X               |                |                 |                  |                      |  |                             |                                   |
| Maximum Daily TDS (mg/L)                                                                                                                      |                |                 |                | X               |                  |                      |  |                             |                                   |
| \$290.106(b) Inorganic Chemicals                                                                                                              |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Nitrate (mg/L)                                                                                                                                |                |                 |                | X               |                  |                      |  |                             |                                   |
| Nitrite (mg/L) if Nitrite is detected in RO Feed Water                                                                                        |                |                 |                | X               |                  |                      |  |                             |                                   |
| Bromide (mg/L)                                                                                                                                |                |                 |                |                 | X                |                      |  |                             |                                   |
| \$290.107(b) Organic Chemicals                                                                                                                |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Total Trihalomethanes (ug/L)<br>(TTHM, Chloroform, Dibromochloromethane, Dichlorobromomethane, Bromoform)                                     |                |                 |                |                 | X                |                      |  |                             |                                   |
| Haloacetic Acids (ug/L)<br>(HAA5, Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid) |                |                 |                |                 | X                |                      |  |                             |                                   |
| Total Organic Carbon (mg/L)                                                                                                                   |                |                 |                |                 | X                |                      |  |                             |                                   |
| Dissolved Organic Carbon (mg/L)                                                                                                               |                |                 |                |                 | X                |                      |  |                             |                                   |
| \$290.108(b)(1) Radiological<br>(Re-226, Re-228, Uranium, Gross Alpha Activity)                                                               |                |                 |                |                 |                  |                      |  | X                           |                                   |
| \$290.108(b)(2) & 40CFR §141.66(d) Radiological<br>(Gross Beta Particle & Photon Radioactivity, Tritium, Strontium-90)                        |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Nitroso-dimethylamine (NDMA) (ng/L)                                                                                                           |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Notroso-pyrolidine (NPYR) (ng/L)                                                                                                              |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Pharmaceuticals (ug/L)                                                                                                                        |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Hormones (ng/L)                                                                                                                               |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Personal Care Products (ng/L)                                                                                                                 |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Fluorinated Alkyl-Acids (ng/L)<br>(PFOS, PFOA, PFNA, PFHxS, PFHpA, & PFBS)                                                                    |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Sucralose (                                                                                                                                   |                |                 |                |                 |                  |                      |  | X                           |                                   |
| Perchlorate (ug/L)                                                                                                                            |                |                 |                |                 |                  |                      |  | X                           |                                   |

Not Part 17

Page 17

# Calculated %-Removal (Based on Reported WWTP Effluent & RO Permeate Concentrations)

|                                                                                                                                                          | Frequency      |                 |                |                    |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                                                                                                                          | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Removal (%) of §290.118(b) Secondary Constituents                                                                                                        |                |                 |                |                    |                     |                      | X                           |                                   |
| Removal (%) of Total Dissolved Solids                                                                                                                    |                |                 |                | X                  |                     |                      |                             |                                   |
| Removal (%) of §290.106(b) Inorganic Chemicals                                                                                                           |                |                 |                |                    |                     |                      | X                           |                                   |
| Removal (%) of Nitrate                                                                                                                                   |                |                 |                | X                  |                     |                      |                             |                                   |
| Removal (%) of Nitrite if Nitrite is detected in RO Feed Water                                                                                           |                |                 |                | X                  |                     |                      |                             |                                   |
| Removal (%) of Bromide                                                                                                                                   |                |                 |                |                    | X                   |                      |                             |                                   |
| Removal (%) of §290.107(b) Organic Chemicals                                                                                                             |                |                 |                |                    |                     |                      | X                           |                                   |
| Removal (%) of Total Trihalomethanes<br>(TTHM, Chloroform, Dibromochloromethane, Dichlorobromomethane, Bromoform)                                        |                |                 |                |                    | X                   |                      |                             |                                   |
| Removal (%) of Haloacetic Acids<br>(HAA5, Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid,<br>Monobromoacetic Acid, Dibromoacetic Acid) |                |                 |                |                    | X                   |                      |                             |                                   |
| Removal (%) of Total Organic Carbon                                                                                                                      |                |                 |                |                    | X                   |                      |                             |                                   |
| Removal (%) of Dissolved Organic Carbon                                                                                                                  |                |                 |                |                    | X                   |                      |                             |                                   |
| Removal (%) of §290.108(b)(1) Radiological<br>(Ra-226, Ra-228, Uranium, Gross Alpha Activity)                                                            |                |                 |                |                    |                     |                      | X                           |                                   |
| Removal (%) of §290.108(b)(2) & 40CFR §141.66(d)<br>Radiological<br>(Gross Beta Particle & Photon Radioactivity, Tritium, Strontium-90)                  |                |                 |                |                    |                     |                      | X                           |                                   |

# RO Permeate Lagoon Effluent (At Lagoon Pump Station) +18

|                                               | Frequency      |                 |                |                    |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|-----------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Flow Rate (gpm)                               |                | X               |                |                    |                     |                      |                             |                                   |
| pH                                            |                |                 | X              |                    |                     |                      |                             |                                   |
| Temperature (°C)                              |                |                 | X              |                    |                     |                      |                             |                                   |
| Turbidity (NTU)                               |                |                 | X              |                    |                     |                      |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> ) |                |                 |                |                    | X                   |                      |                             |                                   |
| Total Organic Carbon (mg/L)                   |                |                 |                |                    | X                   |                      |                             |                                   |
| Dissolved Organic Carbon (mg/L)               |                |                 |                |                    | X                   |                      |                             |                                   |
| Nitrate (mg/L)                                |                |                 |                | X                  |                     |                      |                             |                                   |
| Free Ammonia (mg/L)                           |                |                 |                | X                  |                     |                      |                             |                                   |

# Raw Secondary Reservoir Water (at Secondary Reservoir) +19

|                                                                                                                        | Frequency      |                 |                |                 |                     |                      |  | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|--|-----------------------------|-----------------------------------|
|                                                                                                                        | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |  |                             |                                   |
| Flow Rate (gpm)                                                                                                        |                | X               |                |                 |                     |                      |  |                             |                                   |
| Daily Flow Rate (gpd)                                                                                                  |                |                 |                | X               |                     |                      |  |                             |                                   |
| Temperature (°C)                                                                                                       |                | X               |                |                 |                     |                      |  |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> )                                                                          |                |                 |                | X               |                     |                      |  |                             |                                   |
| Total Suspended Solids (mg/L)                                                                                          |                |                 |                |                 |                     |                      |  |                             |                                   |
| \$290.118(b) Secondary Constituents                                                                                    |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Total Dissolved Solids (mg/L)                                                                                          |                |                 |                | X               |                     |                      |  |                             |                                   |
| \$290.106(b) Inorganic Chemicals                                                                                       |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Turbidity (NTU)                                                                                                        |                | X               |                |                 |                     |                      |  |                             |                                   |
| Nitrate (mg/L)                                                                                                         |                |                 |                | X               |                     |                      |  |                             |                                   |
| Bromide (mg/L)                                                                                                         |                |                 |                |                 | X                   |                      |  |                             |                                   |
| \$290.107(b) Organic Chemicals                                                                                         |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Total Organic Carbon (mg/L)                                                                                            |                |                 |                |                 | X                   |                      |  |                             |                                   |
| Dissolved Organic Carbon (mg/L)                                                                                        |                |                 |                |                 | X                   |                      |  |                             |                                   |
| \$290.108(b)(1) Radiological<br>(Ra-226, Ra-228, Uranium, Gross Alpha Activity)                                        |                |                 |                |                 |                     |                      |  | X                           |                                   |
| \$290.108(b)(2) & 40CFR §141.66(d) Radiological<br>(Gross Beta Particle & Photon Radioactivity, Tritium, Strontium-90) |                |                 |                |                 |                     |                      |  | X                           |                                   |
| <i>Escherichia coli</i> ( <i>E. coli</i> ) enumeration (CFU/L)                                                         |                |                 |                |                 |                     |                      |  | X                           |                                   |
| <i>Giardia</i> (cysts/L)                                                                                               |                |                 |                |                 |                     |                      |  | X                           |                                   |
| <i>Cryptosporidium</i> (oocysts/L)                                                                                     |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Enterovirus (CFU/L)                                                                                                    |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Norovirus (CFU/L)                                                                                                      |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Nitroso-dimethylamine (NDMA) (ng/L)                                                                                    |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Notroso-pyrolidine (NPYR) (ng/L)                                                                                       |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Pharmaceuticals (ug/L)                                                                                                 |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Hormones (ng/L)                                                                                                        |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Personal Care Products (ng/L)                                                                                          |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Fluorinated Alkyl-Acids (ng/L)<br>(PFOS, PFOA, PFNA, PFHxS, PFHpA, & PFBS)                                             |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Sucralose (                                                                                                            |                |                 |                |                 |                     |                      |  | X                           |                                   |
| Perchlorate (ug/L)                                                                                                     |                |                 |                |                 |                     |                      |  | X                           |                                   |

Note: The "Total Trihalomethane" and "Haloacetic Acids" that the TCEQ has recommended be monitored at this point should not exist at the "Raw Secondary Reservoir Water" since these are disinfection by-products and disinfection has not occurred at this point. Therefore, the City has elected not to monitor them at this point.

### Beginning of Raw Secondary Reservoir Transmission Pipeline Disinfection Zone +20

|                                         | Frequency      |                 |                |                 |                     |                      |                             | Comments<br>(see footnote listed) |
|-----------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                         | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |
| Flow Rate (gpm)                         |                | X               |                |                 |                     |                      |                             |                                   |
| pH                                      |                |                 | X              |                 |                     |                      |                             |                                   |
| Temperature (°C)                        |                |                 | X              |                 |                     |                      |                             |                                   |
| Chlorine Dioxide Dosage (mg/L)          |                |                 | X              |                 |                     |                      |                             |                                   |
| Quantity of Chlorine Dioxide used (ppd) |                |                 |                |                 | X                   |                      |                             |                                   |

Note: The City of Wichita Falls plans on taking credit for the entire transmission pipeline, as has been the practice for the last 20 years. The only time one of the other Disinfection Zones is ever utilized, is when there is either a generator problem or an increase demand; both of which are extremely rare.

### End of Raw Secondary Reservoir Transmission Pipeline Disinfection Zone (pre-Splitter Box) +21 (@2.0 MGD = 337 minute detention time)

|                                               | Frequency      |                 |                |                 |                     |                      |                             | Comments<br>(see footnote listed) |
|-----------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                               | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |
| Flow Rate (gpm)                               |                | X               |                |                 |                     |                      |                             |                                   |
| pH                                            |                |                 | X              |                 |                     |                      |                             |                                   |
| Temperature (°C)                              |                |                 | X              |                 |                     |                      |                             |                                   |
| Turbidity (NTU)                               |                |                 | X              |                 |                     |                      |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> ) |                |                 |                | X               |                     |                      |                             |                                   |
| Nitrate (mg/L)                                |                |                 |                | X               |                     |                      |                             |                                   |
| Chlorine Dioxide Residual (mg/L)              |                |                 | X              |                 |                     |                      |                             |                                   |

Note: The "End of Raw Secondary Reservoir Transmission Pipeline Disinfection Zone" and the "Raw Secondary Reservoir Influent to Splitter Box" have been combined, since they are monitored at the same point.

5 (tested)

7/17/2019

NOTE: The City of Wichita Falls has combined the Capital Budget and Comprehensive Financial Statement. The City of Wichita Falls has combined the Capital Budget and Comprehensive Financial Statement. The City of Wichita Falls has combined the Capital Budget and Comprehensive Financial Statement.

Note: The City of Wichita Falls has removed the Monochloramine monitoring from this point, since it is starting with non-disinfected water sampled at the same location.

# Calculated %-Change (Based on Reported RO Permeate Lagoon Effluent Concentrations)

|                                                                                                                                                          | Frequency      |                 |                |                    |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                                                                                                                          | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Change (% +/-) of Nitrate                                                                                                                                |                |                 |                | X                  |                     |                      |                             |                                   |
| Change (% +/-) of Bromide                                                                                                                                |                |                 |                |                    |                     |                      | X                           |                                   |
| Change (% +/-) of Total Trihalomethanes<br>(TTHM, Chloroform, Dibromochloromethane, Dichlorobromomethane, Bromoform)                                     |                |                 |                |                    |                     |                      | X                           |                                   |
| Change (% +/-) of Haloacetic Acids<br>(HAA5, Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid, Dibromoacetic Acid) |                |                 |                |                    |                     |                      | X                           |                                   |
| Change (% +/-) Chlorite                                                                                                                                  |                |                 |                | X                  |                     |                      |                             |                                   |
| Change (% +/-) of Total Organic Carbon                                                                                                                   |                |                 |                |                    | X                   |                      |                             |                                   |

## 2010 SWTP Clarifier #23

|                                                        | Frequency      |                 |                |                    |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|--------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                                        | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Flow Rate (gpm)                                        |                | X               |                |                    |                     |                      |                             |                                   |
| Coagulant Dose (mg/L)                                  |                |                 | X              |                    |                     |                      |                             |                                   |
| Quantity of Coagulant Used (gpd)                       |                |                 | X              | X                  |                     |                      |                             | 1                                 |
| Effluent Turbidity (NTU)                               |                |                 | X              |                    |                     |                      |                             |                                   |
| Lime Feed Rate (gpm)                                   |                |                 | X              |                    |                     |                      |                             |                                   |
| Quantity of Lime Used (ppd)                            |                |                 |                | X                  |                     |                      |                             |                                   |
| Effluent TOC (mg/L)                                    |                |                 |                |                    | X                   |                      |                             |                                   |
| Effluent DOC (mg/L)                                    |                |                 |                |                    | X                   |                      |                             |                                   |
| Calculated Flocculator Hydraulic Detention Time (mins) |                |                 |                |                    |                     |                      | X                           | 2                                 |
| Calculated Surface Overflow Rate (gpm/sq.ft.)          |                |                 |                |                    |                     |                      | X                           | 2                                 |

1 The Hydraulic Detention Time through the 2010 SWTP Clarifier at 4.0 MGD (Full Scale Verification Flow Rate) is 334 minutes (5 hours 34 minutes). However, the City of Wichita Falls as a standard practice samples the Effluent Turbidity from all of its Clarifiers every 2 hours and is recommending this frequency for the Verification phase.

2 Since the Full Scale Verification will be run at a constant flow, the City does not see the need to calculate these values every 4 hours. Therefore, we are recommending they be calculated once, at startup.

Note: The "Influent pH", "Influent Total Alkalinity", "Influent Temperature", "Free Chlorine Dosage" and "Ammonia Dosage" are the same as monitored at the "Splitter Box Effluent" point. Therefore, the City of Wichita Falls has not included them again for this monitoring point.

Note: The unit of measure for the "Lime Feed Rate" was changed to gallons per minute (gpm), to accommodate the current method of calculating/adjusting the lime dosage.

# 2010 Recarbonation Basin +24

Handwritten notes:   
 +24  
 10/19/10

|                                       | Frequency      |                 |                |                 |                     |                      | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|---------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
|                                       | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week |                             |                                   |
| Effluent pH                           |                |                 |                | X               |                     |                      |                             |                                   |
| Carbon Dioxide Dose (mg/L)            |                |                 |                | X               |                     |                      |                             |                                   |
| Quantity of Carbon Dioxide Used (ppd) |                |                 |                | X               |                     |                      |                             |                                   |

Note: The "Flow Rate" that the TCEQ has recommended be monitored at this point is the same as the "Flow Rate" that was monitored for at the "2010 SWTP Clarifier" point. Therefore, the City has elected not to monitor it again at this point.

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## 2010 SWTP Dual Media Filters +25

|                                                       | Frequency      |                 |                |                    |                     |                      |  | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|-------------------------------------------------------|----------------|-----------------|----------------|--------------------|---------------------|----------------------|--|-----------------------------|-----------------------------------|
|                                                       | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per<br>Day | Once<br>per<br>Week | Twice<br>per<br>Week |  |                             |                                   |
| Individual Filter Flow Rate (gpm)                     |                |                 | X              |                    |                     |                      |  |                             |                                   |
| Combined Flow Rate (gpm)                              |                |                 | X              |                    |                     |                      |  |                             |                                   |
| pH                                                    |                | X               |                |                    |                     |                      |  |                             |                                   |
| Temperature (°C)                                      |                | X               |                |                    |                     |                      |  |                             |                                   |
| Filtered Water Turbidity (NTU)                        |                | X               |                |                    |                     |                      |  |                             |                                   |
| Calculated Filter Hydraulic Loading Rate (gpm/sq.ft.) |                |                 |                |                    |                     |                      |  |                             | 1                                 |
| Total Chlorine Residual (mg/L)                        |                | X               | X              |                    |                     |                      |  |                             |                                   |
| Free Chlorine Residual (mg/L)                         |                | X               |                |                    |                     |                      |  |                             |                                   |
| Free Ammonia (mg/L)                                   |                | X               |                |                    |                     |                      |  |                             |                                   |

1 Since the Full Scale Verification will be run at a constant flow, the City does not see the need to calculate this value every 4 hours. Therefore, we are recommending they be calculated once, at startup.

Note: At the Full Scale Verification Flow Rate of 4.0 MGD, the 2010 SWTP requires that 2 of the Dual Media Filters be utilized (2.0 MGD each). Therefore, the City will monitor both of the filters performance, rather than a "selected" filter.

Note: The City of Wichita Falls has combined the "2010 SWTP Dual Media Filters" and "End Conventional 2010 SWTP Disinfection Zone" monitoring points detailed in the TCEQ Draft Full-Scale Verification Testing Checklist received March 4, 2013, since they are sampled at the same location.

Note: The City of Wichita Falls has removed the Monochloramine monitoring from this point, since it has started disinfecting the Raw Waters at the Splitter Box with Chlorine and Ammonia in a TCEQ approved sequence. Therefore, the City will be utilizing Total Chlorine for the calculation of CT credits at this point.

# Beginning of 2010 SWTP Clearwell Disinfection Zone +26

| Frequency      |                 |                |                 |                     |                      |                             | Comments<br>(see footnote listed) |
|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
| Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |

|                                                               |  |  |  |   |  |  |  |
|---------------------------------------------------------------|--|--|--|---|--|--|--|
| pH                                                            |  |  |  |   |  |  |  |
| Temperature (°C)                                              |  |  |  |   |  |  |  |
| Total Chlorine Residual after NH <sub>3</sub> addition (mg/L) |  |  |  |   |  |  |  |
| Free Chlorine Residual after NH <sub>3</sub> addition (mg/L)  |  |  |  |   |  |  |  |
| Free Ammonia after NH <sub>3</sub> addition (mg/L)            |  |  |  |   |  |  |  |
| Chlorine Dosage (mg/L)                                        |  |  |  |   |  |  |  |
| Quantity of Chlorine Used (ppd)                               |  |  |  | X |  |  |  |
| Ammonia Dosage (mg/L)                                         |  |  |  | X |  |  |  |
| Quantity of Ammonia Used (ppd)                                |  |  |  | X |  |  |  |

Note: The "Total Chlorine Residual, Pre-Injection" and the "Free Ammonia Residual, Pre-Injection" were removed from this monitoring point, as they are monitored for at the "2010 SWTP Dual Media Filters" point.

Note: The City of Wichita Falls has removed the Monochloramine monitoring from this point, since it has started disinfecting the Raw Waters at the Splitter Box with Chlorine and Ammonia in a TCEQ approved sequence. Therefore, the City will be utilizing Total Chlorine for the calculation of CT credits at this point.

# Fluoride Adjustment +27

| Frequency      |                 |                |                 |                     |                      |                             | Comments<br>(see footnote listed) |
|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
| Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End |                                   |

|                                                                   |  |  |   |  |  |  |  |
|-------------------------------------------------------------------|--|--|---|--|--|--|--|
| Fluoride Concentration pre-Hydrofluosilicic Acid Injection (mg/L) |  |  |   |  |  |  |  |
| Hydrofluosilicic Acid Dosage (mg/L)                               |  |  | X |  |  |  |  |
| Quantity of Hydrofluosilicic Acid Used (gpd)                      |  |  | X |  |  |  |  |

Frequency

|                                                                                                                                                  | Every<br>5 Min | Every<br>15 Min | Every<br>4 Hrs | Once<br>per Day | Once<br>per<br>Week | Twice<br>per<br>Week | Startup/<br>30 Days/<br>End | Comments<br>(see footnote listed) |
|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|---------------------|----------------------|-----------------------------|-----------------------------------|
| Flow Rate (gpm)                                                                                                                                  |                | X               |                |                 |                     |                      |                             |                                   |
| Daily Total Quantity Treated (MGD)                                                                                                               |                |                 |                | X               |                     |                      |                             |                                   |
| pH                                                                                                                                               |                | X               |                |                 |                     |                      |                             |                                   |
| Temperature (°C)                                                                                                                                 |                | X               |                |                 |                     |                      |                             |                                   |
| Total Alkalinity (mg/L as CaCO <sub>3</sub> )                                                                                                    |                |                 |                |                 | X                   |                      |                             |                                   |
| Total Hardness (mg/L as CaCO <sub>3</sub> )                                                                                                      |                |                 |                |                 | X                   |                      |                             |                                   |
| Calculated Langlier Saturation Index (LSI)                                                                                                       |                |                 |                |                 | X                   |                      |                             |                                   |
| Water Color                                                                                                                                      |                |                 |                | X               |                     |                      |                             |                                   |
| Odor (Threshold Odor Number)                                                                                                                     |                |                 |                | X               |                     |                      |                             |                                   |
| Total Dissolved Solids (mg/L)                                                                                                                    |                |                 |                | X               |                     |                      |                             |                                   |
| Fluoride (mg/L)                                                                                                                                  |                |                 |                | X               |                     |                      |                             |                                   |
| Turbidity (NTU)                                                                                                                                  |                | X               |                |                 |                     |                      |                             |                                   |
| Turbidity (mNTU)                                                                                                                                 |                | X               |                |                 |                     |                      |                             |                                   |
| Lead                                                                                                                                             |                |                 |                |                 |                     |                      | X                           |                                   |
| Nitrate (mg/L)                                                                                                                                   |                |                 |                | X               |                     |                      |                             |                                   |
| Total Trihalomethanes (ug/L)<br>(THM, Chloroform, Dibromochloromethane, Dichlorobromomethane, Bromoform)                                         |                |                 |                |                 | X                   |                      |                             |                                   |
| Haloacetic Acids (ug/L)<br>(HAA5, Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid,<br>Monobromoacetic Acid, Dibromoacetic Acid) |                |                 |                |                 | X                   |                      |                             |                                   |
| Total Chlorine Residual (mg/L)                                                                                                                   |                | X               |                |                 |                     |                      |                             |                                   |
| Free Chlorine Residual (mg/L)                                                                                                                    |                | X               |                |                 |                     |                      |                             |                                   |
| Free Ammonia (mg/L)                                                                                                                              |                | X               |                |                 |                     |                      |                             |                                   |
| Chlorine Dioxide (mg/L)                                                                                                                          |                |                 |                | X               |                     |                      |                             |                                   |
| Chlorite                                                                                                                                         |                |                 |                | X               |                     |                      |                             |                                   |
| Escherichia coli (E. coli) enumeration (CFU/L)                                                                                                   |                |                 |                |                 |                     |                      | X                           |                                   |
| Giardia (cysts/L)                                                                                                                                |                |                 |                |                 |                     |                      | X                           |                                   |
| Cryptosporidium (oocysts/L)                                                                                                                      |                |                 |                |                 |                     |                      | X                           |                                   |
| Enterovirus (CFU/L)                                                                                                                              |                |                 |                |                 |                     |                      | X                           |                                   |
| Norovirus (CFU/L)                                                                                                                                |                |                 |                |                 |                     |                      | X                           |                                   |
| Nitroso-dimethylamine (NDMA) (ng/L)                                                                                                              |                |                 |                |                 |                     |                      | X                           |                                   |
| Notroso-pyrolidine (NPYR) (ng/L)                                                                                                                 |                |                 |                |                 |                     |                      | X                           |                                   |
| Pharmaceuticals (ug/L)                                                                                                                           |                |                 |                |                 |                     |                      | X                           |                                   |
| Hormones (ng/L)                                                                                                                                  |                |                 |                |                 |                     |                      | X                           |                                   |
| Personal Care Products (ng/L)                                                                                                                    |                |                 |                |                 |                     |                      | X                           |                                   |
| Fluorodated Alkyl-Acids (ng/L)<br>(PFOS, PFOA, PFNA, PFHxS, PFHpA, & PFBS)                                                                       |                |                 |                |                 |                     |                      | X                           |                                   |
| Sucralose (                                                                                                                                      |                |                 |                |                 |                     |                      | X                           |                                   |
| Perchlorate (ug/L)                                                                                                                               |                |                 |                |                 |                     |                      | X                           |                                   |

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Handwritten notes and signatures in the top right corner.

Note: The City of Wichita Falls has combined the "Finished Water" and "End 2010 SWTP Clearwell Disinfection Zone" monitoring points detailed in the TCEQ Draft Full-Scale Verification Testing Checklist received March 4, 2013, since they are sampled at the same location.

Note: The City of Wichita Falls has removed the Monochloramine monitoring from this point, since it has started disinfecting the Raw Waters at the Splitter Box with Chlorine and Ammonia in a TCEQ approved sequence. Therefore, the City will be utilizing Total Chlorine for the calculation of CT credits at this point.

Footnotes  
5 samples  
8/1/13  
\* 8/1/13

K2P2CM  
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