

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/16/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.1         | 7.500         | 21.8         | 6.6 | 35.7               | 657.2                         | 813.4                       | 0.11           | 0.22         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 20.3         | 6.5 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 20.2         | 6.7 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 3.15           | 6.33         | 1.27            |
| CLA D4                        | 3.8         | 10.000        | 20.3         | 8.4 | 255.1              | 726.2                         | 902.6                       | 0.70           | 1.41         | (V)            |              |                 |
| CLA D5                        | 3.8         | 10.000        | 20.3         | 8.4 | 848.5              | 726.2                         | 902.6                       | 2.34           | 4.70         |                |              |                 |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/16/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 23.5         | 6.9 | 392.7              | 579.0                         | 723.0                       | 1.36           | 2.72         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 23.4         | 6.6 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 22.4         | 6.9 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 4.62           | 9.31         | 1.86            |
| CLA D4                        | 3.8         | 10.000        | 21.4         | 8.2 | 255.1              | 675.6                         | 836.3                       | 0.76           | 1.52         | (V)            |              |                 |
| CLA D5                        | 3.8         | 10.000        | 21.4         | 8.2 | 848.5              | 675.6                         | 836.3                       | 2.51           | 5.07         |                |              |                 |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/16/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.0         | 7.500         | 30.1         | 6.9 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 29.4         | 7.0 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 23.1         | 6.6 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 2.94           | 5.94         | 1.19            |
| CLA D4                        | 3.4         | 10.000        | 21.5         | 8.9 | 228.2              | 671.0                         | 830.5                       | 0.68           | 1.37         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 21.5         | 8.9 | 759.2              | 671.0                         | 830.5                       | 2.26           | 4.57         |                |              |                 |

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and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/17/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.6         | 7.500         | 22.6         | 6.6 | 214.2              | 620.4                         | 769.6                       | 0.69           | 1.39         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 21.7         | 6.6 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 21.1         | 6.8 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 3.47           | 6.98         | 1.40            |
| CLA D4                        | 3.5         | 10.000        | 20.2         | 9.2 | 234.9              | 730.8                         | 908.9                       | 0.64           | 1.29         | (V)            |              |                 |
| CLA D5                        | 3.5         | 10.000        | 20.2         | 9.2 | 781.5              | 730.8                         | 908.9                       | 2.14           | 4.30         |                |              |                 |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/17/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 23.0         | 6.9 | 392.7              | 602.0                         | 748.5                       | 1.30           | 2.62         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 22.9         | 6.7 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 22.4         | 6.9 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 4.49           | 9.05         | 1.81            |
| CLA D4                        | 3.7         | 10.000        | 21.4         | 9.2 | 248.4              | 675.6                         | 836.3                       | 0.74           | 1.48         | (V)            |              |                 |
| CLA D5                        | 3.7         | 10.000        | 21.4         | 9.2 | 826.2              | 675.6                         | 836.3                       | 2.45           | 4.94         |                |              |                 |

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**Enclosure H1: CT STUDY**  
**FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES**  
**OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)**  
*CT Calculator Worksheet*

PUBLIC WATER SYSTEM NAME: City of Wichita Falls Reuse Project PLANT NAME OR NUMBER: RRWWTP to Cypress through MF/RO/Conventional  
PWS ID No.: 2430001 Date: 05/17/2014 Evening Shift

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |  |

| DISINFECTION PROCESS DATA     |          |            |           |     |                    |                            |                          |             |           |             |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.6      | 7.500      | 24.2      | 6.8 | 214.2              | 546.8                      | 688.8                    | 0.78        | 1.55      |             |           |              |
| CLA D2                        | 0.0      | 7.500      | 23.0      | 6.6 | 0.0                | NA                         | NA                       | 0.00        | 0.00      |             |           |              |
| CLA D3                        | 0.0      | 3.308      | 22.1      | 6.8 | 0.0                | NA                         | NA                       | 0.00        | 0.00      | 3.79        | 7.63      | 1.53         |
| CLA D4                        | 3.5      | 10.000     | 21.4      | 8.9 | 234.9              | 675.6                      | 836.3                    | 0.70        | 1.40      | (V)         |           |              |
| CLA D5                        | 3.5      | 10.000     | 21.4      | 8.9 | 781.5              | 675.6                      | 836.3                    | 2.31        | 4.67      |             |           |              |

SUBMITTED BY: \_\_\_\_\_ Certificate No. and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/18/2014 Morning Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.8      | 7.500      | 21.5      | 6.9 | 285.6              | 671.0                      | 830.5                    | 0.85        | 1.72      | 3.89        | 7.84      | 1.57         |
| CLA D2                        | 0.0      | 7.500      | 20.7      | 6.7 | 0.0                | NA                         | NA                       | 0.00        | 0.00      |             |           |              |
| CLA D3                        | 0.0      | 3.308      | 20.1      | 6.8 | 0.0                | NA                         | NA                       | 0.00        | 0.00      |             |           |              |
| CLA D4                        | 3.7      | 10.000     | 20.7      | 8.9 | 248.4              | 707.8                      | 877.9                    | 0.70        | 1.41      | 2.33        | 4.71      | (V)          |
| CLA D5                        | 3.7      | 10.000     | 20.7      | 8.9 | 826.2              | 707.8                      | 877.9                    | 2.33        | 4.71      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/18/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |  |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|--|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |  |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |  |
| CLA D1                        | 0.5         | 7.500         | 23.6         | 6.9 | 178.5                     | 574.4                         | 718.0                       | 0.62           | 1.24         | 3.767.571.51   |              |                 |  |
| CLA D2                        | 0.0         | 7.500         | 24.4         | 6.7 | 0.0                       | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |  |
| CLA D3                        | 0.0         | 3.308         | 23.7         | 6.9 | 0.0                       | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |  |
| CLA D4                        | 3.4         | 10.000        | 22.4         | 8.9 | 228.2                     | 629.6                         | 780.3                       | 0.72           | 1.46         | (V)            |              |                 |  |
| CLA D5                        | 3.4         | 10.000        | 22.4         | 8.9 | 759.2                     | 629.6                         | 780.3                       | 2.41           | 4.86         |                |              |                 |  |

Certificate No.

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/18/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.8         | 7.500         | 25.4         | 6.9 | 285.6              | 510.0                         | 633.8                       | 1.12           | 2.25         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 23.8         | 6.7 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 23.8         | 6.7 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 4.46           | 9.00         | 1.80            |
| CLA D4                        | 3.7         | 10.000        | 22.1         | 8.7 | 248.4              | 643.4                         | 796.7                       | 0.77           | 1.56         | (V)            |              |                 |
| CLA D5                        | 3.7         | 10.000        | 22.1         | 8.7 | 826.2              | 643.4                         | 796.7                       | 2.57           | 5.19         |                |              |                 |

|                     |                                     |             |
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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/19/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.9         | 7.500         | 23.3         | 6.9 | 321.3              | 588.2                         | 733.1                       | 1.09           | 2.19         |                |              |                 |
| CLA D2                        | 0.1         | 7.500         | 22.7         | 6.7 | 22.3               | 614.4                         | 762.7                       | 0.07           | 0.15         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 22.1         | 6.9 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 3.97           | 8.01         | 1.60            |
| CLA D4                        | 3.2         | 10.000        | 21.7         | 8.8 | 214.8              | 661.8                         | 819.1                       | 0.65           | 1.31         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 21.7         | 8.8 | 714.5              | 661.8                         | 819.1                       | 2.16           | 4.36         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/19/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.0         | 7.500         | 24.6         | 7.0 | 357.0              | 528.4                         | 669.9                       | 1.35           | 2.66         |                |              |                 |
| CLA D2                        | 0.0         | 7.500         | 24.2         | 6.7 | 0.0                | NA                            | NA                          | 0.00           | 0.00         |                |              |                 |
| CLA D3                        | 0.0         | 3.308         | 24.2         | 6.9 | 0.0                | NA                            | NA                          | 0.00           | 0.00         | 3.25           | 6.43         | 1.29            |
| CLA D4                        | 1.8         | 10.000        | 24.1         | 8.9 | 120.8              | 551.4                         | 693.6                       | 0.44           | 0.87         | (V)            |              |                 |
| CLA D5                        | 1.8         | 10.000        | 24.1         | 8.9 | 401.9              | 551.4                         | 693.6                       | 1.46           | 2.90         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/19/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.7      | 7.500      | 27.1      | 6.8 | 249.9              | 510.0                      | 563.4                    | 0.98        | 2.22      | 3.52        | 7.32      | 1.46         |
| CLA D2                        | 0.6      | 7.500      | 24.9      | 6.8 | 133.9              | 514.6                      | 656.2                    | 0.52        | 1.02      |             |           |              |
| CLA D3                        | 0.3      | 3.308      | 24.6      | 7.0 | 1.7                | 528.4                      | 669.9                    | 0.01        | 0.01      |             |           |              |
| CLA D4                        | 2.2      | 10.000     | 22.3      | 8.9 | 147.7              | 634.2                      | 785.7                    | 0.47        | 0.94      |             |           |              |
| CLA D5                        | 2.2      | 10.000     | 22.3      | 8.9 | 491.3              | 634.2                      | 785.7                    | 1.55        | 3.13      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/20/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.7         | 7.500         | 24.1         | 7.0 | 249.9                     | 551.4                         | 693.6                       | 0.91           | 1.80         | 3.707.421.48   |              |                 |
| CLA D2                        | 2.0         | 7.500         | 23.0         | 6.7 | 446.5                     | 602.0                         | 748.5                       | 1.48           | 2.98         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 23.1         | 6.9 | 10.0                      | 597.4                         | 743.4                       | 0.03           | 0.07         |                |              |                 |
| CLA D4                        | 1.4         | 10.000        | 22.2         | 8.9 | 94.0                      | 638.8                         | 791.2                       | 0.29           | 0.59         | (V)            |              |                 |
| CLA D5                        | 1.4         | 10.000        | 22.2         | 8.9 | 312.6                     | 638.8                         | 791.2                       | 0.98           | 1.98         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/20/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.7         | 7.500         | 25.0         | 7.0 | 249.9              | 510.0                         | 651.6                       | 0.98           | 1.92         | 3.86           | 7.66         | 1.53            |
| CLA D2                        | 1.1         | 7.500         | 25.2         | 6.7 | 245.6              | 510.0                         | 642.7                       | 0.96           | 1.91         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 24.8         | 6.9 | 5.6                | 519.2                         | 660.7                       | 0.02           | 0.04         | 3.86           | 7.66         | 1.53            |
| CLA D4                        | 1.9         | 10.000        | 23.4         | 8.9 | 127.5              | 583.6                         | 728.1                       | 0.44           | 0.88         |                |              |                 |
| CLA D5                        | 1.9         | 10.000        | 23.4         | 8.9 | 424.3              | 583.6                         | 728.1                       | 1.45           | 2.91         |                |              |                 |

|                     |                                  |             |
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| SUBMITTED BY: _____ | Certificate No. and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/20/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.5         | 7.500         | 27.2         | 7.0 | 178.5              | 510.0                         | 559.5                       | 0.70           | 1.60         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 25.0         | 6.7 | 267.9              | 510.0                         | 651.6                       | 1.05           | 2.06         |                |              |                 |
| CLA D3                        | 0.9         | 3.308         | 26.0         | 6.9 | 5.0                | 510.0                         | 608.0                       | 0.02           | 0.04         | 4.54           | 9.24         | 1.85            |
| CLA D4                        | 2.8         | 10.000        | 23.3         | 8.9 | 187.9              | 588.2                         | 733.1                       | 0.64           | 1.28         | (V)            |              |                 |
| CLA D5                        | 2.8         | 10.000        | 23.3         | 8.9 | 625.2              | 588.2                         | 733.1                       | 2.13           | 4.26         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/21/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.6         | 7.500         | 26.1         | 7.0 | 214.2                     | 510.0                         | 603.8                       | 0.84           | 1.77         | 5.5911.252.25  |              |                 |
| CLA D2                        | 2.0         | 7.500         | 24.9         | 6.8 | 446.5                     | 514.6                         | 656.2                       | 1.74           | 3.40         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 24.7         | 6.9 | 10.0                      | 523.8                         | 665.3                       | 0.04           | 0.08         |                |              |                 |
| CLA D4                        | 3.2         | 10.000        | 22.5         | 8.9 | 214.8                     | 625.0                         | 774.9                       | 0.69           | 1.39         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 22.5         | 8.9 | 714.5                     | 625.0                         | 774.9                       | 2.29           | 4.61         |                |              |                 |

|                     |                                           |             |
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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/21/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.5      | 7.500      | 24.9      | 7.0 | 178.5              | 514.6                      | 656.2                    | 0.69        | 1.36      | 4.85        | 9.68      | 1.94         |
| CLA D2                        | 1.1      | 7.500      | 24.9      | 6.7 | 245.6              | 514.6                      | 656.2                    | 0.95        | 1.87      |             |           |              |
| CLA D3                        | 0.8      | 3.308      | 25.2      | 6.9 | 4.4                | 510.0                      | 642.7                    | 0.02        | 0.03      | 4.85        | 9.68      | 1.94         |
| CLA D4                        | 3.4      | 10.000     | 22.6      | 8.9 | 228.2              | 620.4                      | 769.6                    | 0.74        | 1.48      |             |           |              |
| CLA D5                        | 3.4      | 10.000     | 22.6      | 8.9 | 759.2              | 620.4                      | 769.6                    | 2.45        | 4.93      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/21/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |          |            |           |     |                    |                            |                          |             |           |             |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.5      | 7.500      | 26.5      | 6.8 | 178.5              | 510.0                      | 587.3                    | 0.70        | 1.52      |             |           |              |
| CLA D2                        | 1.1      | 7.500      | 25.6      | 6.8 | 245.6              | 510.0                      | 625.1                    | 0.96        | 1.96      |             |           |              |
| CLA D3                        | 1.1      | 3.308      | 25.0      | 6.9 | 6.1                | 510.0                      | 651.6                    | 0.02        | 0.05      | 4.85        | 9.84      | 1.97         |
| CLA D4                        | 3.1      | 10.000     | 23.7      | 8.9 | 208.1              | 569.8                      | 713.1                    | 0.73        | 1.46      | (V)         |           |              |
| CLA D5                        | 3.1      | 10.000     | 23.7      | 8.9 | 692.2              | 569.8                      | 713.1                    | 2.43        | 4.85      |             |           |              |

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Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/22/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.4         | 7.500         | 26.1         | 6.9 | 142.8              | 510.0                         | 603.8                       | 0.56           | 1.18         | 4.88           | 9.83         | 1.97            |
| CLA D2                        | 1.3         | 7.500         | 25.1         | 6.7 | 290.2              | 510.0                         | 647.1                       | 1.14           | 2.24         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 24.7         | 6.9 | 6.1                | 523.8                         | 665.3                       | 0.02           | 0.05         |                |              |                 |
| CLA D4                        | 3.3         | 10.000        | 22.9         | 8.9 | 221.5              | 606.6                         | 753.7                       | 0.73           | 1.47         |                |              |                 |
| CLA D5                        | 3.3         | 10.000        | 22.9         | 8.9 | 736.9              | 606.6                         | 753.7                       | 2.43           | 4.89         |                |              |                 |

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Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_

Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/22/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.5         | 7.500         | 26.5         | 6.9 | 178.5              | 510.0                         | 587.3                       | 0.70           | 1.52         | 4.57           | 9.42         | 1.88            |
| CLA D2                        | 0.9         | 7.500         | 26.4         | 6.7 | 200.9              | 510.0                         | 591.4                       | 0.79           | 1.70         |                |              |                 |
| CLA D3                        | 0.9         | 3.308         | 25.6         | 7.0 | 5.0                | 510.0                         | 625.1                       | 0.02           | 0.04         | 4.57           | 9.42         | 1.88            |
| CLA D4                        | 3.2         | 10.000        | 22.9         | 8.8 | 214.8              | 606.6                         | 753.7                       | 0.71           | 1.42         |                |              |                 |
| CLA D5                        | 3.2         | 10.000        | 22.9         | 8.8 | 714.5              | 606.6                         | 753.7                       | 2.36           | 4.74         |                |              |                 |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
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|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/22/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.8         | 7.500         | 26.3         | 6.9 | 285.6                     | 510.0                         | 595.5                       | 1.12           | 2.40         | 5.9612.102.42  |              |                 |
| CLA D2                        | 1.5         | 7.500         | 25.4         | 6.7 | 334.9                     | 510.0                         | 633.8                       | 1.31           | 2.64         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 25.5         | 6.9 | 10.0                      | 510.0                         | 629.4                       | 0.04           | 0.08         |                |              |                 |
| CLA D4                        | 3.5         | 10.000        | 23.4         | 8.9 | 234.9                     | 583.6                         | 728.1                       | 0.81           | 1.61         | (V)            |              |                 |
| CLA D5                        | 3.5         | 10.000        | 23.4         | 8.9 | 781.5                     | 583.6                         | 728.1                       | 2.68           | 5.37         |                |              |                 |

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Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/23/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.5         | 7.500         | 26.6         | 6.8 | 178.5              | 510.0                         | 583.2                       | 0.70           | 1.53         | 5.50           | 11.23        | 2.25            |
| CLA D2                        | 1.3         | 7.500         | 25.9         | 6.7 | 290.2              | 510.0                         | 612.2                       | 1.14           | 2.37         |                |              |                 |
| CLA D3                        | 1.2         | 3.308         | 25.2         | 6.9 | 6.7                | 510.0                         | 642.7                       | 0.03           | 0.05         |                |              |                 |
| CLA D4                        | 3.6         | 10.000        | 23.6         | 8.8 | 241.6              | 574.4                         | 718.0                       | 0.84           | 1.68         |                |              |                 |
| CLA D5                        | 3.6         | 10.000        | 23.6         | 8.8 | 803.9              | 574.4                         | 718.0                       | 2.80           | 5.60         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/23/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.0      | 7.500      | 26.4      | 6.9 | 357.0              | 510.0                      | 591.4                    | 1.40        | 3.02      | 5.92        | 12.16     | 2.43         |
| CLA D2                        | 1.1      | 7.500      | 26.5      | 6.7 | 245.6              | 510.0                      | 587.3                    | 0.96        | 2.09      |             |           |              |
| CLA D3                        | 1.0      | 3.308      | 26.6      | 6.9 | 5.6                | 510.0                      | 583.2                    | 0.02        | 0.05      | 5.92        | 12.16     | 2.43         |
| CLA D4                        | 3.3      | 10.000     | 24.3      | 8.7 | 221.5              | 542.2                      | 684.0                    | 0.82        | 1.62      |             |           |              |
| CLA D5                        | 3.3      | 10.000     | 24.3      | 8.7 | 736.9              | 542.2                      | 684.0                    | 2.72        | 5.39      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/23/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.6      | 7.500      | 24.6      | 7.0 | 571.1              | 528.4                      | 669.9                    | 2.16        | 4.26      | 6.72        | 13.39     | 2.68         |
| CLA D2                        | 1.5      | 7.500      | 23.9      | 6.7 | 334.9              | 560.6                      | 703.3                    | 1.19        | 2.38      |             |           |              |
| CLA D3                        | 1.5      | 3.308      | 24.2      | 7.1 | 8.3                | 546.8                      | 688.8                    | 0.03        | 0.06      | 0.77        | 1.55      | (V)          |
| CLA D4                        | 3.4      | 10.000     | 23.2      | 8.6 | 228.2              | 592.8                      | 738.2                    | 2.56        | 5.14      |             |           |              |
| CLA D5                        | 3.4      | 10.000     | 23.2      | 8.6 | 759.2              | 592.8                      | 738.2                    |             |           |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/24/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.3         | 7.500         | 23.1         | 6.8 | 464.1              | 597.4                         | 743.4                       | 1.55           | 3.12         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 23.4         | 6.7 | 312.5              | 583.6                         | 728.1                       | 1.07           | 2.15         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 23.2         | 6.9 | 7.8                | 592.8                         | 738.2                       | 0.03           | 0.05         | 6.01           | 12.05        | 2.41            |
| CLA D4                        | 3.4         | 10.000        | 23.3         | 8.9 | 228.2              | 588.2                         | 733.1                       | 0.78           | 1.56         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 23.3         | 8.9 | 759.2              | 588.2                         | 733.1                       | 2.58           | 5.18         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/24/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |  |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|--|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |  |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |  |
| CLA D1                        | 2.0         | 7.500         | 24.6         | 6.8 | 713.9                     | 528.4                         | 669.9                       | 2.70           | 5.33         |                |              |                 |  |
| CLA D2                        | 1.4         | 7.500         | 25.7         | 6.7 | 312.5                     | 510.0                         | 620.8                       | 1.23           | 2.52         |                |              |                 |  |
| CLA D3                        | 1.4         | 3.308         | 25.2         | 6.8 | 7.8                       | 510.0                         | 642.7                       | 0.03           | 0.06         | 7.75           | 15.44        | 3.09            |  |
| CLA D4                        | 3.6         | 10.000        | 24.1         | 8.8 | 241.6                     | 551.4                         | 693.6                       | 0.88           | 1.74         | (V)            |              |                 |  |
| CLA D5                        | 3.6         | 10.000        | 24.1         | 8.8 | 803.9                     | 551.4                         | 693.6                       | 2.92           | 5.80         |                |              |                 |  |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/24/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.7      | 7.500      | 24.5      | 6.8 | 606.8              | 533.0                      | 674.6                    | 2.28        | 4.50      |             |           |              |
| CLA D2                        | 1.4      | 7.500      | 24.1      | 6.7 | 312.5              | 551.4                      | 693.6                    | 1.13        | 2.25      |             |           |              |
| CLA D3                        | 1.1      | 3.308      | 24.3      | 6.9 | 6.1                | 542.2                      | 684.0                    | 0.02        | 0.04      | 6.74        | 13.42     | 2.68         |
| CLA D4                        | 3.3      | 10.000     | 23.5      | 8.8 | 221.5              | 579.0                      | 723.0                    | 0.77        | 1.53      |             |           | (V)          |
| CLA D5                        | 3.3      | 10.000     | 23.5      | 8.8 | 736.9              | 579.0                      | 723.0                    | 2.55        | 5.10      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/25/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 23.2         | 6.8 | 642.5                     | 592.8                         | 738.2                       | 2.17           | 4.35         |                |              |                 |
| CLA D2                        | 1.8         | 7.500         | 23.0         | 6.7 | 401.8                     | 602.0                         | 748.5                       | 1.33           | 2.68         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 23.0         | 6.8 | 10.0                      | 602.0                         | 748.5                       | 0.03           | 0.07         | 6.63           | 13.33        | 2.67            |
| CLA D4                        | 3.3         | 10.000        | 22.6         | 8.9 | 221.5                     | 620.4                         | 769.6                       | 0.71           | 1.44         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 22.6         | 8.9 | 736.9                     | 620.4                         | 769.6                       | 2.38           | 4.79         |                |              |                 |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER SYSTEM NAME: \_\_\_\_\_ City of Wichita Falls Reuse Project \_\_\_\_\_

PWS ID No.: \_\_\_\_\_ 2430001 \_\_\_\_\_

PLANT NAME OR NUMBER: 3RWWTP to Cypress through MF/RO/Conventional \_\_\_\_\_

Date: 05/25/2014 Day Shift

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 24.3         | 6.7 | 642.5                     | 542.2                         | 684.0                       | 2.37           | 4.70         |                |              |                 |
| CLA D2                        | 1.7         | 7.500         | 25.0         | 6.7 | 379.5                     | 510.0                         | 651.6                       | 1.49           | 2.91         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 24.5         | 6.8 | 10.0                      | 533.0                         | 674.6                       | 0.04           | 0.07         | 7.51           | 14.85        | 2.97            |
| CLA D4                        | 3.4         | 10.000        | 24.2         | 8.9 | 228.2                     | 546.8                         | 688.8                       | 0.83           | 1.66         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 24.2         | 8.9 | 759.2                     | 546.8                         | 688.8                       | 2.78           | 5.51         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. and Grade: \_\_\_\_\_

Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/25/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.7         | 7.500         | 24.2         | 6.7 | 606.8              | 546.8                         | 688.8                       | 2.22           | 4.41         |                |              |                 |
| CLA D2                        | 1.6         | 7.500         | 23.8         | 6.7 | 357.2              | 565.2                         | 708.1                       | 1.26           | 2.52         |                |              |                 |
| CLA D3                        | 1.7         | 3.308         | 23.8         | 6.8 | 9.4                | 565.2                         | 708.1                       | 0.03           | 0.07         | 6.85           | 13.68        | 2.74            |
| CLA D4                        | 3.4         | 10.000        | 23.2         | 8.9 | 228.2              | 592.8                         | 738.2                       | 0.77           | 1.55         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 23.2         | 8.9 | 759.2              | 592.8                         | 738.2                       | 2.56           | 5.14         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/26/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 23.6         | 6.7 | 535.4              | 574.4                         | 718.0                       | 1.86           | 3.73         |                |              |                 |
| CLA D2                        | 1.8         | 7.500         | 23.6         | 6.5 | 401.8              | 574.4                         | 718.0                       | 1.40           | 2.80         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 23.8         | 6.7 | 10.0               | 565.2                         | 708.1                       | 0.04           | 0.07         | 6.60           | 13.25        | 2.65            |
| CLA D4                        | 3.5         | 10.000        | 22.7         | 8.8 | 234.9              | 615.8                         | 764.3                       | 0.76           | 1.54         |                |              | (V)             |
| CLA D5                        | 3.5         | 10.000        | 22.7         | 8.8 | 781.5              | 615.8                         | 764.3                       | 2.54           | 5.11         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/26/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.7      | 7.500      | 24.2      | 6.7 | 606.8              | 546.8                      | 688.8                    | 2.22        | 4.41      | 7.49        | 14.84     | 2.97         |
| CLA D2                        | 1.4      | 7.500      | 24.8      | 6.6 | 312.5              | 519.2                      | 660.7                    | 1.20        | 2.37      |             |           |              |
| CLA D3                        | 1.5      | 3.308      | 24.3      | 6.7 | 8.3                | 542.2                      | 684.0                    | 0.03        | 0.06      |             |           |              |
| CLA D4                        | 3.8      | 10.000     | 24.2      | 8.9 | 255.1              | 546.8                      | 688.8                    | 0.93        | 1.85      |             |           |              |
| CLA D5                        | 3.8      | 10.000     | 24.2      | 8.9 | 848.5              | 546.8                      | 688.8                    | 3.10        | 6.16      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/26/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 25.7         | 6.8 | 535.4                     | 510.0                         | 620.8                       | 2.10           | 4.31         |                |              |                 |
| CLA D2                        | 1.8         | 7.500         | 24.1         | 6.6 | 401.8                     | 551.4                         | 693.6                       | 1.46           | 2.90         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 23.8         | 6.6 | 10.0                      | 565.2                         | 708.1                       | 0.04           | 0.07         | 7.48           | 14.98        | 3.00            |
| CLA D4                        | 3.6         | 10.000        | 24.4         | 8.9 | 241.6                     | 537.6                         | 679.3                       | 0.90           | 1.78         | (V)            |              |                 |
| CLA D5                        | 3.6         | 10.000        | 24.4         | 8.9 | 803.9                     | 537.6                         | 679.3                       | 2.99           | 5.92         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/27/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 23.7         | 6.8 | 535.4                     | 569.8                         | 713.1                       | 1.88           | 3.75         |                |              |                 |
| CLA D2                        | 2.1         | 7.500         | 22.8         | 6.5 | 468.8                     | 611.2                         | 759.0                       | 1.53           | 3.09         |                |              |                 |
| CLA D3                        | 2.1         | 3.308         | 24.4         | 6.6 | 11.7                      | 537.6                         | 679.3                       | 0.04           | 0.09         | 6.29           | 12.63        | 2.53            |
| CLA D4                        | 3.0         | 10.000        | 22.7         | 8.9 | 201.4                     | 615.8                         | 764.3                       | 0.65           | 1.32         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 22.7         | 8.9 | 669.9                     | 615.8                         | 764.3                       | 2.18           | 4.38         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/27/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.9         | 7.500         | 24.9         | 6.8 | 678.2                     | 514.6                         | 656.2                       | 2.64           | 5.17         | 6.6013.182.64  |              |                 |
| CLA D2                        | 1.6         | 7.500         | 25.7         | 6.6 | 357.2                     | 510.0                         | 620.8                       | 1.40           | 2.88         |                |              |                 |
| CLA D3                        | 1.7         | 3.308         | 25.6         | 6.8 | 9.4                       | 510.0                         | 625.1                       | 0.04           | 0.08         |                |              |                 |
| CLA D4                        | 2.5         | 10.000        | 23.6         | 8.6 | 167.8                     | 574.4                         | 718.0                       | 0.58           | 1.17         | (V)            |              |                 |
| CLA D5                        | 2.5         | 10.000        | 23.6         | 8.6 | 558.2                     | 574.4                         | 718.0                       | 1.94           | 3.89         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/27/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 2.2         | 7.500         | 25.0         | 6.7 | 785.3                     | 510.0                         | 651.6                       | 3.08           | 6.03         |                |              |                 |
| CLA D2                        | 2.0         | 7.500         | 24.3         | 6.5 | 446.5                     | 542.2                         | 684.0                       | 1.65           | 3.26         |                |              |                 |
| CLA D3                        | 1.6         | 3.308         | 24.1         | 6.8 | 8.9                       | 551.4                         | 693.6                       | 0.03           | 0.06         | 7.80           | 15.45        | 3.09            |
| CLA D4                        | 3.1         | 10.000        | 23.2         | 8.9 | 208.1                     | 592.8                         | 738.2                       | 0.70           | 1.41         | (V)            |              |                 |
| CLA D5                        | 3.1         | 10.000        | 23.2         | 8.9 | 692.2                     | 592.8                         | 738.2                       | 2.34           | 4.69         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/28/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 22.8         | 6.6 | 535.4                     | 611.2                         | 759.0                       | 1.75           | 3.53         |                |              |                 |
| CLA D2                        | 2.1         | 7.500         | 22.8         | 6.5 | 468.8                     | 611.2                         | 759.0                       | 1.53           | 3.09         |                |              |                 |
| CLA D3                        | 2.0         | 3.308         | 22.6         | 6.7 | 11.1                      | 620.4                         | 769.6                       | 0.04           | 0.07         | 6.37           | 12.83        | 2.57            |
| CLA D4                        | 3.3         | 10.000        | 22.4         | 8.9 | 221.5                     | 629.6                         | 780.3                       | 0.70           | 1.42         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 22.4         | 8.9 | 736.9                     | 629.6                         | 780.3                       | 2.34           | 4.72         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/28/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 25.4         | 6.8 | 535.4              | 510.0                         | 633.8                       | 2.10           | 4.22         |                |              |                 |
| CLA D2                        | 1.8         | 7.500         | 25.8         | 6.6 | 401.8              | 510.0                         | 616.5                       | 1.58           | 3.26         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 25.5         | 6.8 | 7.8                | 510.0                         | 629.4                       | 0.03           | 0.06         | 7.12           | 14.37        | 2.87            |
| CLA D4                        | 3.4         | 10.000        | 23.5         | 8.8 | 228.2              | 579.0                         | 723.0                       | 0.79           | 1.58         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 23.5         | 8.8 | 759.2              | 579.0                         | 723.0                       | 2.62           | 5.25         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/28/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.9         | 7.500         | 31.2         | 6.9 | 678.2                     | 510.0                         | 424.0                       | 2.66           | 8.00         | 7.8418.353.67  |              |                 |
| CLA D2                        | 2.0         | 7.500         | 24.2         | 6.5 | 446.5                     | 546.8                         | 688.8                       | 1.63           | 3.24         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 25.1         | 6.9 | 10.0                      | 510.0                         | 647.1                       | 0.04           | 0.08         |                |              |                 |
| CLA D4                        | 3.5         | 10.000        | 23.5         | 8.8 | 234.9                     | 579.0                         | 723.0                       | 0.81           | 1.62         | (V)            |              |                 |
| CLA D5                        | 3.5         | 10.000        | 23.5         | 8.8 | 781.5                     | 579.0                         | 723.0                       | 2.70           | 5.40         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/29/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.2         | 7.500         | 23.8         | 6.8 | 428.4              | 565.2                         | 708.1                       | 1.52           | 3.02         |                |              |                 |
| CLA D2                        | 2.2         | 7.500         | 22.9         | 6.5 | 491.1              | 606.6                         | 753.7                       | 1.62           | 3.26         |                |              |                 |
| CLA D3                        | 2.1         | 3.308         | 22.8         | 6.7 | 11.7               | 611.2                         | 759.0                       | 0.04           | 0.08         | 5.96           | 11.98        | 2.40            |
| CLA D4                        | 3.0         | 10.000        | 22.5         | 8.9 | 201.4              | 625.0                         | 774.9                       | 0.64           | 1.30         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 22.5         | 8.9 | 669.9              | 625.0                         | 774.9                       | 2.14           | 4.32         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/29/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 29.5         | 6.9 | 535.4              | 510.0                         | 477.0                       | 2.10           | 5.61         |                |              |                 |
| CLA D2                        | 1.7         | 7.500         | 27.9         | 6.5 | 379.5              | 510.0                         | 533.0                       | 1.49           | 3.56         |                |              |                 |
| CLA D3                        | 1.6         | 3.308         | 29.7         | 6.8 | 8.9                | 510.0                         | 470.5                       | 0.03           | 0.09         |                |              |                 |
| CLA D4                        | 3.3         | 10.000        | 24.5         | 8.8 | 221.5              | 533.0                         | 674.6                       | 0.83           | 1.64         |                |              |                 |
| CLA D5                        | 3.3         | 10.000        | 24.5         | 8.8 | 736.9              | 533.0                         | 674.6                       | 2.77           | 5.46         |                |              |                 |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/29/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.3         | 7.500         | 29.6         | 6.9 | 464.1              | 510.0                         | 473.7                       | 1.82           | 4.90         |                |              |                 |
| CLA D2                        | 1.9         | 7.500         | 25.4         | 6.6 | 424.1              | 510.0                         | 633.8                       | 1.66           | 3.35         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 25.2         | 6.7 | 7.8                | 510.0                         | 642.7                       | 0.03           | 0.06         | 6.98           | 15.12        | 3.02            |
| CLA D4                        | 3.1         | 10.000        | 24.8         | 8.8 | 208.1              | 519.2                         | 660.7                       | 0.80           | 1.57         | (V)            |              |                 |
| CLA D5                        | 3.1         | 10.000        | 24.8         | 8.8 | 692.2              | 519.2                         | 660.7                       | 2.67           | 5.24         |                |              |                 |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/30/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.3         | 7.500         | 26.4         | 6.7 | 464.1              | 510.0                         | 591.4                       | 1.82           | 3.92         |                |              |                 |
| CLA D2                        | 2.3         | 7.500         | 24.9         | 6.5 | 513.4              | 514.6                         | 656.2                       | 2.00           | 3.91         |                |              |                 |
| CLA D3                        | 2.2         | 3.308         | 25.4         | 6.7 | 12.2               | 510.0                         | 633.8                       | 0.05           | 0.10         | 7.05           | 14.31        | 2.86            |
| CLA D4                        | 3.2         | 10.000        | 23.4         | 8.9 | 214.8              | 583.6                         | 728.1                       | 0.74           | 1.48         |                |              | (V)             |
| CLA D5                        | 3.2         | 10.000        | 23.4         | 8.9 | 714.5              | 583.6                         | 728.1                       | 2.45           | 4.91         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/30/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 27.2         | 6.9 | 535.4              | 510.0                         | 559.5                       | 2.10           | 4.79         | 6.85           | 14.63        | 2.93            |
| CLA D2                        | 1.5         | 7.500         | 27.5         | 6.6 | 334.9              | 510.0                         | 548.0                       | 1.31           | 3.06         |                |              |                 |
| CLA D3                        | 1.5         | 3.308         | 27.0         | 6.8 | 8.3                | 510.0                         | 567.3                       | 0.03           | 0.07         | 6.85           | 14.63        | 2.93            |
| CLA D4                        | 3.1         | 10.000        | 24.6         | 8.9 | 208.1              | 528.4                         | 669.9                       | 0.79           | 1.55         |                |              |                 |
| CLA D5                        | 3.1         | 10.000        | 24.6         | 8.9 | 692.2              | 528.4                         | 669.9                       | 2.62           | 5.17         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/30/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.5      | 7.500      | 27.5      | 6.8 | 535.4              | 510.0                      | 548.0                    | 2.10        | 4.89      | 8.00        | 16.69     | 3.34         |
| CLA D2                        | 2.1      | 7.500      | 25.9      | 6.5 | 468.8              | 510.0                      | 612.2                    | 1.84        | 3.83      |             |           |              |
| CLA D3                        | 1.5      | 3.308      | 25.7      | 6.7 | 8.3                | 510.0                      | 620.8                    | 0.03        | 0.07      |             |           |              |
| CLA D4                        | 3.6      | 10.000     | 24.8      | 9.1 | 241.6              | 519.2                      | 660.7                    | 0.93        | 1.83      |             |           |              |
| CLA D5                        | 3.6      | 10.000     | 24.8      | 9.1 | 803.9              | 519.2                      | 660.7                    | 3.10        | 6.08      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/31/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |      | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|------|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |      |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH   | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.2         | 7.500         | 25.7         | 6.8  | 428.4                     | 510.0                         | 620.8                       | 1.68           | 3.45         |                |              |                 |
| CLA D2                        | 2.1         | 7.500         | 25.1         | 6.5  | 468.8                     | 510.0                         | 647.1                       | 1.84           | 3.62         |                |              |                 |
| CLA D3                        | 1.8         | 3.308         | 25.7         | 6.7  | 10.0                      | 510.0                         | 620.8                       | 0.04           | 0.08         | 5.89           | 11.79        | 2.36            |
| CLA D4                        | 2.9         | 10.000        | 24.0         | 10.1 | 194.7                     | NA                            | NA                          | 0.00           | 0.00         | (V)            |              |                 |
| CLA D5                        | 2.9         | 10.000        | 24.0         | 9.2  | 647.6                     | 556.0                         | 698.4                       | 2.33           | 4.64         |                |              |                 |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 05/31/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 25.8         | 6.8 | 499.8                     | 510.0                         | 616.5                       | 1.96           | 4.05         |                |              |                 |
| CLA D2                        | 1.6         | 7.500         | 26.2         | 6.6 | 357.2                     | 510.0                         | 599.6                       | 1.40           | 2.98         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 26.1         | 6.8 | 7.8                       | 510.0                         | 603.8                       | 0.03           | 0.06         | 6.81           | 14.16        | 2.83            |
| CLA D4                        | 3.0         | 10.000        | 25.8         | 9.2 | 201.4                     | 510.0                         | 616.5                       | 0.79           | 1.63         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 25.8         | 9.2 | 669.9                     | 510.0                         | 616.5                       | 2.63           | 5.43         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

05/31/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |      |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|------|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH   | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 2.0      | 7.500      | 27.5      | 6.9  | 713.9              | 510.0                      | 548.0                    | 2.80        | 6.51      |             |           |              |
| CLA D2                        | 1.3      | 7.500      | 25.4      | 6.6  | 290.2              | 510.0                      | 633.8                    | 1.14        | 2.29      |             |           |              |
| CLA D3                        | 1.0      | 3.308      | 25.9      | 6.8  | 5.6                | 510.0                      | 612.2                    | 0.02        | 0.05      | 6.50        | 13.85     | 2.77         |
| CLA D4                        | 3.0      | 10.000     | 24.6      | 10.1 | 201.4              | NA                         | NA                       | 0.00        | 0.00      |             |           | (V)          |
| CLA D5                        | 3.0      | 10.000     | 24.6      | 9.2  | 669.9              | 528.4                      | 669.9                    | 2.54        | 5.00      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/01/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 24.5         | 6.8 | 392.7              | 533.0                         | 674.6                       | 1.47           | 2.91         | 6.44           | 12.83        | 2.57            |
| CLA D2                        | 1.5         | 7.500         | 23.9         | 6.5 | 334.9              | 560.6                         | 703.3                       | 1.19           | 2.38         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 24.0         | 6.7 | 7.8                | 556.0                         | 698.4                       | 0.03           | 0.06         | 6.44           | 12.83        | 2.57            |
| CLA D4                        | 3.7         | 10.000        | 23.6         | 9.2 | 248.4              | 574.4                         | 718.0                       | 0.86           | 1.73         |                |              |                 |
| CLA D5                        | 3.7         | 10.000        | 23.6         | 9.2 | 826.2              | 574.4                         | 718.0                       | 2.88           | 5.75         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/01/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |          |            |           |     |                    |                            |                          |             |           |             |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.4      | 7.500      | 27.5      | 6.7 | 499.8              | 510.0                      | 548.0                    | 1.96        | 4.56      |             |           |              |
| CLA D2                        | 1.1      | 7.500      | 26.9      | 6.5 | 245.6              | 510.0                      | 571.2                    | 0.96        | 2.15      |             |           |              |
| CLA D3                        | 1.1      | 3.308      | 27.0      | 6.8 | 6.1                | 510.0                      | 567.3                    | 0.02        | 0.05      | 6.59        | 14.25     | 2.85         |
| CLA D4                        | 3.2      | 10.000     | 25.7      | 9.3 | 214.8              | 510.0                      | 620.8                    | 0.84        | 1.73      | (V)         |           |              |
| CLA D5                        | 3.2      | 10.000     | 25.7      | 9.3 | 714.5              | 510.0                      | 620.8                    | 2.80        | 5.76      |             |           |              |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/01/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.6         | 7.500         | 27.9         | 6.7 | 571.1                     | 510.0                         | 533.0                       | 2.24           | 5.36         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 26.7         | 6.5 | 312.5                     | 510.0                         | 579.2                       | 1.23           | 2.70         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 26.2         | 6.7 | 6.1                       | 510.0                         | 599.6                       | 0.02           | 0.05         | 7.25           | 15.88        | 3.18            |
| CLA D4                        | 3.3         | 10.000        | 25.8         | 9.2 | 221.5                     | 510.0                         | 616.5                       | 0.87           | 1.80         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 25.8         | 9.2 | 736.9                     | 510.0                         | 616.5                       | 2.89           | 5.98         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/02/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 28.1         | 6.6 | 499.8                     | 510.0                         | 525.6                       | 1.96           | 4.75         |                |              |                 |
| CLA D2                        | 1.3         | 7.500         | 26.6         | 6.5 | 290.2                     | 510.0                         | 583.2                       | 1.14           | 2.49         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 26.7         | 6.6 | 7.8                       | 510.0                         | 579.2                       | 0.03           | 0.07         | 6.24           | 13.47        | 2.69            |
| CLA D4                        | 2.9         | 10.000        | 24.3         | 9.2 | 194.7                     | 542.2                         | 684.0                       | 0.72           | 1.42         | (V)            |              |                 |
| CLA D5                        | 2.9         | 10.000        | 24.3         | 9.2 | 647.6                     | 542.2                         | 684.0                       | 2.39           | 4.73         |                |              |                 |

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/02/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 27.2         | 6.7 | 535.4                     | 510.0                         | 559.5                       | 2.10           | 4.79         |                |              |                 |
| CLA D2                        | 0.9         | 7.500         | 27.0         | 6.5 | 200.9                     | 510.0                         | 567.3                       | 0.79           | 1.77         |                |              |                 |
| CLA D3                        | 1.3         | 3.308         | 27.1         | 6.7 | 7.2                       | 510.0                         | 563.4                       | 0.03           | 0.06         | 6.45           | 14.39        | 2.88            |
| CLA D4                        | 3.1         | 10.000        | 26.7         | 9.2 | 208.1                     | 510.0                         | 579.2                       | 0.82           | 1.80         | (V)            |              |                 |
| CLA D5                        | 3.1         | 10.000        | 26.7         | 9.2 | 692.2                     | 510.0                         | 579.2                       | 2.71           | 5.98         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/02/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.6         | 7.500         | 27.8         | 6.6 | 571.1                     | 510.0                         | 536.7                       | 2.24           | 5.32         |                |              |                 |
| CLA D2                        | 1.1         | 7.500         | 26.8         | 6.4 | 245.6                     | 510.0                         | 575.2                       | 0.96           | 2.13         |                |              |                 |
| CLA D3                        | 0.7         | 3.308         | 26.8         | 6.7 | 3.9                       | 510.0                         | 575.2                       | 0.02           | 0.03         | 5.84           | 12.91        | 2.58            |
| CLA D4                        | 2.3         | 10.000        | 25.8         | 9.2 | 154.4                     | 510.0                         | 616.5                       | 0.61           | 1.25         | (V)            |              |                 |
| CLA D5                        | 2.3         | 10.000        | 25.8         | 9.2 | 513.6                     | 510.0                         | 616.5                       | 2.01           | 4.17         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/03/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 27.5         | 6.6 | 499.8              | 510.0                         | 548.0                       | 1.96           | 4.56         |                |              |                 |
| CLA D2                        | 1.3         | 7.500         | 26.3         | 6.4 | 290.2              | 510.0                         | 595.5                       | 1.14           | 2.44         |                |              |                 |
| CLA D3                        | 2.2         | 3.308         | 26.2         | 6.6 | 12.2               | 510.0                         | 599.6                       | 0.05           | 0.10         | 5.23           | 11.22        | 2.24            |
| CLA D4                        | 1.9         | 10.000        | 24.6         | 9.2 | 127.5              | 528.4                         | 669.9                       | 0.48           | 0.95         | (V)            |              |                 |
| CLA D5                        | 1.9         | 10.000        | 24.6         | 9.2 | 424.3              | 528.4                         | 669.9                       | 1.61           | 3.17         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/03/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 30.6         | 6.6 | 535.4                     | 510.0                         | 442.0                       | 2.10           | 6.06         |                |              |                 |
| CLA D2                        | 0.8         | 7.500         | 29.8         | 6.4 | 178.6                     | 510.0                         | 467.2                       | 0.70           | 1.91         |                |              |                 |
| CLA D3                        | 0.9         | 3.308         | 29.9         | 6.6 | 5.0                       | 510.0                         | 464.0                       | 0.02           | 0.05         | 6.46           | 15.88        | 3.18            |
| CLA D4                        | 3.2         | 10.000        | 26.4         | 9.2 | 214.8                     | 510.0                         | 591.4                       | 0.84           | 1.82         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 26.4         | 9.2 | 714.5                     | 510.0                         | 591.4                       | 2.80           | 6.04         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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**Enclosure H1: CT STUDY**  
**FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES**  
**OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)**  
*CT Calculator Worksheet*

PUBLIC WATER SYSTEM NAME: \_\_\_\_\_ City of Wichita Falls Reuse Project \_\_\_\_\_ PLANT NAME OR NUMBER: 3RWWTP to Cypress through MF/RO/Conventional \_\_\_\_\_  
PWS ID No.: \_\_\_\_\_ 2430001 \_\_\_\_\_ Date: 06/03/2014 Evening Shift

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |  |

| DISINFECTION PROCESS DATA     |          |            |           |     |                    |                            |                          |             |           |             |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.5      | 7.500      | 28.5      | 6.7 | 535.4              | 510.0                      | 511.3                    | 2.10        | 5.24      |             |           |              |
| CLA D2                        | 1.4      | 7.500      | 27.4      | 6.4 | 312.5              | 510.0                      | 551.8                    | 1.23        | 2.83      |             |           |              |
| CLA D3                        | 1.0      | 3.308      | 27.1      | 6.6 | 5.6                | 510.0                      | 563.4                    | 0.02        | 0.05      | 6.19        | 14.17     | 2.83         |
| CLA D4                        | 2.5      | 10.000     | 26.2      | 9.2 | 167.8              | 510.0                      | 599.6                    | 0.66        | 1.40      | (V)         |           |              |
| CLA D5                        | 2.5      | 10.000     | 26.2      | 9.2 | 558.2              | 510.0                      | 599.6                    | 2.19        | 4.65      |             |           |              |

SUBMITTED BY: \_\_\_\_\_ Certificate No. and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/04/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 0.9         | 7.500         | 27.2         | 6.6 | 321.3              | 510.0                         | 559.5                       | 1.26           | 2.87         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 26.3         | 6.3 | 267.9              | 510.0                         | 595.5                       | 1.05           | 2.25         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 26.5         | 6.5 | 5.6                | 510.0                         | 587.3                       | 0.02           | 0.05         | 5.75           | 12.04        | 2.41            |
| CLA D4                        | 3.0         | 10.000        | 25.4         | 9.2 | 201.4              | 510.0                         | 633.8                       | 0.79           | 1.59         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 25.4         | 9.2 | 669.9              | 510.0                         | 633.8                       | 2.63           | 5.28         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/04/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.3         | 7.500         | 28.8         | 6.7 | 464.1              | 510.0                         | 500.7                       | 1.82           | 4.63         | 5.44           | 12.94        | 2.59            |
| CLA D2                        | 1.0         | 7.500         | 28.7         | 6.4 | 223.2              | 510.0                         | 504.2                       | 0.88           | 2.21         |                |              |                 |
| CLA D3                        | 0.6         | 3.308         | 28.6         | 6.7 | 3.3                | 510.0                         | 507.7                       | 0.01           | 0.03         |                |              |                 |
| CLA D4                        | 2.4         | 10.000        | 26.8         | 9.2 | 161.1              | 510.0                         | 575.2                       | 0.63           | 1.40         |                |              |                 |
| CLA D5                        | 2.4         | 10.000        | 26.8         | 9.2 | 535.9              | 510.0                         | 575.2                       | 2.10           | 4.66         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/04/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 31.8         | 6.8 | 499.8                     | 510.0                         | 406.7                       | 1.96           | 6.14         |                |              |                 |
| CLA D2                        | 1.0         | 7.500         | 29.0         | 6.4 | 223.2                     | 510.0                         | 493.8                       | 0.88           | 2.26         |                |              |                 |
| CLA D3                        | 0.7         | 3.308         | 29.3         | 6.5 | 3.9                       | 510.0                         | 483.7                       | 0.02           | 0.04         | 5.81           | 14.48        | 2.90            |
| CLA D4                        | 2.6         | 10.000        | 25.6         | 9.2 | 174.5                     | 510.0                         | 625.1                       | 0.68           | 1.40         | (V)            |              |                 |
| CLA D5                        | 2.6         | 10.000        | 25.6         | 9.2 | 580.6                     | 510.0                         | 625.1                       | 2.28           | 4.64         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/05/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 29.3         | 6.7 | 392.7              | 510.0                         | 483.7                       | 1.54           | 4.06         |                |              |                 |
| CLA D2                        | 0.9         | 7.500         | 27.5         | 6.4 | 200.9              | 510.0                         | 548.0                       | 0.79           | 1.83         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 27.3         | 6.6 | 5.6                | 510.0                         | 555.6                       | 0.02           | 0.05         | 5.77           | 13.57        | 2.71            |
| CLA D4                        | 3.0         | 10.000        | 26.9         | 9.2 | 201.4              | 510.0                         | 571.2                       | 0.79           | 1.76         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 26.9         | 9.2 | 669.9              | 510.0                         | 571.2                       | 2.63           | 5.86         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/05/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 0.7      | 7.500      | 29.9      | 6.7 | 249.9              | 510.0                      | 464.0                    | 0.98        | 2.69      | 5.14        | 12.53     | 2.51         |
| CLA D2                        | 0.7      | 7.500      | 30.3      | 6.4 | 156.3              | 510.0                      | 451.3                    | 0.61        | 1.73      |             |           |              |
| CLA D3                        | 0.9      | 3.308      | 30.2      | 6.5 | 5.0                | 510.0                      | 454.4                    | 0.02        | 0.06      |             |           |              |
| CLA D4                        | 3.1      | 10.000     | 27.2      | 9.2 | 208.1              | 510.0                      | 559.5                    | 0.82        | 1.86      |             |           |              |
| CLA D5                        | 3.1      | 10.000     | 27.2      | 9.2 | 692.2              | 510.0                      | 559.5                    | 2.71        | 6.19      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/05/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.3         | 7.500         | 33.2         | 6.9 | 464.1                     | 510.0                         | 369.1                       | 1.82           | 6.29         |                |              |                 |
| CLA D2                        | 0.7         | 7.500         | 27.9         | 6.4 | 156.3                     | 510.0                         | 533.0                       | 0.61           | 1.47         |                |              |                 |
| CLA D3                        | 0.5         | 3.308         | 27.8         | 6.6 | 2.8                       | 510.0                         | 536.7                       | 0.01           | 0.03         | 6.09           | 16.20        | 3.04            |
| CLA D4                        | 3.2         | 10.000        | 27.4         | 9.2 | 214.8                     | 510.0                         | 551.8                       | 0.84           | 1.95         | (G)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 27.4         | 9.2 | 714.5                     | 510.0                         | 551.8                       | 2.80           | 6.48         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/06/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 29.5         | 6.8 | 392.7              | 510.0                         | 477.0                       | 1.54           | 4.12         |                |              |                 |
| CLA D2                        | 0.9         | 7.500         | 28.3         | 6.5 | 200.9              | 510.0                         | 518.4                       | 0.79           | 1.94         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 28.0         | 6.7 | 5.6                | 510.0                         | 529.3                       | 0.02           | 0.05         | 5.88           | 13.99        | 2.80            |
| CLA D4                        | 3.1         | 10.000        | 26.9         | 9.3 | 208.1              | 510.0                         | 571.2                       | 0.82           | 1.82         | (V)            |              |                 |
| CLA D5                        | 3.1         | 10.000        | 26.9         | 9.3 | 692.2              | 510.0                         | 571.2                       | 2.71           | 6.06         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/06/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 29.0         | 6.8 | 392.7                     | 510.0                         | 493.8                       | 1.54           | 3.98         |                |              |                 |
| CLA D2                        | 0.7         | 7.500         | 29.8         | 6.5 | 156.3                     | 510.0                         | 467.2                       | 0.61           | 1.67         |                |              |                 |
| CLA D3                        | 0.8         | 3.308         | 28.7         | 6.8 | 4.4                       | 510.0                         | 504.2                       | 0.02           | 0.04         | 5.81           | 13.55        | 2.71            |
| CLA D4                        | 3.2         | 10.000        | 26.4         | 9.3 | 214.8                     | 510.0                         | 591.4                       | 0.84           | 1.82         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 26.4         | 9.3 | 714.5                     | 510.0                         | 591.4                       | 2.80           | 6.04         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/06/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 29.1         | 6.8 | 642.5              | 510.0                         | 490.4                       | 2.52           | 6.55         | 6.85           | 16.33        | 3.27            |
| CLA D2                        | 0.9         | 7.500         | 27.7         | 6.5 | 200.9              | 510.0                         | 540.4                       | 0.79           | 1.86         |                |              |                 |
| CLA D3                        | 0.7         | 3.308         | 27.8         | 6.8 | 3.9                | 510.0                         | 536.7                       | 0.02           | 0.04         |                |              |                 |
| CLA D4                        | 3.1         | 10.000        | 26.9         | 9.2 | 208.1              | 510.0                         | 571.2                       | 0.82           | 1.82         |                |              |                 |
| CLA D5                        | 3.1         | 10.000        | 26.9         | 9.2 | 692.2              | 510.0                         | 571.2                       | 2.71           | 6.06         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/07/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 28.6         | 6.8 | 499.8                     | 510.0                         | 507.7                       | 1.96           | 4.92         |                |              |                 |
| CLA D2                        | 1.3         | 7.500         | 27.9         | 6.5 | 290.2                     | 510.0                         | 533.0                       | 1.14           | 2.72         |                |              |                 |
| CLA D3                        | 1.2         | 3.308         | 27.1         | 6.8 | 6.7                       | 510.0                         | 563.4                       | 0.03           | 0.06         | 6.88           | 15.42        | 3.08            |
| CLA D4                        | 3.3         | 10.000        | 25.7         | 9.2 | 221.5                     | 510.0                         | 620.8                       | 0.87           | 1.78         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 25.7         | 9.2 | 736.9                     | 510.0                         | 620.8                       | 2.89           | 5.94         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/07/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.6         | 7.500         | 29.8         | 6.9 | 571.1                     | 510.0                         | 467.2                       | 2.24           | 6.11         |                |              |                 |
| CLA D2                        | 1.0         | 7.500         | 29.5         | 6.6 | 223.2                     | 510.0                         | 477.0                       | 0.88           | 2.34         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 28.9         | 6.9 | 5.6                       | 510.0                         | 497.3                       | 0.02           | 0.06         | 7.01           | 16.41        | 3.28            |
| CLA D4                        | 3.4         | 10.000        | 25.6         | 9.2 | 228.2                     | 510.0                         | 625.1                       | 0.89           | 1.83         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 25.6         | 9.2 | 759.2                     | 510.0                         | 625.1                       | 2.98           | 6.07         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/07/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 28.8         | 6.9 | 535.4                     | 510.0                         | 500.7                       | 2.10           | 5.35         |                |              |                 |
| CLA D2                        | 1.5         | 7.500         | 27.4         | 6.6 | 334.9                     | 510.0                         | 551.8                       | 1.31           | 3.03         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 27.9         | 6.7 | 6.1                       | 510.0                         | 533.0                       | 0.02           | 0.06         | 7.65           | 17.40        | 3.48            |
| CLA D4                        | 3.7         | 10.000        | 26.2         | 9.1 | 248.4                     | 510.0                         | 599.6                       | 0.97           | 2.07         | (V)            |              |                 |
| CLA D5                        | 3.7         | 10.000        | 26.2         | 9.1 | 826.2                     | 510.0                         | 599.6                       | 3.24           | 6.89         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/08/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 27.4         | 6.8 | 535.4                     | 510.0                         | 551.8                       | 2.10           | 4.85         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 26.8         | 6.6 | 312.5                     | 510.0                         | 575.2                       | 1.23           | 2.72         |                |              |                 |
| CLA D3                        | 1.3         | 3.308         | 26.0         | 6.7 | 7.2                       | 510.0                         | 608.0                       | 0.03           | 0.06         | 7.11           | 16.08        | 3.22            |
| CLA D4                        | 3.3         | 10.000        | 27.0         | 9.2 | 221.5                     | 510.0                         | 567.3                       | 0.87           | 1.95         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 27.0         | 9.2 | 736.9                     | 510.0                         | 567.3                       | 2.89           | 6.49         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/08/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.6         | 7.500         | 27.0         | 6.7 | 571.1                     | 510.0                         | 567.3                       | 2.24           | 5.03         |                |              |                 |
| CLA D2                        | 1.0         | 7.500         | 27.6         | 6.5 | 223.2                     | 510.0                         | 544.2                       | 0.88           | 2.05         |                |              |                 |
| CLA D3                        | 1.2         | 3.308         | 27.6         | 6.8 | 6.7                       | 510.0                         | 544.2                       | 0.03           | 0.06         | 6.90           | 15.19        | 3.04            |
| CLA D4                        | 3.3         | 10.000        | 26.3         | 9.2 | 221.5                     | 510.0                         | 595.5                       | 0.87           | 1.86         | (V)            |              |                 |
| CLA D5                        | 3.3         | 10.000        | 26.3         | 9.2 | 736.9                     | 510.0                         | 595.5                       | 2.89           | 6.19         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/08/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 27.5         | 6.9 | 535.4                     | 510.0                         | 548.0                       | 2.10           | 4.89         |                |              |                 |
| CLA D2                        | 1.0         | 7.500         | 26.5         | 6.6 | 223.2                     | 510.0                         | 587.3                       | 0.88           | 1.90         |                |              |                 |
| CLA D3                        | 0.8         | 3.308         | 26.4         | 6.7 | 4.4                       | 510.0                         | 591.4                       | 0.02           | 0.04         | 6.41           | 14.35        | 2.87            |
| CLA D4                        | 3.0         | 10.000        | 26.7         | 9.2 | 201.4                     | 510.0                         | 579.2                       | 0.79           | 1.74         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 26.7         | 9.2 | 669.9                     | 510.0                         | 579.2                       | 2.63           | 5.78         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/09/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 24.1         | 6.8 | 392.7                     | 551.4                         | 693.6                       | 1.42           | 2.83         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 24.1         | 6.5 | 267.9                     | 551.4                         | 693.6                       | 0.97           | 1.93         |                |              |                 |
| CLA D3                        | 1.2         | 3.308         | 23.4         | 6.7 | 6.7                       | 583.6                         | 728.1                       | 0.02           | 0.05         | 5.63           | 11.23        | 2.25            |
| CLA D4                        | 3.2         | 10.000        | 23.5         | 9.1 | 214.8                     | 579.0                         | 723.0                       | 0.74           | 1.49         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 23.5         | 9.1 | 714.5                     | 579.0                         | 723.0                       | 2.47           | 4.94         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/09/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.8      | 7.500      | 24.9      | 6.7 | 642.5              | 514.6                      | 656.2                    | 2.50        | 4.90      |             |           |              |
| CLA D2                        | 1.0      | 7.500      | 26.0      | 6.5 | 223.2              | 510.0                      | 608.0                    | 0.88        | 1.84      |             |           |              |
| CLA D3                        | 1.3      | 3.308      | 25.7      | 6.8 | 7.2                | 510.0                      | 620.8                    | 0.03        | 0.06      | 6.59        | 13.71     | 2.74         |
| CLA D4                        | 2.8      | 10.000     | 26.5      | 9.2 | 187.9              | 510.0                      | 587.3                    | 0.74        | 1.60      |             |           | (V)          |
| CLA D5                        | 2.8      | 10.000     | 26.5      | 9.2 | 625.2              | 510.0                      | 587.3                    | 2.45        | 5.32      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/09/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.8      | 7.500      | 26.6      | 6.8 | 642.5              | 510.0                      | 583.2                    | 2.52        | 5.51      | 7.88        | 16.04     | 3.21         |
| CLA D2                        | 1.4      | 7.500      | 24.8      | 6.5 | 312.5              | 519.2                      | 660.7                    | 1.20        | 2.37      |             |           |              |
| CLA D3                        | 0.8      | 3.308      | 24.6      | 6.8 | 4.4                | 528.4                      | 669.9                    | 0.02        | 0.03      |             |           |              |
| CLA D4                        | 3.7      | 10.000     | 24.8      | 9.2 | 248.4              | 519.2                      | 660.7                    | 0.96        | 1.88      |             |           |              |
| CLA D5                        | 3.7      | 10.000     | 24.8      | 9.2 | 826.2              | 519.2                      | 660.7                    | 3.18        | 6.25      |             |           |              |

Certificate No.

and Grade:

Date:

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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/10/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 23.8         | 6.6 | 535.4                     | 565.2                         | 708.1                       | 1.89           | 3.78         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 23.8         | 6.6 | 312.5                     | 565.2                         | 708.1                       | 1.11           | 2.21         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 24.0         | 6.7 | 6.1                       | 556.0                         | 698.4                       | 0.02           | 0.04         | 6.23           | 12.49        | 2.50            |
| CLA D4                        | 3.4         | 10.000        | 22.7         | 9.3 | 228.2                     | 615.8                         | 764.3                       | 0.74           | 1.49         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 22.7         | 9.3 | 759.2                     | 615.8                         | 764.3                       | 2.47           | 4.97         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/10/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 2.3      | 7.500      | 23.8      | 6.7 | 821.0              | 565.2                      | 708.1                    | 2.91        | 5.80      | 7.14        | 14.20     | 2.84         |
| CLA D2                        | 1.0      | 7.500      | 24.1      | 6.4 | 223.2              | 551.4                      | 693.6                    | 0.81        | 1.61      |             |           |              |
| CLA D3                        | 1.1      | 3.308      | 24.7      | 6.7 | 6.1                | 523.8                      | 665.3                    | 0.02        | 0.05      |             |           |              |
| CLA D4                        | 3.2      | 10.000     | 24.2      | 9.3 | 214.8              | 546.8                      | 688.8                    | 0.79        | 1.56      |             |           |              |
| CLA D5                        | 3.2      | 10.000     | 24.2      | 9.3 | 714.5              | 546.8                      | 688.8                    | 2.61        | 5.19      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/10/2014 Evening Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.9      | 7.500      | 25.6      | 6.6 | 678.2              | 510.0                      | 625.1                    | 2.66        | 5.43      | 6.96        | 13.92     | 2.78         |
| CLA D2                        | 0.7      | 7.500      | 24.9      | 6.5 | 156.3              | 514.6                      | 656.2                    | 0.61        | 1.19      |             |           |              |
| CLA D3                        | 0.8      | 3.308      | 24.7      | 6.6 | 4.4                | 523.8                      | 665.3                    | 0.02        | 0.03      |             |           |              |
| CLA D4                        | 3.4      | 10.000     | 24.4      | 9.2 | 228.2              | 537.6                      | 679.3                    | 0.85        | 1.68      |             |           |              |
| CLA D5                        | 3.4      | 10.000     | 24.4      | 9.2 | 759.2              | 537.6                      | 679.3                    | 2.82        | 5.59      |             |           |              |

Certificate No.

and Grade:

Date:

SUBMITTED BY:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
CT Calculator Worksheet

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/11/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |          |            |           |     |                    |                            |                          |             |           |             |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.9      | 7.500      | 24.1      | 6.7 | 678.2              | 551.4                      | 693.6                    | 2.46        | 4.89      |             |           |              |
| CLA D2                        | 1.2      | 7.500      | 24.2      | 6.4 | 267.9              | 546.8                      | 688.8                    | 0.98        | 1.94      |             |           |              |
| CLA D3                        | 1.2      | 3.308      | 24.0      | 6.6 | 6.7                | 556.0                      | 698.4                    | 0.02        | 0.05      | 6.76        | 13.42     | 2.68         |
| CLA D4                        | 3.1      | 10.000     | 24.2      | 9.2 | 208.1              | 546.8                      | 688.8                    | 0.76        | 1.51      | (V)         |           |              |
| CLA D5                        | 3.1      | 10.000     | 24.2      | 9.2 | 692.2              | 546.8                      | 688.8                    | 2.53        | 5.02      |             |           |              |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

PUBLIC WATER  
SYSTEM NAME:

City of Wichita Falls Reuse Project

PLANT NAME  
OR NUMBER:

RRWWTP to Cypress through MF/RO/Conventional

PWS ID No.:

2430001

Date:

06/11/2014 Day Shift

### DISINFECTION PROCESS PARAMETERS

| APPROVED CT STUDY PARAMETERS |                    |       |       |        |        | PERFORMANCE STANDARDS |         |
|------------------------------|--------------------|-------|-------|--------|--------|-----------------------|---------|
| Parameters                   | Disinfection Zones |       |       |        |        | Log Inactivations     |         |
|                              | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts | Viruses |
| Flow Rate (MGD)              | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   | 5.0     |
| T <sub>10</sub> (minutes)    | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |         |

### DISINFECTION PROCESS DATA

| INDIVIDUAL DISINFECTION ZONES |          |            |           |     |                    |                            |                          |             |           | PLANT TOTAL |           |              |
|-------------------------------|----------|------------|-----------|-----|--------------------|----------------------------|--------------------------|-------------|-----------|-------------|-----------|--------------|
| Disinfectant                  | C (mg/L) | Flow (MGD) | Temp (°C) | pH  | CT <sub>CALC</sub> | Giardia CT <sub>REQD</sub> | Virus CT <sub>REQD</sub> | Giardia Log | Virus Log | Giardia Log | Virus Log | Inact. Ratio |
| CLA D1                        | 1.5      | 7.500      | 27.1      | 6.8 | 535.4              | 510.0                      | 563.4                    | 2.10        | 4.75      | 7.32        | 15.38     | 3.08         |
| CLA D2                        | 1.0      | 7.500      | 27.6      | 6.5 | 223.2              | 510.0                      | 544.2                    | 0.88        | 2.05      |             |           |              |
| CLA D3                        | 1.0      | 3.308      | 26.9      | 6.6 | 5.6                | 510.0                      | 571.2                    | 0.02        | 0.05      | 3.33        | 6.56      | (V)          |
| CLA D4                        | 3.8      | 10.000     | 25.1      | 9.2 | 255.1              | 510.0                      | 647.1                    | 1.00        | 1.97      |             |           |              |
| CLA D5                        | 3.8      | 10.000     | 25.1      | 9.2 | 848.5              | 510.0                      | 647.1                    | 3.33        | 6.56      |             |           |              |

SUBMITTED BY:

Certificate No.  
and Grade:

Date:

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/11/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.1         | 7.500         | 28.7         | 6.5 | 392.7              | 510.0                         | 504.2                       | 1.54           | 3.89         |                |              |                 |
| CLA D2                        | 1.1         | 7.500         | 28.0         | 6.6 | 245.6              | 510.0                         | 529.3                       | 0.96           | 2.32         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 26.2         | 6.7 | 6.1                | 510.0                         | 599.6                       | 0.02           | 0.05         | 6.40           | 14.16        | 2.83            |
| CLA D4                        | 3.4         | 10.000        | 25.6         | 9.2 | 228.2              | 510.0                         | 625.1                       | 0.89           | 1.83         | (V)            |              |                 |
| CLA D5                        | 3.4         | 10.000        | 25.6         | 9.2 | 759.2              | 510.0                         | 625.1                       | 2.98           | 6.07         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/12/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.4         | 7.500         | 27.7         | 6.6 | 499.8                     | 510.0                         | 540.4                       | 1.96           | 4.62         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 25.9         | 6.4 | 267.9                     | 510.0                         | 612.2                       | 1.05           | 2.19         |                |              |                 |
| CLA D3                        | 1.2         | 3.308         | 26.0         | 6.6 | 6.7                       | 510.0                         | 608.0                       | 0.03           | 0.05         | 6.82           | 14.35        | 2.87            |
| CLA D4                        | 3.5         | 10.000        | 24.4         | 9.2 | 234.9                     | 537.6                         | 679.3                       | 0.87           | 1.73         | (V)            |              |                 |
| CLA D5                        | 3.5         | 10.000        | 24.4         | 9.2 | 781.5                     | 537.6                         | 679.3                       | 2.91           | 5.75         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/12/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |  |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|--|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |  |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |  |
| CLA D1                        | 0.6         | 7.500         | 30.9         | 6.6 | 214.2                     | 510.0                         | 432.9                       | 0.84           | 2.47         |                |              |                 |  |
| CLA D2                        | 0.7         | 7.500         | 28.5         | 6.4 | 156.3                     | 510.0                         | 511.3                       | 0.61           | 1.53         |                |              |                 |  |
| CLA D3                        | 1.0         | 3.308         | 28.0         | 6.6 | 5.6                       | 510.0                         | 529.3                       | 0.02           | 0.05         | 5.12           | 11.75        | 2.35            |  |
| CLA D4                        | 3.2         | 10.000        | 26.1         | 9.3 | 214.8                     | 510.0                         | 603.8                       | 0.84           | 1.78         | (V)            |              |                 |  |
| CLA D5                        | 3.2         | 10.000        | 26.1         | 9.3 | 714.5                     | 510.0                         | 603.8                       | 2.80           | 5.92         |                |              |                 |  |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/12/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 26.5         | 6.6 | 642.5                     | 510.0                         | 587.3                       | 2.52           | 5.47         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 28.0         | 6.5 | 267.9                     | 510.0                         | 529.3                       | 1.05           | 2.53         |                |              |                 |
| CLA D3                        | 0.7         | 3.308         | 25.7         | 6.6 | 3.9                       | 510.0                         | 620.8                       | 0.02           | 0.03         | 6.89           | 14.68        | 2.94            |
| CLA D4                        | 2.9         | 10.000        | 25.4         | 9.3 | 194.7                     | 510.0                         | 633.8                       | 0.76           | 1.54         | (V)            |              |                 |
| CLA D5                        | 2.9         | 10.000        | 25.4         | 9.3 | 647.6                     | 510.0                         | 633.8                       | 2.54           | 5.11         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | 3RWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/13/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.5         | 7.500         | 26.3         | 6.7 | 535.4                     | 510.0                         | 595.5                       | 2.10           | 4.50         | 6.5013.352.67  |              |                 |
| CLA D2                        | 1.1         | 7.500         | 26.1         | 6.4 | 245.6                     | 510.0                         | 603.8                       | 0.96           | 2.03         |                |              |                 |
| CLA D3                        | 1.0         | 3.308         | 25.3         | 6.6 | 5.6                       | 510.0                         | 638.2                       | 0.02           | 0.04         |                |              |                 |
| CLA D4                        | 3.0         | 10.000        | 25.2         | 9.0 | 201.4                     | 510.0                         | 642.7                       | 0.79           | 1.57         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 25.2         | 9.0 | 669.9                     | 510.0                         | 642.7                       | 2.63           | 5.21         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_

Certificate No. \_\_\_\_\_  
and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/13/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 2.1         | 7.500         | 28.1         | 6.8 | 749.6                     | 510.0                         | 525.6                       | 2.94           | 7.13         |                |              |                 |
| CLA D2                        | 0.7         | 7.500         | 27.8         | 6.5 | 156.3                     | 510.0                         | 536.7                       | 0.61           | 1.46         |                |              |                 |
| CLA D3                        | 0.8         | 3.308         | 28.2         | 6.6 | 4.4                       | 510.0                         | 522.0                       | 0.02           | 0.04         | 7.21           | 16.38        | 3.28            |
| CLA D4                        | 3.2         | 10.000        | 26.2         | 9.1 | 214.8                     | 510.0                         | 599.6                       | 0.84           | 1.79         | (V)            |              |                 |
| CLA D5                        | 3.2         | 10.000        | 26.2         | 9.1 | 714.5                     | 510.0                         | 599.6                       | 2.80           | 5.96         |                |              |                 |

|                     |                                     |             |
|---------------------|-------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------|-------------|

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/13/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 27.4         | 6.6 | 642.5              | 510.0                         | 551.8                       | 2.52           | 5.82         | 7.38           | 16.38        | 3.28            |
| CLA D2                        | 1.5         | 7.500         | 25.4         | 6.4 | 334.9              | 510.0                         | 633.8                       | 1.31           | 2.64         |                |              |                 |
| CLA D3                        | 0.9         | 3.308         | 25.4         | 6.6 | 5.0                | 510.0                         | 633.8                       | 0.02           | 0.04         |                |              |                 |
| CLA D4                        | 3.1         | 10.000        | 26.9         | 9.1 | 208.1              | 510.0                         | 571.2                       | 0.82           | 1.82         |                |              |                 |
| CLA D5                        | 3.1         | 10.000        | 26.9         | 9.1 | 692.2              | 510.0                         | 571.2                       | 2.71           | 6.06         |                |              |                 |

SUBMITTED BY: \_\_\_\_\_ Certificate No. \_\_\_\_\_ and Grade: \_\_\_\_\_ Date: \_\_\_\_\_

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/14/2014 Morning Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.7         | 7.500         | 26.9         | 6.6 | 606.8              | 510.0                         | 571.2                       | 2.38           | 5.31         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 26.6         | 6.4 | 312.5              | 510.0                         | 583.2                       | 1.23           | 2.68         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 26.3         | 6.6 | 7.8                | 510.0                         | 595.5                       | 0.03           | 0.07         | 6.93           | 14.56        | 2.91            |
| CLA D4                        | 3.0         | 10.000        | 24.6         | 9.3 | 201.4              | 528.4                         | 669.9                       | 0.76           | 1.50         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 24.6         | 9.3 | 669.9              | 528.4                         | 669.9                       | 2.54           | 5.00         |                |              |                 |

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| SUBMITTED BY: _____ | Certificate No.<br>and Grade: _____ | Date: _____ |
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## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/14/2014 Day Shift                         |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

|                               |             |               |              |     | DISINFECTION PROCESS DATA |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|---------------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                           |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub>        | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.7         | 7.500         | 28.0         | 6.5 | 606.8                     | 510.0                         | 529.3                       | 2.38           | 5.73         |                |              |                 |
| CLA D2                        | 1.2         | 7.500         | 26.6         | 6.4 | 267.9                     | 510.0                         | 583.2                       | 1.05           | 2.30         |                |              |                 |
| CLA D3                        | 1.1         | 3.308         | 26.8         | 6.6 | 6.1                       | 510.0                         | 575.2                       | 0.02           | 0.05         | 6.87           | 15.35        | 3.07            |
| CLA D4                        | 3.0         | 10.000        | 26.2         | 9.2 | 201.4                     | 510.0                         | 599.6                       | 0.79           | 1.68         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 26.2         | 9.2 | 669.9                     | 510.0                         | 599.6                       | 2.63           | 5.59         |                |              |                 |

|                     |                                  |             |
|---------------------|----------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. and Grade: _____ | Date: _____ |
| TCEQ - (05-01-13)   |                                  | CT STUDY    |

## Enclosure H1: CT STUDY

FOR PUBLIC WATER SYSTEMS THAT ARE USING SURFACE WATER SOURCES  
OR GROUND WATER SOURCES UNDER THE INFLUENCE OF SURFACE WATER (cont.)  
*CT Calculator Worksheet*

|                              |                                     |                          |                                              |
|------------------------------|-------------------------------------|--------------------------|----------------------------------------------|
| PUBLIC WATER<br>SYSTEM NAME: | City of Wichita Falls Reuse Project | PLANT NAME<br>OR NUMBER: | RRWWTP to Cypress through MF/RO/Conventional |
| PWS ID No.:                  | 2430001                             | Date:                    | 06/14/2014 Evening Shift                     |

| DISINFECTION PROCESS PARAMETERS |                    |       |       |        |        |                       |  |         |  |
|---------------------------------|--------------------|-------|-------|--------|--------|-----------------------|--|---------|--|
| APPROVED CT STUDY PARAMETERS    |                    |       |       |        |        | PERFORMANCE STANDARDS |  |         |  |
| Parameters                      | Disinfection Zones |       |       |        |        | Log Inactivations     |  |         |  |
|                                 | D1                 | D2    | D3    | D4     | D5     | Giardia lamblia Cysts |  | Viruses |  |
| Flow Rate (MGD)                 | 7.500              | 7.500 | 3.308 | 10.000 | 10.000 | 2.0                   |  | 5.0     |  |
| T <sub>10</sub> (minutes)       | 357.0              | 223.2 | 5.6   | 67.1   | 223.3  |                       |  |         |  |

| DISINFECTION PROCESS DATA     |             |               |              |     |                    |                               |                             |                |              |                |              |                 |
|-------------------------------|-------------|---------------|--------------|-----|--------------------|-------------------------------|-----------------------------|----------------|--------------|----------------|--------------|-----------------|
| INDIVIDUAL DISINFECTION ZONES |             |               |              |     |                    |                               |                             |                |              | PLANT TOTAL    |              |                 |
| Disinfectant                  | C<br>(mg/L) | Flow<br>(MGD) | Temp<br>(°C) | pH  | CT <sub>CALC</sub> | Giardia<br>CT <sub>REQD</sub> | Virus<br>CT <sub>REQD</sub> | Giardia<br>Log | Virus<br>Log | Giardia<br>Log | Virus<br>Log | Inact.<br>Ratio |
| CLA D1                        | 1.8         | 7.500         | 27.5         | 6.6 | 642.5              | 510.0                         | 548.0                       | 2.52           | 5.86         |                |              |                 |
| CLA D2                        | 1.4         | 7.500         | 25.7         | 6.4 | 312.5              | 510.0                         | 620.8                       | 1.23           | 2.52         |                |              |                 |
| CLA D3                        | 1.4         | 3.308         | 26.2         | 6.6 | 7.8                | 510.0                         | 599.6                       | 0.03           | 0.06         | 7.19           | 15.56        | 3.11            |
| CLA D4                        | 3.0         | 10.000        | 25.9         | 9.1 | 201.4              | 510.0                         | 612.2                       | 0.79           | 1.64         | (V)            |              |                 |
| CLA D5                        | 3.0         | 10.000        | 25.9         | 9.1 | 669.9              | 510.0                         | 612.2                       | 2.63           | 5.47         |                |              |                 |

|                     |                                           |             |
|---------------------|-------------------------------------------|-------------|
| SUBMITTED BY: _____ | Certificate No. _____<br>and Grade: _____ | Date: _____ |
|---------------------|-------------------------------------------|-------------|

TCEQ - (05-01-13)

CT STUDY

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 16, 2014

**12am - 8am**

|                                                            | Virus        | Giardia     | Cryptosporidium |
|------------------------------------------------------------|--------------|-------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |              |             |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 0.22         | 0.11        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00         | 0.00        | 0.00            |
| MF Filtration                                              | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00         | 0.00        | 0.00            |
| RO Filtration                                              | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                       | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                          | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                            | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.41         | 0.70        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 4.70         | 2.34        | 0.00            |
| <b>Total</b>                                               | <b>10.33</b> | <b>9.95</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**8am - 4pm**

|                                                            | Virus        | Giardia      | Cryptosporidium |
|------------------------------------------------------------|--------------|--------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |              |              |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 2.72         | 1.36         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00         | 0.00         | 0.00            |
| MF Filtration                                              | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00         | 0.00         | 0.00            |
| RO Filtration                                              | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                       | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                          | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                            | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.52         | 0.76         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 5.07         | 2.51         | 0.00            |
| <b>Total</b>                                               | <b>13.31</b> | <b>11.43</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

|                                                            | Virus       | Giardia     | Cryptosporidium |
|------------------------------------------------------------|-------------|-------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |             |             |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 0.00        | 0.00        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50        | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00        | 0.00        | 0.00            |
| MF Filtration                                              | 1.50        | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00        | 0.00        | 0.00            |
| RO Filtration                                              | 0.00        | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50        | 0.50        | 0.50            |
| 2010 SWTP Filtration                                       | 1.50        | 2.50        | 2.50            |
| Individual Filter Effluent Credit                          | 0.00        | 0.00        | 0.00            |
| Combined Filter Effluent Credit                            | 0.00        | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.37        | 0.68        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 4.57        | 2.26        | 0.00            |
| <b>Total</b>                                               | <b>9.94</b> | <b>9.74</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>    | <b>8</b>    | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 17, 2014

**12am - 8am**

|                                                            | Virus        | Giardia      | Cryptosporidium |
|------------------------------------------------------------|--------------|--------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |              |              |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 1.39         | 0.69         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00         | 0.00         | 0.00            |
| MF Filtration                                              | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00         | 0.00         | 0.00            |
| RO Filtration                                              | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                       | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                          | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                            | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.29         | 0.64         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 4.30         | 2.14         | 0.00            |
| <b>Total</b>                                               | <b>10.98</b> | <b>10.27</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

|                                                            | Virus        | Giardia      | Cryptosporidium |
|------------------------------------------------------------|--------------|--------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |              |              |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 2.62         | 1.30         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00         | 0.00         | 0.00            |
| MF Filtration                                              | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00         | 0.00         | 0.00            |
| RO Filtration                                              | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                       | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                          | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                            | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.48         | 0.74         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 4.94         | 2.45         | 0.00            |
| <b>Total</b>                                               | <b>13.04</b> | <b>11.29</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

|                                                            | Virus        | Giardia      | Cryptosporidium |
|------------------------------------------------------------|--------------|--------------|-----------------|
| <b>Process Receiving TCEQ Approved Log Removal Credits</b> |              |              |                 |
| Pipeline between RRWWTP and CWTP (DZ 1)                    | 1.55         | 0.78         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification               | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                        | 0.00         | 0.00         | 0.00            |
| MF Filtration                                              | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                     | 0.00         | 0.00         | 0.00            |
| RO Filtration                                              | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                       | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                          | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                            | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                              | 1.40         | 0.70         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5)     | 4.67         | 2.31         | 0.00            |
| <b>Total</b>                                               | <b>11.62</b> | <b>10.59</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                                | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

## Cumulative Log Removal at MAX DPR Flows (10 MGD)

May 18, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.72         | 0.85         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 0.00         | 0.00         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.00         | 0.00         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.41         | 0.70         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.71         | 2.33         | 0.00            |
| <b>Total</b>                                           | <b>11.84</b> | <b>10.68</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.24         | 0.62         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 0.00         | 0.00         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.00         | 0.00         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.46         | 0.72         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.86         | 2.41         | 0.00            |
| <b>Total</b>                                           | <b>11.56</b> | <b>10.55</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus     | Giardia      | Cryptosporidium |
|--------------------------------------------------------|-----------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.25      | 1.12         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50      | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 0.00      | 0.00         | 0.00            |
| MF Filtration                                          | 1.50      | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.00      | 0.00         | 0.00            |
| RO Filtration                                          | 0.00      | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50      | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50      | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00      | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00      | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.56      | 0.77         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.19      | 2.57         | 0.00            |
| <b>Total</b>                                           | <b>13</b> | <b>11.26</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>  | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 19, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.19         | 1.09         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 0.15         | 0.07         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.00         | 0.00         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.31         | 0.65         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.36         | 2.16         | 0.00            |
| <b>Total</b>                                           | <b>12.01</b> | <b>10.77</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.66         | 1.35         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 0.00         | 0.00         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.00         | 0.00         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.87         | 0.44         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 2.90         | 1.46         | 0.00            |
| <b>Total</b>                                           | <b>10.43</b> | <b>10.05</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.22         | 0.98         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.02         | 0.52         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.01         | 0.01         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.94         | 0.47         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 3.13         | 1.55         | 0.00            |
| <b>Total</b>                                           | <b>11.32</b> | <b>10.33</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 20, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.80         | 0.91         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.98         | 1.48         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.59         | 0.29         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 1.98         | 0.98         | 0.00            |
| <b>Total</b>                                           | <b>11.42</b> | <b>10.49</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.92         | 0.98         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.91         | 0.96         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.88         | 0.44         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 2.91         | 1.45         | 0.00            |
| <b>Total</b>                                           | <b>11.66</b> | <b>10.65</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.60         | 0.70         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.06         | 1.05         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.28         | 0.64         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.26         | 2.13         | 0.00            |
| <b>Total</b>                                           | <b>13.24</b> | <b>11.34</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 21, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.77         | 0.84        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.40         | 1.74        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08         | 0.04        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.39         | 0.69        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.61         | 2.29        | 0.00            |
| <b>Total</b>                                           | <b>15.25</b> | <b>12.4</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.36         | 0.69         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.87         | 0.95         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.48         | 0.74         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.93         | 2.45         | 0.00            |
| <b>Total</b>                                           | <b>13.67</b> | <b>11.65</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.52         | 0.70         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.96         | 0.96         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.46         | 0.73         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.85         | 2.43         | 0.00            |
| <b>Total</b>                                           | <b>13.84</b> | <b>11.64</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 22, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.18         | 0.56         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.24         | 1.14         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.47         | 0.73         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.89         | 2.43         | 0.00            |
| <b>Total</b>                                           | <b>13.83</b> | <b>11.68</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.52         | 0.70         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.70         | 0.79         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.42         | 0.71         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.74         | 2.36         | 0.00            |
| <b>Total</b>                                           | <b>13.42</b> | <b>11.38</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus       | Giardia      | Cryptosporidium |
|--------------------------------------------------------|-------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.40        | 1.12         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50        | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.64        | 1.31         | 0.00            |
| MF Filtration                                          | 1.50        | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08        | 0.04         | 0.00            |
| RO Filtration                                          | 0.00        | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50        | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50        | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00        | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00        | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.61        | 0.81         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.37        | 2.68         | 0.00            |
| <b>Total</b>                                           | <b>16.1</b> | <b>12.76</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>    | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 23, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 1.53         | 0.70         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.37         | 1.14         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.68         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.60         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>15.23</b> | <b>12.31</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.02         | 1.40         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.09         | 0.96         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.66         | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.39         | 2.72         | 0.00            |
| <b>Total</b>                                           | <b>16.21</b> | <b>12.72</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.26         | 2.16         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.38         | 1.19         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.55         | 0.77         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.14         | 2.56         | 0.00            |
| <b>Total</b>                                           | <b>17.39</b> | <b>13.51</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 24, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.12         | 1.55         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.15         | 1.07         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.56         | 0.78         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.18         | 2.58         | 0.00            |
| <b>Total</b>                                           | <b>16.06</b> | <b>12.81</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.33         | 2.70         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.52         | 1.23         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.74         | 0.88         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.80         | 2.92         | 0.00            |
| <b>Total</b>                                           | <b>19.45</b> | <b>14.56</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.50         | 2.28         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.25         | 1.13         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.53         | 0.77         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.10         | 2.55         | 0.00            |
| <b>Total</b>                                           | <b>17.42</b> | <b>13.55</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 25, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.35         | 2.17         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.68         | 1.33         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.44         | 0.71         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.79         | 2.38         | 0.00            |
| <b>Total</b>                                           | <b>17.33</b> | <b>13.42</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.70         | 2.37         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.91         | 1.49         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.66         | 0.83         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.51         | 2.78         | 0.00            |
| <b>Total</b>                                           | <b>18.85</b> | <b>14.31</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.41         | 2.22         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.52         | 1.26         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.55         | 0.77         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.14         | 2.56         | 0.00            |
| <b>Total</b>                                           | <b>17.69</b> | <b>13.64</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 26, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.73         | 1.86        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.80         | 1.40        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.04        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.54         | 0.76        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.11         | 2.54        | 0.00            |
| <b>Total</b>                                           | <b>17.25</b> | <b>13.4</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.41         | 2.22         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.37         | 1.20         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.85         | 0.93         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.16         | 3.10         | 0.00            |
| <b>Total</b>                                           | <b>18.85</b> | <b>14.28</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.31         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.90         | 1.46         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.78         | 0.90         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.92         | 2.99         | 0.00            |
| <b>Total</b>                                           | <b>18.98</b> | <b>14.29</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 27, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.75         | 1.88         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.09         | 1.53         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.09         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.32         | 0.65         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.38         | 2.18         | 0.00            |
| <b>Total</b>                                           | <b>16.63</b> | <b>13.08</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.17         | 2.64        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.88         | 1.40        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08         | 0.04        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.17         | 0.58        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 3.89         | 1.94        | 0.00            |
| <b>Total</b>                                           | <b>17.19</b> | <b>13.4</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.03         | 3.08        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.26         | 1.65        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.41         | 0.70        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.69         | 2.34        | 0.00            |
| <b>Total</b>                                           | <b>19.45</b> | <b>14.6</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 28, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.53         | 1.75         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.09         | 1.53         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.42         | 0.70         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.72         | 2.34         | 0.00            |
| <b>Total</b>                                           | <b>16.83</b> | <b>13.16</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.22         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.26         | 1.58         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.58         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.25         | 2.62         | 0.00            |
| <b>Total</b>                                           | <b>18.37</b> | <b>13.92</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 8.00         | 2.66         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.24         | 1.63         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.62         | 0.81         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.40         | 2.70         | 0.00            |
| <b>Total</b>                                           | <b>22.34</b> | <b>14.64</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 29, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.02         | 1.52         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.26         | 1.62         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.30         | 0.64         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.32         | 2.14         | 0.00            |
| <b>Total</b>                                           | <b>15.98</b> | <b>12.76</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.61         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.56         | 1.49         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.09         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.64         | 0.83         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.46         | 2.77         | 0.00            |
| <b>Total</b>                                           | <b>20.36</b> | <b>14.02</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.90         | 1.82         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.35         | 1.66         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.57         | 0.80         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.24         | 2.67         | 0.00            |
| <b>Total</b>                                           | <b>19.12</b> | <b>13.78</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 30, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.92         | 1.82         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.91         | 2.00         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.10         | 0.05         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.48         | 0.74         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.91         | 2.45         | 0.00            |
| <b>Total</b>                                           | <b>18.32</b> | <b>13.86</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.79         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.06         | 1.31         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.55         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.17         | 2.62         | 0.00            |
| <b>Total</b>                                           | <b>18.64</b> | <b>13.65</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus       | Giardia     | Cryptosporidium |
|--------------------------------------------------------|-------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.89        | 2.10        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50        | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.83        | 1.84        | 0.00            |
| MF Filtration                                          | 1.50        | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07        | 0.03        | 0.00            |
| RO Filtration                                          | 0.00        | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50        | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50        | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00        | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00        | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.83        | 0.93        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.08        | 3.10        | 0.00            |
| <b>Total</b>                                           | <b>20.7</b> | <b>14.8</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>    | <b>8</b>    | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

May 31, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.45         | 1.68         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.62         | 1.84         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.08         | 0.04         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.00         | 0.00         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.64         | 2.33         | 0.00            |
| <b>Total</b>                                           | <b>15.79</b> | <b>12.69</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.05         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.98         | 1.40         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.63         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.43         | 2.63         | 0.00            |
| <b>Total</b>                                           | <b>18.15</b> | <b>13.61</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.51         | 2.80        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.29         | 1.14        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.00         | 0.00        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.00         | 2.54        | 0.00            |
| <b>Total</b>                                           | <b>17.85</b> | <b>13.3</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 1, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.91         | 1.47         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.38         | 1.19         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.73         | 0.86         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.75         | 2.88         | 0.00            |
| <b>Total</b>                                           | <b>16.83</b> | <b>13.23</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.56         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.15         | 0.96         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.73         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.76         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>18.25</b> | <b>13.38</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.36         | 2.24         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.70         | 1.23         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.80         | 0.87         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.98         | 2.89         | 0.00            |
| <b>Total</b>                                           | <b>19.89</b> | <b>14.05</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 2, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.75         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.49         | 1.14         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.42         | 0.72         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.73         | 4.73         | 0.00            |
| <b>Total</b>                                           | <b>17.46</b> | <b>15.38</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus       | Giardia      | Cryptosporidium |
|--------------------------------------------------------|-------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.79        | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50        | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.77        | 0.79         | 0.00            |
| MF Filtration                                          | 1.50        | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06        | 0.03         | 0.00            |
| RO Filtration                                          | 0.00        | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50        | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50        | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00        | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00        | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.80        | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.98        | 2.71         | 0.00            |
| <b>Total</b>                                           | <b>18.4</b> | <b>13.25</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>    | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus       | Giardia      | Cryptosporidium |
|--------------------------------------------------------|-------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.32        | 2.24         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50        | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.13        | 0.96         | 0.00            |
| MF Filtration                                          | 1.50        | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03        | 0.02         | 0.00            |
| RO Filtration                                          | 0.00        | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50        | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50        | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00        | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00        | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.25        | 0.61         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.17        | 2.01         | 0.00            |
| <b>Total</b>                                           | <b>16.9</b> | <b>12.64</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>    | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 3, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.56         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.44         | 1.14         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.10         | 0.05         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 0.95         | 0.48         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 3.17         | 1.61         | 0.00            |
| <b>Total</b>                                           | <b>15.22</b> | <b>12.04</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.06         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.91         | 0.70         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.82         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.04         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>19.88</b> | <b>13.26</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia   | Cryptosporidium |
|--------------------------------------------------------|--------------|-----------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.24         | 2.10      | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50      | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.83         | 1.23      | 0.00            |
| MF Filtration                                          | 1.50         | 2.80      | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02      | 0.00            |
| RO Filtration                                          | 0.00         | 0.00      | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50      | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50      | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00      | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50      | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.40         | 0.66      | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.65         | 2.19      | 0.00            |
| <b>Total</b>                                           | <b>18.17</b> | <b>13</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>  | <b>5.5</b>      |

### Cumulative Log Removal at MAX DPR Flows (10 MGD)

June 4, 2014

12am - 8am

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.87         | 1.26         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.25         | 1.05         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.59         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.28         | 2.63         | 0.00            |
| <b>Total</b>                                           | <b>16.04</b> | <b>12.55</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

8am - 4pm

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.63         | 1.82         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.21         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.01         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.40         | 0.63         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.66         | 2.10         | 0.00            |
| <b>Total</b>                                           | <b>16.93</b> | <b>12.24</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

4pm - 12pm

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.14         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.26         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.40         | 0.68         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.64         | 2.28         | 0.00            |
| <b>Total</b>                                           | <b>18.48</b> | <b>12.62</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 5, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.06         | 1.54         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.83         | 0.79         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.76         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.86         | 2.63         | 0.00            |
| <b>Total</b>                                           | <b>17.56</b> | <b>12.57</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.69         | 0.98         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.73         | 0.61         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.86         | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.19         | 2.71         | 0.00            |
| <b>Total</b>                                           | <b>16.53</b> | <b>11.94</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.29         | 1.82         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.47         | 0.61         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.01         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.95         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.48         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>20.22</b> | <b>12.88</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 6, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.12         | 1.54         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.94         | 0.79         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.82         | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.06         | 2.71         | 0.00            |
| <b>Total</b>                                           | <b>17.99</b> | <b>12.68</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.98         | 1.54         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.67         | 0.61         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.82         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.04         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>17.55</b> | <b>12.61</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.55         | 2.52         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.86         | 0.79         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.82         | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.06         | 2.71         | 0.00            |
| <b>Total</b>                                           | <b>20.33</b> | <b>13.66</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 7, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.92         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.72         | 1.14         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.78         | 0.87         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.94         | 2.89         | 0.00            |
| <b>Total</b>                                           | <b>19.42</b> | <b>13.69</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 6.11         | 2.24         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.34         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.83         | 0.89         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.07         | 2.98         | 0.00            |
| <b>Total</b>                                           | <b>20.41</b> | <b>13.81</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus       | Giardia      | Cryptosporidium |
|--------------------------------------------------------|-------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.35        | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50        | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 3.03        | 1.31         | 0.00            |
| MF Filtration                                          | 1.50        | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06        | 0.02         | 0.00            |
| RO Filtration                                          | 0.00        | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50        | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50        | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00        | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00        | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 2.07        | 0.97         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.89        | 3.24         | 0.00            |
| <b>Total</b>                                           | <b>21.4</b> | <b>14.44</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>    | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 8, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.85         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.72         | 1.23         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.95         | 0.87         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.49         | 2.89         | 0.00            |
| <b>Total</b>                                           | <b>20.07</b> | <b>13.92</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.03         | 2.24         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.05         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.86         | 0.87         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.19         | 2.89         | 0.00            |
| <b>Total</b>                                           | <b>19.19</b> | <b>13.71</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.89         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.90         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.74         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.78         | 2.63         | 0.00            |
| <b>Total</b>                                           | <b>18.35</b> | <b>13.22</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 9, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.83         | 1.42         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.93         | 0.97         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.49         | 0.74         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.94         | 2.47         | 0.00            |
| <b>Total</b>                                           | <b>15.24</b> | <b>12.42</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.90         | 2.50        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.84         | 0.88        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.60         | 0.74        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.32         | 2.45        | 0.00            |
| <b>Total</b>                                           | <b>17.72</b> | <b>13.4</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.51         | 2.52         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.37         | 1.20         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.88         | 0.96         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.25         | 3.18         | 0.00            |
| <b>Total</b>                                           | <b>20.04</b> | <b>14.68</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 10, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.78         | 1.89         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.21         | 1.11         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.49         | 0.74         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 4.97         | 2.47         | 0.00            |
| <b>Total</b>                                           | <b>16.49</b> | <b>13.03</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.80         | 2.91         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.61         | 0.81         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.56         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.19         | 2.61         | 0.00            |
| <b>Total</b>                                           | <b>18.21</b> | <b>13.94</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.43         | 2.66        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.19         | 0.61        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.02        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.68         | 0.86        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.59         | 2.82        | 0.00            |
| <b>Total</b>                                           | <b>17.92</b> | <b>13.8</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 11, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.89         | 2.46         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.94         | 0.98         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.51         | 0.76         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.02         | 2.53         | 0.00            |
| <b>Total</b>                                           | <b>17.41</b> | <b>13.55</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.75         | 2.10         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.05         | 0.88         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.97         | 1.00         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.56         | 3.33         | 0.00            |
| <b>Total</b>                                           | <b>19.38</b> | <b>14.13</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 3.89         | 1.54         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.32         | 0.96         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.83         | 0.89         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.07         | 2.98         | 0.00            |
| <b>Total</b>                                           | <b>18.16</b> | <b>13.19</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 12, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.62         | 1.96         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.19         | 1.05         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.73         | 0.87         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.75         | 2.91         | 0.00            |
| <b>Total</b>                                           | <b>18.34</b> | <b>13.62</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 2.47         | 0.84         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.53         | 0.61         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.78         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.92         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>15.75</b> | <b>11.91</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.47         | 2.52         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.53         | 1.05         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.03         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.54         | 0.76         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.11         | 2.54         | 0.00            |
| <b>Total</b>                                           | <b>18.68</b> | <b>13.69</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 13, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia     | Cryptosporidium |
|--------------------------------------------------------|--------------|-------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 4.50         | 2.10        | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50        | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.03         | 0.96        | 0.00            |
| MF Filtration                                          | 1.50         | 2.80        | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02        | 0.00            |
| RO Filtration                                          | 0.00         | 0.00        | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50        | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50        | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00        | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50        | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.57         | 0.79        | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.21         | 2.63        | 0.00            |
| <b>Total</b>                                           | <b>17.35</b> | <b>13.3</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>    | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 7.13         | 2.94         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 1.46         | 0.61         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.79         | 0.84         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.96         | 2.80         | 0.00            |
| <b>Total</b>                                           | <b>20.38</b> | <b>14.01</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.82         | 2.52         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.64         | 1.31         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.04         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.82         | 0.82         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 6.06         | 2.71         | 0.00            |
| <b>Total</b>                                           | <b>20.38</b> | <b>14.18</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

# **Cumulative Log Removal at MAX DPR Flows (10 MGD)**

June 14, 2014

**12am - 8am**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.31         | 2.38         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.68         | 1.23         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.07         | 0.03         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.50         | 0.76         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.00         | 2.54         | 0.00            |
| <b>Total</b>                                           | <b>18.56</b> | <b>13.74</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**8am - 4pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia      | Cryptosporidium |
|--------------------------------------------------------|--------------|--------------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.73         | 2.38         | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50         | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.30         | 1.05         | 0.00            |
| MF Filtration                                          | 1.50         | 2.80         | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.05         | 0.02         | 0.00            |
| RO Filtration                                          | 0.00         | 0.00         | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50         | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50         | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00         | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50         | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.68         | 0.79         | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.59         | 2.63         | 0.00            |
| <b>Total</b>                                           | <b>19.35</b> | <b>13.67</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>     | <b>5.5</b>      |

**4pm - 12pm**

| Process Receiving TCEQ Approved Log Removal Credits    | Virus        | Giardia   | Cryptosporidium |
|--------------------------------------------------------|--------------|-----------|-----------------|
| Pipeline between RRWWTP and CWTP (DZ 1)                | 5.86         | 2.52      | 0.00            |
| MF/RO Coagulation/Flocculation/Clarification           | 0.50         | 0.50      | 0.50            |
| MF/RO Clarifier Disinfection (DZ 2)                    | 2.52         | 1.23      | 0.00            |
| MF Filtration                                          | 1.50         | 2.80      | 2.80            |
| MF Disinfection (DZ 3)                                 | 0.06         | 0.03      | 0.00            |
| RO Filtration                                          | 0.00         | 0.00      | 0.00            |
| 2010 SWTP Coagulation/Flocculation/Clarification       | 0.50         | 0.50      | 0.50            |
| 2010 SWTP Filtration                                   | 1.50         | 2.50      | 2.50            |
| Individual Filter Effluent Credit                      | 0.00         | 0.00      | 0.00            |
| Combined Filter Effluent Credit                        | 0.00         | 0.50      | 0.50            |
| 2010 SWTP Disinfection (DZ 4)                          | 1.64         | 0.79      | 0.00            |
| 2010 Clearwell/Ground Storage Tank Disinfection (DZ 5) | 5.47         | 2.63      | 0.00            |
| <b>Total</b>                                           | <b>19.55</b> | <b>14</b> | <b>6.8</b>      |
| <b>Log Removal Required</b>                            | <b>9</b>     | <b>8</b>  | <b>5.5</b>      |