

Oregon DHS - Drinking Water Services – Turbidity Monitoring Report Form

| | | |
|--|---------------------|-------------------------------|
| System Name: London Water Co-Op | ID# 41 00239 | Month/Year: Sep / 2024 |
|--|---------------------|-------------------------------|

| DAY | 12:00 AM (NTU) | 4:00 AM (NTU) | 8:00 AM (NTU) | NOON (NTU) | 4:00 PM (NTU) | 8:00 PM (NTU) | Highest Reading of the Day ¹ (NTU) | Peak Hourly Demand Flow (GPM) |
|-----|-------------------|------------------|------------------|---------------|------------------|------------------|--|----------------------------------|
| 1 | off | | | | | | | 7.5 |
| 2 | | | | | 0.067 | 0.044 | 0.221 | 8.5 |
| 3 | 0.037 | 0.032 | 0.033 | 0.033 | | | 0.043 | 9 |
| 4 | off | | | | | | | 7.5 |
| 5 | off | | | | | | | 9 |
| 6 | | | | | 0.077 | 0.052 | 0.104 | 5.5 |
| 7 | 0.047 | 0.04 | 0.045 | 0.044 | | | 0.117 | 8.5 |
| 8 | off | | | | | | | 9 |
| 9 | off | | | | | | | 6 |
| 10 | | | | | 0.08 | 0.052 | 0.118 | 9.5 |
| 11 | 0.054 | 0.036 | 0.166 | 0.211 | | | 0.212 | 7 |
| 12 | off | | | | | | | 8 |
| 13 | off | | | | | | | 8.5 |
| 14 | off | | | | | | | 8.5 |
| 15 | | | | | 0.095 | 0.065 | 0.123 | 8 |
| 16 | 0.053 | 0.043 | 0.038 | 0.037 | 0.037 | | 0.064 | 5.5 |
| 17 | off | | | | | | | 5.5 |
| 18 | off | | | | | | | 6.5 |
| 19 | off | | | | | | | 5.5 |
| 20 | | | | | 0.093 | 0.053 | 0.101 | 6 |
| 21 | 0.052 | 0.052 | 0.026 | 0.028 | 0.029 | 0.027 | 0.052 | 5.5 |
| 22 | 0.026 | 0.024 | | | | | 0.028 | 6.5 |
| 23 | off | | | | | | | 6 |
| 24 | off | | | | | | | 5.5 |
| 25 | off | | | | | | | 5 |
| 26 | | | | | 0.034 | 0.058 | 0.179 | 5 |
| 27 | 0.048 | 0.039 | 0.034 | 0.033 | | | 0.057 | 5 |
| 28 | off | | | | | | | 8.5 |
| 29 | off | | | | | | | 6.5 |
| 30 | off | | | | | | | 6 |
| 31 | | | | | | | | |

| | |
|--|--|
| <p>Conventional or Direct Filtration Monthly Summary</p> <p>95% of the 4-hour turbidity readings ≤ 0.3 NTU? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>All the 4-hour turbidity readings < 1 NTU? <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>All turbidity readings < IFE triggers? ² <input type="radio"/> Yes / <input checked="" type="radio"/> No</p> | <p>Monthly UV Summary (Circle Yes or No)</p> <p style="text-align: center;">Is any off-spec water produced in the month?</p> <p style="text-align: center;">Yes / <input checked="" type="radio"/> No</p> |
| - OR - | <p>PRINTED NAME: Eric Vortriede</p> |
| <p>Slow Sand/Cartridge/Membrane/DE Filtration</p> <p>95% of turbidity readings ≤ 1 NTU? <input type="radio"/> Yes / <input type="radio"/> No</p> <p>All turbidity readings < 5 NTU? <input type="radio"/> Yes / <input type="radio"/> No</p> | <p>SIGNATURE: </p> <p>DATE: 10/2/2024</p> <p>PHONE #: (541) 450-9536</p> <p>CERT #: S-528676</p> |
| <p>Is there 4-log virus inactivation provided with <input checked="" type="checkbox"/> Chlorine; <input type="checkbox"/> Other UV <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> | <p>CT_{Viral}: Required = _____</p> <p style="text-align: right;">Achieved = _____</p> |

¹ Including continuous NTU data, if applicable, for optimization recording purposes


² IFE = Individual Filter Effluent

Oregon DHS - Drinking Water Services – Surface Water Quality Data

System Name: London Water Co-Op ID# 41 00239 Month/Year: Sep / 2024
 Minimum UVT [%] during month: _____ Duty sensor variation from reference sensor %: _____ 0
 Minimum Validated UVT : {Insert Req'd Value}

| Date | Peak Hourly Demand Flow | Minimum Intensity | All Lamps On? | Daily Water Produced {A} | Water outside Validated Conditions {B} | Cumulative % Off-Spec Water Produced |
|---|-------------------------|------------------------------------|---------------|--------------------------|--|---|
| | [gpm/unit] | [^{mW} /cm ²] | [Y or N] | [gal] | [gal] | (Mo. Sum {B}) ÷ (Mo. Sum {A}) * 100 [%] |
| 1 | | | | | | 0 |
| 2 | 13.5 | 212 | Y | 6505 | 0 | |
| 3 | 14.1 | 216 | Y | 11901 | 0 | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | 15 | 216 | Y | 5556 | 0 | |
| 7 | 14 | 210 | Y | 12620 | 0 | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | 14 | 213 | Y | 5898 | 0 | |
| 11 | 14.8 | 216 | Y | 12446 | 0 | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | 13.7 | 211 | Y | 6603 | 0 | |
| 16 | 14.7 | 212 | Y | 15894 | 0 | |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | 2.05 | 216 | Y | 740 | 0 | |
| 21 | 15 | 210 | Y | 14358 | 0 | |
| 22 | 9.15 | 213 | Y | 3294 | 0 | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
| 26 | 13.7 | 215 | Y | 4955 | 0 | |
| 27 | 15 | 215 | Y | 13988 | 0 | |
| 28 | | | | | | |
| 29 | | | | | | |
| 30 | | | | | | |
| 31 | | | | | | |
| Monthly Cumulative % Off-Spec Water Produced | | | | | | |

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Signature: 

Op Cert #: S-528676

Date: 10/2/2024

Notes on How to Fill out the UV Monthly Reporting Form

1. Minimum UVT [%]

UV Transmittance (UVT) is the percent transmittance of a beam of UV light as it passes through a medium over a path length of 1 cm. UVT must be monitored at least monthly to verify operation within the validated range. For as long as the UVT measurement is below the Minimum Validated UVT value, the UV unit is producing off-spec water. That off-spec volume must be calculated to the best of the operator's ability and recorded. DWS recommends UVT be checked daily or at least multiple times in a month. { UVDGM p. 3-14 }

2. Sensor Calibration Variance from Reference Sensor [%] (< 20% req'd, <10% rec'd)

The duty sensor calibration must be checked monthly against a reference sensor. The duty sensor result must be within 20% of the reference sensor's intensity reading. Otherwise, the UV unit is producing off-spec water, and that volume must be calculated to the best of the operator's ability and recorded in the appropriate column above. If the calibration is checked daily or multiple times in a month, report the maximum variance in that blank. Use sensor calibration form. { calibration procedure: UVDGM p. 6-25 }

3. Peak Hourly Demand Flow [gpm/unit]

Every UV unit has an operating diagram that balances flowrate against UV intensity and UVT. Peak hourly flowrate is defined in the plan review approval letter (and in the validation verification form for the unit). There must be a flow restrictor upstream of the UV unit or the peak flowrate must be monitored closely to assure it does not exceed the approved flowrate long enough to produce more than 5% off-spec water for the month. { OAR 333-061-0036(5)(c)(D)(iii) }

4. Minimum Intensity [m^W/cm^2]

UV intensity is a primary measurement by which proper operation is determined, and thereby the target pathogens' log-inactivation. DWS recommends recording UV intensity at least every 4 hours. The day's lowest reading is required above.

{ monitoring: UVDGM p. 6-33. low intensity decision tree: p. 6-49 }

5. Minimum Dose [m^J/cm^2]

The top of Page 2 should indicate the intended minimum dose to achieve desired log inactivation. Record the daily minimum dose in the column. This parameter, while not required, can simplify identifying potential off-spec operation.

6. Cumulative % Off-Spec Water Produced [%]

This important measurement defines compliance. PWS's must monitor each reactor to assure parameters are within validated conditions. Off-spec water produced must be calculated whenever the UV reactor operates outside its operating diagram defined in the plan review letter. In addition to water produced at too low an intensity, any water produced before the unit reaches steady-state intensity reading is considered off-spec and the volume calculated. Cumulative % off-spec water produced is calculated: { UVDGM p. 6-31 }

(monthly sum of off-spec water produced)

x 100 = Cum. % Off-Spec Water

(monthly sum of daily water produced)

7. Determine how 4-log virus inactivation is achieved.

If using chemical disinfection – as opposed to UV – to achieve required 4-log viral inactivation, use the viral CT tables for your particular disinfectant. As a common example, the required viral CT for chlorine is 12. Check with your regional engineer for specific cases.

If more than one UV unit/reactor is used, input the most conservative values in the form above. If you need other consultation with this form, please call Pete Farrelly, 971.673.0462.

This form is not available from the DWS website. Work with your DWS regional staff to help with your form.