COUNTY: _____

Oregon OHA - Drinking Water Services – Turbidity Monitoring Report Form

System Name: **ID #: 41** **WTP:** **Month/Year:**

DAY	12 AM [NTU]	4 AM [NTU]	8 AM [NTU]	NOON [NTU]	4 PM [NTU]	8 PM [NTU]	Highest Reading of the Day [1] [NTU]	Peak Hourly Demand Flow [GPM]
1								
2								
3								
4								
5								
6								
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31								

Conventional or Direct Filtration	**Monthly UV Summary (Circle Yes or No)**	
95% of the 4-hour turbidity readings ≤ 0.3 NTU? **Yes / No** All the 4-hour turbidity readings < 1 NTU? **Yes / No** All turbidity readings < IFE triggers? **Yes / No** [2]	Is the volume of off-spec water produced less than 5% in the month? **Yes / No**	
- OR -	**PRINTED NAME:**	
Slow Sand/Cartridge/Membrane/DE Filtration	**SIGNATURE:**	**DATE:**
95% of turbidity readings ≤ 1 NTU? **Yes / No** All turbidity readings < 5 NTU? **Yes / No**	**PHONE #: ( )**	**CERT #:**
Is there 4-log virus inactivation provided with ☐Chlorine; ☐Other _____ Yes / No		**CT_{Viral}: Required =** **Achieved =**

[1] Including continuous turbidity data, if applicable, for optimization recording purposes. Compliance values in columns "12 AM" through "8 PM" may not correspond to continuous readings' maximum. [2] IFE = Individual Filter Effluent. (OAR 333-061-0040(1)(e)(B&C))

COUNTY: _____

Oregon OHA - Drinking Water Services – Surface Water Quality Data

System Name: _____ **PWS ID#: 41**_____ **Month/Year:**_____

Minimum UVT [%] during month: _____ Duty sensor variation from reference sensor: _____ %

Minimum Validated UVT : {Insert Req'd Value} Min. UV Dose achieved/intended this month: ____ / ____ $^{mJ}/_{cm^2}$

Date	Peak Hourly Demand Flow	Minimum Intensity	Minimum Dose	All Lamps On?	Daily Water Produced **{A}**	Water outside Validated Conditions **{B}**	**Cumulative % Off-Spec Water Produced**
	$[^{gpm}/_{unit}]$	$[^{mW}/_{cm^2}]$	$[^{mJ}/_{cm^2}]$	[Y or N]	[gal]	[gal]	**(Mo. Sum {B}) ÷ (Mo. Sum {A}) * 100 [%]**
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31							
	Monthly Cumulative % Off-Spec Water Produced						

Signature: _____ Op Cert #: _____ Date: _____

COUNTY: _____

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% required, <10% recommended)***
   The duty sensor calibration must be checked at least 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 must be recorded above. Use sensor calibration form.
   { see calibration procedure: UVDGM p. 6-25 }

3. **Peak Hourly Demand Flow [gpm/unit]**
   Every UV unit has an operating diagram that correlates flowrate against UV intensity and UVT. There must be a flow restrictor upstream of the UV unit **or** it must be monitored to prevent producing 5% off-spec water for the month. { OAR 333-061-0036(5)(c)(D)(iii) }

4. **Minimum Intensity [$^{mW}/_{cm^2}$]**
   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 [$^{mJ}/_{cm^2}$]**
   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 unit 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 }

$$\frac{\text{(monthly sum of off-spec water produced)}}{\text{(monthly sum of daily water produced)}} \times 100 = \text{Cumulative \% Off-Spec Water}$$

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.

Due to its site-specific nature, this form cannot be downloaded. Work with DWS staff to adapt the form to your water system.