Monthly Operating Report Instructions for Surface Water Systems

Public Water Systems supplied by surface water sources, and groundwater under the direct influence of surface water sources, are required by Subparts H, P, T and W of 40 C.F.R. Part 141 to submit Monthly Operating Reports. These forms were last updated in 2010 to simplify reporting, and to address frequent misunderstandings. In addition, new forms were developed in 2010 for systems using membrane filtration and Ultraviolet Disinfection, to meet the requirements of the LT2ESWTR (Subpart W).

INSTRUCTIONS FOR ALL TYPES OF FILTRATION:

For **combined filter effluent (CFE) reporting:** turbidity of representative samples of the filtered water must be reported at least once every 4 hours that the plant is producing water for the public. This should be measured as close to the combined filter effluent as possible, rather than downstream after clearwells. Specifically:

- For plants that **operate 24/7**, report CFE readings at the same 4-hour intervals each day (e.g. 12:00 am, 4:00 am, 8:00 a.m., 12:00 p.m., and so on).

- For plants that **operate continuously but only for part of the day (at least 4 hours)**, time begins (t=0) when the filtration system starts discharging to the clearwell (or contact tank). Report the CFE any time during the first 4 hours of operation, and then every subsequent 4 hours from the initial CFE sample. Once the plant stops discharging to the clearwell, you do not need to take readings until it starts back up.

- If the plant **operates intermittently for less than 4 hours at a time**, you should report the CFE turbidity values near the end of each operating period, at least once every 4 hours of the operating day. (If the plant operates intermittently all day, readings should be reported up to 6 times, spaced throughout the plant operating day.)

- PLEASE **mark "PO" for those readings where the plant is off** on the reporting sheet (page 2).

- EPA is not requiring you to report the TIME associated with each reading, just report the CFE turbidity of representative samples at least once every 4 hours. (Your plant records must show times correlating to readings.)

- The last column on page 2 asks for the daily **maximum** CFE turbidity. This should be the maximum turbidity measured **any time** of the day that your plant was discharging water to the clearwell for the public consumption. Do **not** just report the maximum of your 4 hour readings. If the high reading is a spike due to entrained air or startup of filter, explain the cause and duration on the report.

- When calculating compliance with the 95% percentile (typically 0.3 or 1 NTU), use **rounding** conventions. Based on rounding rules, only values of 0.35 NTU or higher exceed 0.3 NTU, and values of 1.5 and higher exceed 1 NTU.

- **Highest single CFE turbidity reading:** If the highest value each day exceeds your limit (typically 1 NTU or 5 NTU) you must notify EPA as soon as possible, but within 24 hours. (303-312-6525, 1-800-227-8917 ext. 312-6525, or leave a message at 303-312-6327). Please also report this information on page 1 of the reports.

- **Systems serving populations <500** are allowed to sample and report CFE turbidity once/day for compliance purposes with the 95% percentile limit. However, certain filtration types still require continuous monitoring of individual filter turbidities to ensure proper filter operation (i.e. conventional and direct, membrane filtration for LT2 compliance), so these systems are encouraged to report CFE turbidity at least once every 4 hours of operation.

INSTRUCTIONS FOR ENTRY POINT RESIDUAL DISINFECTANT

- Residual Disinfectant (e.g. chlorine) residual must be monitored at the point of entry (POE) to the distribution system (before water is consumed) and not be less than 0.2 mg/L. If the residual drops below 0.2 mg/L, you must notify EPA as soon as possible, but within 24 hours. You must also notify us whether it is restored within 4 hours. (303-312-6525, 1-800-227-8917 ext. 312-6525, or leave a message at 303-312-6327). Please also report this information on page 1 of the reports.

- The POE residual disinfectant must be monitored continuously, and the lowest value each day recorded on page 1. Grab samples are allowed for systems serving 3300 or fewer persons; the number/day depends upon population.

INSTRUCTIONS FOR DISTRIBUTION SYSTEM DISINFECTANT RESIDUAL

The SWTR Subpart H requires that disinfectant residual be measured at least at the same points in the distribution system and at the same time that total coliforms are sampled (BACT sampling under the Revised Total Coliform Rule). Please continue to record these residual values on your RTCR laboratory slips and request that the labs submit those results to EPA. Disinfectant residual cannot be undetectable in more than 5% of the samples each month, for two consecutive months. Please report the number of samples each month that you measured for disinfectant residual, and the number of samples where no residual was detected. If you use measurement of heterotrophic bacteria instead to document adequate residual, please contact EPA.

INSTRUCTIONS FOR MEMBRANE FILTRATION

Membrane filtration is credited by EPA with higher removals of *Giardia* and *Cryptosporidium* than other types of filtration, for purposes of compliance with the original SWTR and LT2SWTR. In addition to meeting the compliance limits for the CFE turbidity, in order to document the integrity of the membranes each month additional monitoring and reporting is required:

- The individual membrane unit data sheet (page 3 of the membrane monthly operating report) is used to document that the Direct Integrity (DI) test was performed as required (once every 24 hours each day of operation, plus after the membrane unit is offline for chemical cleaning or repairs), and was within the control limits (integrity intact) when the membrane is back online producing drinking water.

- Turbidity is used as a continuous indirect measure of integrity, and DI testing should be performed if turbidity of filtered water discharging to the clearwell (contact tank) exceeds 0.15 NTU for more than 15 minutes.

- Corrective actions (repairs or replacements) should be documented for times when the DI test is not successful.

INSTRUCTIONS FOR ULTRAVIOLET DISINFECTION

When ultraviolet (UV) disinfection is credited by EPA with inactivation of *Cryptosporidium* and *Giardia* for purposes of compliance with the original SWTR and LT2SWTR, monitoring and reporting is required. In order to achieve inactivation credits for compliance, at least 95% of the water delivered to the public during each month must be treated by UV reactor(s) operating within validated conditions for the required UV dose.

- Small UV systems (generally < 40 gpm) use the single reporting page to indicate the UV status each day (lamps on, UV intensity adequate, flow rate not exceeding maximum flow rate for the unit). The system should not produce off-spec water more than 1 day per month (more than 5%). Off-spec water occurs if the lamps are in failure/alarm, the UV intensity is too low, the UV unit is turned off or bypassed, or the maximum flow rate is exceeded.

- Larger UV systems use a set of customized reporting forms to document compliance with the UV requirements. Monitoring will depend upon the validation strategy of the UV reactor and the compliance monitoring strategy to document that actual validated UV dose meets the required dose (intensity setpoint or calculated dosage strategies). Monitoring and reporting includes maximum flow rates, UV intensity, lamp status, UV Transmittance (if required), total water production, and calibration status of UV intensity sensors.