

January 2004

## Requirements for Conducting an Individual Filter Self-Assessment as Required by the Interim Enhanced and Long Term 1 Enhanced Surface Water Treatment Rules

### What is an Individual Filter Self-Assessment (IFSA)?

An IFSA is an evaluation of the design and condition of a filter to determine the reliability of a filter's performance. The IFSA includes the following components: development of a filter profile; determination of hydraulic loading conditions; evaluation of actual condition and placement of the media; description of backwash practices; evaluation of condition of the support media/ underdrains; and determining the condition and operation of filter rate-of-flow controllers and filter valving.

### When is an IFSA required?

A public water system that uses a surface water source, regardless of population, must perform an IFSA if the measured turbidity level of any individual filter effluent exceeds 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months. **This is referred to as an individual filter event.** This type of individual filter event requires an IFSA to be conducted.

Public water systems using a surface water source which serve a population of less than 10,000 and which have two filters, have the option of monitoring the combined filter effluent in lieu of the individual filter effluent. In this case, if the combined filter effluent exceeds 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the water system must conduct an IFSA on both filters.

### What is the time line for completing an IFSA report?

The public water system must report that an individual filter event has occurred, must conduct an IFSA within 14 days of the event, must complete and submit an IFSA report, and must report that an IFSA has been conducted.

The individual filter event must be reported on Ohio EPA 5109-A form (for public water systems serving a combined population of at least 10,000) or Ohio EPA 5109-B form (for public water systems serving a combined population of less than 10,000) and must be submitted to the Ohio EPA district office by the tenth day of the following month in which the event occurs. The public water system must also submit two copies of an IFSA report to the Ohio EPA district office by the 10th day of the month following the month in which the 14 day deadline occurs. For example, if the individual filter event occurs on the 7th day of the month, the 14 day deadline will occur in the same month and both reporting items will be reported on the same Ohio EPA reporting form. If the individual filter event occurs on the 21st day of the month, the event information and the confirmation that the IFSA was conducted will be reported on separate Ohio EPA reporting forms.

### What are the minimum requirements for conducting an IFSA and completing an IFSA report?

1. The IFSA must be conducted in accordance with Chapter 5 of the *Guidance Manual for Compliance with the Interim Enhanced*

*Surface Water Treatment Rule: Turbidity Provisions* (EPA 815-R-99-010). April 1999. The IFSA report must include a completed individual filter self-assessment worksheet which can be found in Chapter 5 (Table 5-1) of the manual.

A copy of the guidance manual can be obtained by contacting the USEPA's National Center for Environmental Publications and Information at (800) 490-9198, or the USEPA Safe Drinking Water Hotline at (800) 426-4791 or can be downloaded from the following web site:

2. Conduct media sieve analysis (effective size and uniformity coefficient) in accordance with standard ASTM C136.
3. Conduct media acid solubility analysis to assess media growth (% weight loss) in accordance with standard AWWA B100-96.
4. Conduct solids retention study - This special study involves removing media samples from different areas and depths in a filter and evaluating the amount of solids that remain attached to the filter media. The procedure for conducting a solids retention study is described in the following reference: Pizzi, Nick. 1998. *"Maintaining Filters: Part III of a Series-Filter Coring."* Ohio Section AWWA Summer 1998 Newsletter.
5. Complete a filter profile - After backwashing the individual filter, turbidity samples should be taken from the filter effluent immediately



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after placing the filter back in operation. Turbidity samples should be taken once every minute for the first 15 minutes, then once every five minutes for the next 30 minutes, and then once every 10 minutes for the next 20 minutes. This process should result in 23 turbidity samples which should be plotted on a graph to illustrate a filter profile.

6. Conduct a backwash waste turbidity profile - While the individual filter is being backwashed, turbidity samples should be taken from the backwash waste stream. Turbidity samples should be taken once per minute for the entire duration of the backwash cycle. The turbidity values versus time should be plotted on a graph to illustrate a backwash waste turbidity profile.

- “*American Water Works Association (AWWA) Self Assessment for Surface Water Treatment Plant Optimization*” (1P-8C-90736-12/97-CM).
- *Filter Inspection Workshop*, Operator Training Committee of Ohio (OTCO).

Copies of the *Filter Inspection Workshop* document can be requested from the Operator Training Committee of Ohio at (614) 268-6826. Copies of the Ohio Section AWWA Newsletter articles can be obtained by contacting the Ohio EPA District Office or can be downloaded from the following web site: [www.epa.state.oh.us/ddagw/pubs.html#factsht](http://www.epa.state.oh.us/ddagw/pubs.html#factsht). For questions or additional information regarding Individual Filter Self-Assessments, please contact the appropriate Ohio EPA district office drinking water unit.

### Additional References:

- Pizzi, Nick. 1997. “*Maintaining Filters: Part I of a Series-Bed Depth.*” Ohio Section AWWA Winter 1997 Newsletter.
- Pizzi, Nick. 1998. “*Maintaining Filters: Part II of a Series-Bed Expansion.*” Ohio Section AWWA Spring 1998 Newsletter.
- Wolfe, Tim. 1998. “*Maintaining Filters: Part IV of a Series-Backwashing.*” Ohio Section AWWA Winter 1998 Newsletter.
- Pizzi, Nick. 1999. “*Final in the Filtration Series-Achieving balance.*” Ohio Section AWWA Spring 1999 Newsletter.

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