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Standard Guide for Recordkeeping Microfiltration and Ultrafiltration Systems¹

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1. Scope

1.1 This guide covers procedures for well-defined recordkeeping of microfiltration (MF) and ultrafiltration (UF) systems.

1.2 This guide includes a start-up report, recordkeeping of MF/UF operating data, recordkeeping of pretreatment operating data, and a maintenance log.

1.3 This guide is applicable to waters including surface water, ground water and some wastewater (secondary effluent) but is not applicable to membrane bioreactors or process streams.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

D1125 Test Methods for Electrical Conductivity and Resistivity of Water

D1129 Terminology Relating to Water

D1253 Test Method for Residual Chlorine in Water

D4195 Guide for Water Analysis for Reverse Osmosis and Nanofiltration Application

D5090 Practice for Standardizing Ultrafiltration Permeate Flow Performance Data

D6161 Terminology Used for Microfiltration, Ultrafiltration, Nanofiltration and Reverse Osmosis Membrane Processes

D6698 Test Method for On-Line Measurement of Turbidity Below 5 NTU in Water

D6908 Practice for Integrity Testing of Water Filtration Membrane Systems

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, refer to Terminologies D1129 and D6161.

3.2 *Definitions of Terms Specific to This Standard*—For description of terms relating to MF/UF, refer to Practice D5090.

4. Significance and Use

4.1 Proper operation and maintenance of an MF or UF system are key factors in obtaining successful performance. This guide provides the necessary input for the evaluation of the performance of the MF/UF system, the pretreatment system, and the mechanical equipment in the plant.

4.2 This guide is for general guidance only and must not be used in place of the operating manual for a particular plant.

4.3 Site-dependent factors prevent specific recommendations for all recordkeeping. Thus, only the more general recordkeeping is covered by this guide.

4.4 This guide can be used for both surface and ground water and systems which contain either spiral-wound or hollow-fiber devices.

5. Procedure

5.1 Start-Up Report:

5.1.1 Provide a complete description of the plant. This can be done by using a flow diagram and equipment, instrumentation, and material lists to show water source, pretreatment system, configuration, and posttreatment system.

5.1.2 Record initial performance of pretreatment systems as provided in 5.2 and 5.3, respectively.

5.1.3 Calibrate all gauges and meters based on manufacturers' recommendations.

5.2 MF/UF Operating Data:

5.2.1 Record the permeate and reject volume or flow rate from the system.

5.2.2 Record the feed, permeate, and transmembrane pressures of each skid as applicable.

5.2.3 Record the water temperature of the feed or permeate stream.

¹ This guide is under the jurisdiction of ASTM Committee D19 on Water and is the direct responsibility of Subcommittee D19.08 on Membranes and Ion Exchange Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.