September 11, 2023

Filter Purging Guide

Background

MEDEP has noted that some filter systems yield unpredictable sample data in the "Between" and "After" sample ports. Specifically, when a filter system is new, we have observed unusually high detections when we should not be seeing breakthrough based on influent concentrations and/or operating time. Often these detections are driven by PFOS (perfluorooctane sulfonic acid) and at times, concentrations increase through the system from untreated -> Between -> After samples. 3M phased out PFDS, PFOS, and PFHxS by 2008, and at the time of their phaseout, 3M manufactured approximately 85% of the long-chain PFAS in commerce. After the 3M phaseout other countries continued to use PFOS and related PFAS. (ITRC 2021) Despite the expectation that PFOS would be removed from current commercial products in the United States, MEDEP has limited data indicating that some sample port components may contribute PFOS or other PFAS to filter water samples. To reduce the potential for this to affect sample data, and to reduce resources spent on problem solving and unnecessary media changeouts, the following sample procedure is recommended:

Field Procedure

- The kitchen or household tap will be purged for 10 minutes prior to sampling filter systems. The additional purge of AFTER and BETWEEN ports can be completed at the same time as the "whole system" purge.
- When collecting filter system samples:
    - Purge 3 (THREE) gallons from the After tap prior to sampling with no adjustment of the valve before filling bottles.
    - Purge 3 (THREE) gallons from the Between tap prior to sampling with no adjustment of the valve before filling bottles.
    - No extended purge for the Before sample.
      The additional purging should reduce or prevent impacts of filter system components on the data.

- Note volumes purged on sample forms.
- The After and Between taps may be purged at the same time BUT SAMPLING MUST STILL BE AFTER FIRST, THEN BETWEEN, THEN BEFORE (CLEAN TO DIRTY). New gloves are required if samplers handle the Between purge water prior to sampling the After tap.
- When collecting filter samples to evaluate if treatment may be discontinued, the Before/Influent sample port must also be purged for 3 gallons prior to collecting the sample.

SAMPLING DETAILS (Suggested/Optional Step-by-Step)

Equipment: bottles, gloves, 2 buckets, clamps, HDPE and silicone tubing, tubing cutters, paper towels

- Initiate purge at kitchen/bathroom/household cold water tap (start 10-minute clock);
- If tubing from AFTER and BETWEEN ports is too short to reach a bucket on the floor – install a longer section of HDPE tubing or perhaps use a silicone "union" to attach an extension piece of HDPE;
- Secure AFTER and BETWEEN tubing to their own 5-gal bucket using vice-grip pliers, spring clamps or prefab buckets with a ¼" hole near the top with a rubber gasket to hold tubing;
- Initiate purge of AFTER port at a moderate flow rate;
- Initiate purge of BETWEEN port at a moderate flow rate;
- Time and Date bottles, complete field form, get totalizer and electrical meter readings;
- Collect AFTER sample when purge hits 3 gals, ***DO NOT ADJUST FLOW RATE***;
- Collect BETWEEN sample when purge hits 3 gals, ***DO NOT ADJUST FLOW RATE***;
- Collect BEFORE sample after sufficient purging to flush tubing.

This additional purging does NOT replace the household system purge at a kitchen/bathroom/outside tap that is part of standard procedures. These procedures may be revised as additional data are available.

Secure tubing setup: