December 15, 2008

Office of Water Quality Water-Quality Information Note 2009.03

Subject: Field Methods—Clarification of Capsule-Filter Rinse Procedures

Water-Quality Information Note (WaQI Note) 2009.02, issued on December 12, 2008, described procedures for rinsing Whatman capsule filters before collecting sample filtrate for analysis of trace elements, major ions, nutrients, and dissolved organic carbon (DOC). **The purpose of this WaQI Note is to further clarify the prescribed rinse procedures needed to prepare capsule filters for use.** The capsule-filter rinse procedures are based on quality-assurance test results run by the National Water Quality Laboratory on the current lot (lot number V333) of Whatman capsule filters.

(1) Trace elements and major ions (FA, FAM, and FU samples)—The capsule-filter rinse requires 1 liter (L) of ASTM Type 1 deionized water (DIW) or Inorganic-grade Blank Water (IBW) followed by 25 milliliters (mL) of environmental sample water. (Use IBW only when collecting blank samples for trace-element and major-ion analyses.) For environmental samples:

a. First pump 1 L of ASTM Type 1 DIW or IBW through the capsule filter.
b. After this rinse, remove as much of the DIW / IBW as possible from the filter medium.
c. Pump no more than 25 mL of sample water through the capsule filter. This 25 mL of sample water is used to field rinse the first sample (FA) bottle.
d. Pump the next 200 mL into the FA bottle.
e. If collecting an FAM sample, repeat the 25-mL bottle rinse and collect 200 mL into the FAM bottle.
f. Collect the FU sample(s) and any remaining samples for inorganic analyses following the sample procedure; that is, rinse sample bottles with 25 mL of sample and fill sample bottles to the shoulder (approximately 200 mL of sample per bottle), or as directed in Chapter A5 of the *National Field Manual*.

(2) Nutrients (FCC, FCA samples)—The capsule-filter rinse requires a combined total of about 2 L of IBW or ASTM Type 1 DIW and sample water before filling the FCC or FCA bottle(s) with filtrate. (Use only IBW

when collecting blank samples for nutrient analysis.) For environmental samples:

a. If collecting the nutrient sample after a set of trace-element and major-ion samples were collected through the capsule filter, ensure that at least 1 L of IBW / DIW and 750 mL of the environmental sample passed through the filter before collecting filtrate for nutrient analyses.
b. If the nutrient sample is the first or only sample to be collected, pump approximately 1,750 mL of IBW / DIW through the capsule filter followed by about at least 200 mL of environmental sample to clean the filter and field-rinse the bottle(s) before filling the 125-mL FCC or FCA bottle.

(3) Dissolved Organic Carbon (DOC sample)—The capsule-filter rinse requires a combined total of 3 L of water and environmental-sample water, as described below, before the DOC bottle is filled with sample filtrate. Do not field-rinse the DOC bottle. (Use only Pesticide-grade Blank Water (PBW) or Volatile/Pesticide-grade Blank Water (VPBW) when collecting blank samples for DOC analysis.) For environmental samples:

a. If collecting the DOC sample after a set of trace-element, major-ion, nutrient, and (or) other inorganic-constituent samples were collected through the capsule filter, then follow the capsule-filter rinse procedures described in (1) and (2) above, as appropriate, but be sure to pass at least 2 L of the environmental sample through the filter before collecting the filtrate for DOC analysis.
b. If collecting the DOC sample only, then pump at least 2 L of PBW, or other carbon-filter polished ASTM Type 1 water certified as organic-grade deionized water through the capsule filter followed by at least 1 L of the environmental sample before collecting filtrate for DOC analysis.

If you have questions about this or related WaQI Notes, please contact fwilde@usgs.gov.

This WaQI Note supersedes those sections of WaQI Note 2009-02 that specifically pertain to the capsule-filter rinse procedures described when collecting filtered trace-element and major-ion, nutrient, and dissolved organic carbon samples.

Signed,

The Office of Water Quality
12/15/2008.

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