

February 13, 2002

To: Water Resources Discipline

From: Peter F. Rogerson, Senior Chemist
Office of Water Quality

For: LeRoy Schroder, Chief
Branch of Quality Systems

Subject: Approval of a Water Quality Analytical Method for the Determination of Methyl Mercury in Water

The Office of Water Quality (OWQ) has approved a new water-quality analytical method by the U.S. Geological Survey (USGS) Wisconsin District Mercury Laboratory (WDML), Middleton, Wisconsin for the determination of methyl mercury in filtered and unfiltered water. The method uses distillation, ethylation, gas chromatographic separation, and detection by cold vapor atomic fluorescence spectroscopy. USGS method numbers I-1045-02 (filtered water) and I-3045 02 (unfiltered water). This water-quality analytical method approval follows the technical procedure specified in OWQ Tech Memo 98.05. The Open File Report (OFR) is entitled:

Determination of Methyl Mercury by Aqueous Phase Ethylation, Followed by Gas Chromatographic Separation with Cold Vapor Atomic Fluorescence Detection, by John F. DeWild, Mark L. Olson, and Shane D. Olund. U.S. Geological Survey OFR 01-445.

The method determines methyl mercury in filtered or unfiltered water in the range of 0.04 – 5 ng/L. Samples above 5 ng/L are re-analyzed by distilling smaller sample volumes or ethylating less of the distillate. Spike recoveries in surface and groundwater averaged from 89 to 117 percent recovery. Users are cautioned that reagent water is not an appropriate quality control matrix for this method because of consistently poor recoveries.

The following list of National Water Information System (NWIS) Parameter Codes and Method Codes have been established for filtered and unfiltered water concentration data from this approved method:

Methyl Mercury (USGS Method Number I-1045-02 (filtered) and I-3045-02 (unfiltered))

Parameter Code	Method Code	Analyte Name
50285	P	Mercury, methyl, water, filtered, recoverable, ng/L
50284	P	Mercury. Methyl. Water, unfiltered, recoverable, ng/L

The fixed value for the analyzing agency (parameter code 00028) is: 85550
(Wisconsin District Mercury Laboratory)

If you would like a copy of the report when published, please contact John DeWild (jfdewild@usgs.gov) (785) 832-3564. If you have questions about the method approval process, please contact Pete Rogerson (rogerson@usgs.gov) (303) 236-1836.