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# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

Box 25046 M.S. 407

Denver Federal Center

Denver, Colorado 80225

## **NATIONAL WATER QUALITY LABORATORY TECHNICAL MEMORANDUM 1994.05**

January 5, 1994

To: Assistant Chief Hydrologist for PC&TS  
Regional Hydrologists  
Chief, Office of Water Quality  
Assistant Chief, Office of Water Quality  
Deputy ACH for PC&TS for NAWQA  
Area Hydrologists  
District Chiefs  
Regional Water-Quality Specialists  
Assistant Regional Hydrologists for NAWQA  
District Water-Quality Specialists  
Chiefs, NAWQA Study-Units  
Chief, Ocala Project Office  
Chief, Yucca Mountain HIP  
Chief, Branch of Quality Assurance  
Employees, National Water Quality Laboratory

From: Peter F. Rogerson, Chief  
National Water Quality Laboratory  
Branch of Analytical Services

Subject: Availability of a new Analysis for the Quantitation of Glyphosate Herbicide

Authors: Mike Schroeder (303) 467-8200 (SCHROEDE)

Revision: None

### **SCOPE**

The NWQL has prepared an accepted method to identify and quantitate glyphosate herbicide in water matrices. This analytical procedure is an adaptation of EPA Method 547, "Determination of Glyphosate in Drinking Water by Direct-Aqueous-Injection HPLC, Post-Column Derivatization, and Fluorescence Detection." Glyphosate, found in herbicides such as RoundUp and Rodeo, is a widely used and nonselective weedkiller which is considered to be possibly toxic to mammals.

Water samples to be analyzed for glyphosate are collected in precleaned 40-milliliter amber borosilicate vials with 0.125-inch septa and screw caps. Samples are stored at 4 degrees Celsius (C) and away from light until analysis.

At the NWQL, the water sample will be filtered and a 400-microliter aliquot will be injected onto an anion exchange high performance liquid chromatography (HPLC) column. The mobile phase is a phosphate buffer with a pH of 2. After elution from the column, the analyte undergoes post column derivatization at 85 degrees C with hypochlorite, ortho-phthalaldehyde, and 2-mercaptoethanol to give a fluorophor which is detected by a fluorescence detector. The method detection limit for this analysis is 5 micrograms per liter.

The glyphosate analytical method became available January 1, 1994. The lab code to request is 1834. Please call Ralph White (WRWHITE (303) 467-8190) to request this analysis.

Supersedes: None

Keywords: Glyphosate, herbicide

Distribution: See above plus QWTALK & LABNEWS