Note to Future: This version has not had all offending characters stripped out. Offending = a character that is translated to a ? in Lotus Notes. Other editorial changes also not made.

August 23, 1999

To: 'E'

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 Dissolved Arsenic, Boron, Lithium, Selenium, Strontium, Thallium, and Vanadium in Inductively Coupled Plasma—Mass Spectrometry

The Office of Water Quality has approved a new water-quality analytical method by the National Water Quality laboratory (NWQL) for the determination of dissolved arsenic, boron, lithium, selenium, strontium, thallium, and vanadium in filtered water using inductively coupled plasma—mass spectrometry (ICP—MS). This water-quality analytical methods approval follows the technical procedure specified in OWQ Tech Memo 98.05. The draft OFR is entitled:

> "Methods of Analysis by the U.S. Geological Survey National Water Quality laboratory—Determination of Dissolved Arsenic, Boron, Lithium, Selenium, Strontium, Thallium, and Vanadium Using Inductively Coupled Plasma--Mass Spectrometry" by John R. Garbarino. U.S. Geological Survey Open File Report (OFR) 99-093.

The data in the OFR indicates there are no significant differences between ICP—MS and former methods for these elements when concentrations are comparable. ICP—MS provides lower method detection limits and lower variability at low trace-metal concentrations.

Method detection limits for this method are typically less than 0.1 ug/L, except for boron which is 0.5 ug/L because of reagent blanks. The upper calibration standards for the method are 200 ug/L, except for lithium at 100 ug/L, but the method can be extended to higher ranges by special arrangements. For current information and method codes, please consult the NWQL on-line catalog at: http://rstalcoarv.cr.usgs.gov/USGS/USGS_gen.html . If you have questions about the method approval process, or if you need more information about the process, please contact Pete Rogerson (rogerson@usgs.gov), (303) 236-1836.