

June 27, 2003



Office of Water Quality Water-Quality Information Note 2003.07

Subject: Field Methods—Nitrogen isotope samples - change in laboratory and procedures for submitting samples

Beginning July 1, 2003, analyses of water, soils, and solids for nitrogen isotope ratios will be provided by the Reston Stable Isotope Laboratory (RSIL) in Reston, VA. These analyses were formerly done under contract with Zymax of San Luis Obispo, CA. The RSIL will provide new analytical capability for nitrogen isotopic analysis of water and soil samples with lower nitrate concentrations than that offered by Zymax and, for the first time, oxygen isotope ratios of nitrate in water and soil and nitrogen and carbon isotope ratios of solid samples will be available to NWQL District customers. The change in laboratories means that new lab codes/schedules must be used and samples will be shipped directly to the RSIL. The new lab codes (LC)/schedule follow [Note that the lab codes/schedule that have no "old" lab code/schedule represent new analytical capabilities]:

DESCRIPTION	OLD LC/SCHEDULE	NEW LC/SCHEDULE
$^{15}\text{N}/^{14}\text{N}$ of nitrate dissolved in water	LC1718	LC 2899
$^{15}\text{N}/^{14}\text{N}$ and $^{18}\text{O}/^{16}\text{O}$ of nitrate dissolved in water	--	LC 2900
$^{15}\text{N}/^{14}\text{N}$ of ammonium dissolved in water	LC1717	LC 2898
$^{15}\text{N}/^{14}\text{N}$ of nitrate in soil	LC1719	LC 2894
$^{15}\text{N}/^{14}\text{N}$ and $^{18}\text{O}/^{16}\text{O}$ of nitrate in soil	--	LC 2897
$^{15}\text{N}/^{14}\text{N}$ of ammonium in soil	LC1720	LC 2895
$^{15}\text{N}/^{14}\text{N}$ and N concentration of solids	--	LC 2893
$^{15}\text{N}/^{14}\text{N}$, $^{13}\text{C}/^{12}\text{C}$, N concentration, and C concentration of solids	--	S 1832

Water samples must be filtered through a 0.45 micron filter, chilled and maintained at 4 °C. Soil samples must be dried (or frozen). A National Water Quality Laboratory (NWQL) Analytical Services Request Form (ASR) [http://wwwnwql.cr.usgs.gov/USGS/USGS_srv.html] must accompany the samples that are sent to the RSIL. The Electronic ASR can also be used.

For water samples, the RSIL needs to know the concentration of nitrate and/or ammonium in the sample before the isotopic analyses can be done. This can be accomplished by sending a sample to the NWQL requesting LC1975 (nitrogen, nitrate + nitrite) or 1979 (nitrogen, nitrate + nitrite, low level) and/or 1976 (nitrogen, ammonia) or 1980 (nitrogen, ammonia, low level) and providing the results to the RSIL. When these analytical results are received, the user should write the concentration value on the ASR form and send the form and isotope sample, chilled, overnight delivery, to the RSIL in Reston.

The new shipping address is:

**U.S. Geological Survey
Isotope Laboratory
431 National Center
12201 Sunrise Valley Drive
Reston, VA 20192**

In addition to this WaQI Note, an **Office of Water Quality Technical Memorandum** describing these methods and sample requirements in detail is also being released. These new lab codes and the new schedule, with prices and sampling requirements, will be in the [NWQL Catalog](#) on July 1, 2003.

WaQI Notes are archived on the Office of Water Quality web site,
<http://water.usgs.gov/usgs/owq/WaQI/index.html>

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