

Lab accredited by NELAP

In early August, the National Water Quality Laboratory (NWQL) was fully accredited by the National Environmental Laboratory Accreditation Program (NELAP). The accreditation was handled by the State of New York Department of Health Environmental Laboratory Approval Program following an on-site audit.

NWQL was audited under guidelines developed by the National Environmental Laboratory Accreditation Conference (NELAC), which is a cooperative association of the U.S. Environmental Protection Agency (USEPA), states, and other Federal agencies formed to promote mutually acceptable performance standards for the operation of environmental laboratories. NELAP implements the NELAC standards. NELAP accreditation, moreover, is the only USEPA-sponsored national program for accreditation of environmental labs.

The NWQL successfully passed the on-site audit for drinking-water analyses as described in the Safe Drinking Water Act, confirming NELAP accreditation by satisfying the third of three major criteria necessary for accreditation: successful analysis of performance-testing materials, implementation of quality systems, and a satisfactory on-site laboratory audit.

The NELAP accreditation process promotes the development of mutually acceptable performance standards for the inspection and operation of environmental laboratories. It is designed to ensure credibility and comparability of environmental data produced by NELAP-approved laboratories throughout the United States. NELAP accreditation ensures reciprocity, or recognition, of NELAP-approved laboratories among all states that participate in the NELAP process (about 20 states as of this date). This reciprocity eliminates redundant, and sometimes contradictory, inspections performed by individual states for which the NWQL may perform analytical work.

The audit team identified deficiencies in some minor areas that need to be addressed, but the NWQL is pleased that nearly all areas inspected were determined to meet the national standards set forth by NELAC.

The NWQL is also accredited by the State of Colorado for the analysis of drinking-water samples and has been thoroughly audited by the USGS Branch of Quality Systems. For additional details, see NWQL [Technical Memorandum 97.05](#), *NWQL Newsletters* (v. 9, nos. 2 and 3), and the NWQL website <http://wwwnwql.cr.usgs.gov/USGS/Performance/labcertcoverpage.html>.

For further information, contact either Tom Maloney (tmaloney@usgs.gov, telephone 303-236-3460) or Al Driscoll (driscoll@usgs.gov, telephone 303-236-3470).



SEAL OF APPROVAL—Tom Maloney (right), chief of the Quality Assurance Unit, and Al Driscoll, supervisory chemist, display Certificates of Approval issued by the New York Department of Health. The certificates approve the National Water Quality Laboratory as an environmental lab that is in conformance with the standards of the National Environmental Laboratory Accreditation Conference.

Prices reduced for organic blank water

The NWQL recently announced a substantial reduction in the price of organic blank water (OBW).

Various factors led to the cost reduction, according to a **Rapi-Note** from NWQL. First, vendors were contacted during the past year to submit case lots for quality-assurance (QA) testing for the complete suite of organic methods used to certify the lots of water. Negotiations with the vendor with the best overall QA results led to a cost savings on each lot and a commitment to provide much larger lot sizes.

In addition, "the new pricing model developed by the joint NWQL and Ocala Water Quality and Research Laboratory (OWQRL) field supply project team has allowed us to accurately determine the price for OBW and all other field supplies," according to Tom Maloney, chief of the Quality Assurance Section. The 1Stop Shopping Catalog was updated August 28 to reflect the new prices. The annual savings to the U.S. Geological Survey are estimated to be in excess of \$30,000.

The objectives of the joint NWQL and OWQRL team included development of a pricing model for the full costs associated with all field-supply items. Another objective was to evaluate current QA practices to determine if revision might provide cost and quality benefits. The NWQL and OWQRL are evaluating the QA requirements of all supplies to ensure that they meet the sample-collection needs for all the new low-detection-level methods offered by both laboratories.

For further details on the procurement, quality assurance, pricing, or other information pertaining to field supplies, contact a member of the joint NWQL and OWQRL field-supply team. The team members from NWQL (303-236-2000) are Tom Maloney and Will Lanier, and from OWQRL (352-237-5514) are Bill d'Angelo and John McKenzie.

Contact labhelp@usgs.gov or phone 1-866-ASK-NWQL (1-866-275-6975) for questions or comments about this or any other Rapi-Note.

Letters, faxes, and e-mail

We want to thank everyone who donated their leave and their love for me. I feel like the luckiest person on earth to have friends like you who are so giving. I couldn't have made it through this without all of you. I am sorry it took me so long to respond to your kindness. It is hard to express in writing all the great support given me with your kind words, thoughts, and many other expressions. Thank you again.

Mars L. Harper and Family



ANALYZING FOR CYANIDE-Amy Osborn, physical science technician, adjusts flow coils for cyanide analysis.

NWQL Publications

Brigham, A.R., and Sadorf, E.M., 2001, Benthic invertebrate assemblages and their relation to physical and chemical characteristics of streams in the Eastern Iowa Basins, 1996–98: U.S. Geological Survey Water-Resources Investigations Report 00–4256, 44 p.

Ferrer, Imma, and Furlong, E.T., 2001, Identification of alkyl dimethylbenzyl-ammonium surfactants in water samples by solid-phase extraction followed by ion trap LC/MS and LC/MS/MS: Environmental Science & Technology, v. 35, no. 12, p. 2583–2588.

Garbarino, J.R., and Damrau, D.L., 2001, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory -Determination of organic plus inorganic mercury in filtered and unfiltered natural water with cold vapor-atomic fluorescence spectrometry: U.S. Geological Survey Water-Resources Investigations Report 01-4132, 16 p.

Sandstrom, M.W., Stroppel, M.E., Foreman, W.T., and Schroeder, M.P., 2001, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of moderate-use pesticides and selected degradates in water by C-18 solid-phase extraction and gas chromatography/mass spectrometry: U.S. Geological Survey Water-Resources Investigations Report 01-4098, 70 p.

Reminder -

Fiscal year 2002 prices (for internal USGS use only) are available on NWQL's main website at <http://wwwnwql.cr.usgs.gov/USGS>. Visit the website for announcements about FY02 pricing and links to the NWQL Catalog, price lists, and Frequently Asked Questions. Contact labhelp@usgs.gov or phone 1-866-ASK-NWQL (1-866-275-6975) for questions or comments.

Frequently asked questions

New water-quality analytical method available to determine 65 polar pesticides and metabolites by HPLC/MS

What is the new method number? The USGS method number is O-2060-01 and may be requested through NWQL as Schedule 2060.

What are the features of the new method? The method determines a broad range of polar pesticides and pesticide metabolites in filtered water samples in the 10's of nanogram-per-liter concentration range. The method can be requested by project staff who need to know if pesticides are present. Customers who previously used Schedule 2050 may wish to use this new schedule.

The method uses a 0.5-gram graphitized carbon-based solid-phase extraction cartridge, a procedure nearly identical to Schedule 2050. In contrast to Schedule 2050, concentrations are analyzed by using high-performance liquid chromatography with electrospray ionization/mass spectrometry (HPLC/MS). Mass spectrometry for identification and quantitation substantially improves the specificity of identification and improves sensitivity in the presence of interferences, such as dissolved organic matter.

The new method is an improvement upon Schedule 2050 because (1) the number of compounds identified and quantified is increased from 39 to 65, and (2) it provides similar method detection limits and enhanced detection of low concentrations of compounds in sample matrices with high dissolved organic carbon concentrations and other matrix interferences. It supplements other USGS methods for determination of organic substances in water that are described by Wershaw and others (1987)* and by Fishman (1993)*.

Detections less than the laboratory reporting level are reported according to Childress and others (1999)*. Of the 65 analytes determined using Schedule 2060, 38 are reported without data qualification, while the remaining 27 are routinely reported with the "E" data qualifier, signifying that although the compounds are qualitatively identified as present, their reported concentrations have greater uncertainty.

Does the new method replace Custom Method (Labcode) LC9060? Yes. LC9060 was approved in June 1999 as a custom analytical method and implemented for routine sample analysis as a provisional laboratory analytical method. Users should now request Schedule 2060. The analytical procedures for LC9060 and Schedule 2060 are identical and have been so from June 1999 until the present (2001), with only minor modifications.

What polar pesticides and metabolites are determined in Schedule 2060? A list of parent pesticides and degradates is available on the NWQL USGS-Visible website at <http://wwwnwql.cr.usgs.gov/USGS>. Click on LIMS catalog and request Schedule 2060.

What bottle type, treatment, and preservation are necessary? Water samples should be filtered using the procedure in the USGS Water Resources National Field Manual, available at <http://water.usgs.gov/owq/FieldManual/>. Samples are collected in precleaned 1-liter amber glass bottles available through 1Stop Shopping (<http://1Stop.usgs.gov/>). Do not fill bottle beyond shoulder, because reagents must be added at the NWQL before analysis. Chill and maintain at 4 °C. Ship at once.

May any District use the new schedules? Yes. The Office of Water Quality approved Schedule 2060 on 30 April 2001 for all projects and programs. If you have not previously used this schedule please contact Ron Brenton (rbrenton@usgs.gov), 303-236-3210, or Ed Furlong (efurlong@usgs.gov), 303-236-3941, before you send samples to be sure that you understand the advantages and limitations of the method.

How sensitive is the new method? Single-operator method detection limits (MDLs) in organic-free water samples fortified at 0.025 microgram per liter ($\mu\text{g/L}$) ranged from 0.0019 to 0.0222 $\mu\text{g/L}$ for all compounds in the method except 3-ketocarbofuran, which was variably recovered. The mean MDLs for all 65 compounds in this method were 0.019 ± 0.090 , 0.007 ± 0.012 , and 0.017 ± 0.010 $\mu\text{g/L}$ for organic-free water, ground-water, and surface-water samples, respectively. The upper concentration limit is 1.000 $\mu\text{g/L}$ for most compounds. Concentrations greater than 1 $\mu\text{g/L}$ are reported as qualified estimates.

How do I obtain a copy of the new method? A copy of the report may be downloaded after publication from the NWQL USGS-Visible website (<http://www.nwql.cr.usgs.gov/USGS/pubs.html>), requested by E-mail to the NWQL Technical Editor (jwraese@usgs.gov) or Labhelp@usgs.gov, or calling 1-866-ASK-NWQL. Tentative publication date is November 2001. The citation follows:

Furlong, E.T., Anderson, B.D., Werner, S.L., Soliven, P.P., Coffey, L.J., and Burkhardt, M.R., in press, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of pesticides in water by graphitized carbon-based solid-phase extraction and high-performance liquid chromatography/mass spectrometry: U.S. Geological Survey Water-Resources Investigations Report 01-4134.

**Detailed references are provided in the published method report.*

●Ed Furlong
Allison Brigham



TRACKING SAMPLES -Patricia Alex, physical science technician, and Phillip Grano, material examiner and identifier, compare notes in the sample login unit. Pat and Phil resolve problems associated with samples shipped to the Lab. Tracking samples-some 60,000 samples were shipped to NWQL this year-keeps everyone at the Lab on their toes.

Seminar scheduled

"Electrospray Ionization Mass Spectrometry of Aliphatic Polycarboxylic Acids and Organic Acids Isolated from Groundwater"

Cameron McIntyre, Department of Chemistry, Macquarie University, Sydney, Australia

11 a.m. Tuesday, Oct. 9, Training Room (#1402), National Water Quality Laboratory, Building 95, Denver Federal Center.

Visitors are welcome

LIQUID PAPER AS ART -This mobile mysteriously appeared recently in the office of Mark Burkhardt, chief of Analytical Services. The juried piece reportedly is being sought by local museums. The display surfaced after Burkhardt ruled out the use of correction-fluid products in labs, where any changes in data entry must be lined through rather than painted out. The paint also could contaminate samples. Not to be outdone, a resident sculptor appropriately recycled the offending bottles.



Earth Science Week, October 7-13

Join the celebration and

- Give students new opportunities to discover the Earth sciences,
- Publicize the message that Earth science is all around us,
- Encourage stewardship of the Earth through an understanding of Earth processes, and
- Share your knowledge and enthusiasm about the Earth.

Geoscientists will lead field trips, visit classrooms, conduct seminars, create special exhibits, give talks, and work with youth groups to help celebrate Earth Science Week. For more information, visit the American Geological Institute website at www.earthsciweek.org.



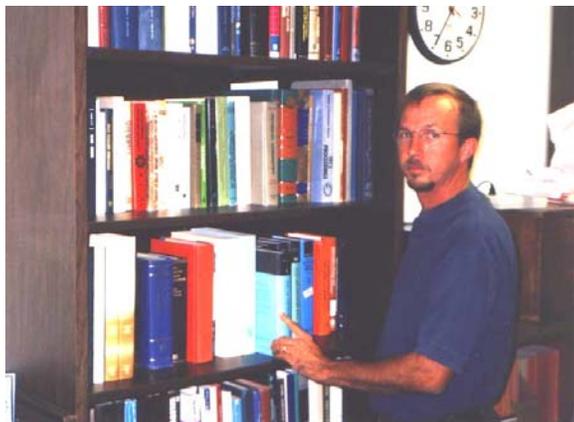
IN APPRECIATION-Greg Mohrman, Chief of the National Water Quality Laboratory, presents a plaque to Janice Ward, former Acting Chief of the Office of Water Quality, at an all-hands meeting August 28 at NWQL. The plaque was suitably inscribed: *"In appreciation for your dedication, insight, and passion for water-quality issues and the science that is the cornerstone. January 1998 – September 2001. Branch of Quality Systems, National Water Quality Laboratory, and Office of Water Quality West."* Janice has accepted a Staff Hydrologist position in the Central Region, where she reported for duty September 7. The new Acting Chief for the Office of Water Quality is Steve Sorenson, who had been the Assistant Chief. Meanwhile, Robert Hirsch, Associate Director for Water, has asked Sorenson and Tim Miller to develop a plan for consolidating water-quality activities in Headquarters by combining the Office of Water Quality and the National Water-Quality Assessment program.

LT-MDL constituents updated

The long-term method detection level (LT-MDL) program started updating appropriate water-quality constituents October 1, for water year 2002. Two organic chemistry schedules (2002 and 2060) will be implemented in the LT-MDL program using a multi-concentration approach because of the difficulty in obtaining standards at LT-MDL concentrations. All other constituents will be assessed using nonparametric statistics for a single concentration.

New organic chemistry lab codes will be implemented in the program this year, including methylene blue active substances and oil and grease. There are many new inorganic chemistry lab codes that will be assessed this year, including the following: iodide by colorimetry, automated-segmented flow (ASF); bromide by colorimetry, ASF; inductively coupled plasma-mass spectrometry (ICP-MS) constituents; nutrient constituents; ICP constituents; and mercury preserved with HCl.

Visit <http://wwwnwql.cr.usgs.gov/Public/ltmdl/ltmdsplash.html> for more information.



FINGERTIP RESOURCES-Ron Macklberg, librarian and archivist, shelves books in the NWQL Reference Library. The library, in room 1140, houses a collection of technical books and reference materials, as well as periodicals common to the bench chemist. The collection includes rare photos from the old Ward Road facility, which opened in 1976. A direct computer link also is provided to the USGS Library at the Denver Federal Center (building 25). Ron says all materials are available for checkout. To donate or check out materials, contact Ron via e-mail macklber@usgs.gov or call 303-236-3714.

SAMPLE PROCESSING-Randy Urban, physical science technician, rinses out pipet with sample for residue-on-evaporation test



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