

### **State of Colorado certifies Lab**

The State of Colorado has granted the National Water Quality Laboratory (NWQL) provisional certification for the analysis of drinking-water samples. The provisional status was sanctioned by the U.S. Environmental Protection Agency (USEPA), which has put the responsibility for certification on the individual states. This certification is valid until April 30, 1999, in the State of Colorado and throughout USEPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming).

To maintain certification under the Safe Drinking Water Act, the NWQL has established specific USEPA approved analytical methods with mandated quality- control samples. These methods cover most of those pesticides and inorganic constituents regulated by the State of Colorado.

A NWQL Technical Memorandum titled "Using the NWQL for the analysis of drinking-water samples" has been prepared and is being reviewed. This memorandum includes drinking-water lab codes, test IDs, schedules, guidance for USEPA-specified sample-collection procedures, sample preservation requirements, identification of quality assurance/quality control samples to be collected with the drinking-water samples, and guidance if the Districts are outside USEPA Region 8.

The provisional nature of this certification is expected to be upgraded to "fully certified" upon successful analysis of the next USEPA Water Supply laboratory performance evaluation samples and a follow-up audit of the NWQL by the State of Colorado. If there is interest in using these analytical methods prior to release of the technical memorandum, contact Al Driscoll [driscoll], Quality Assurance Unit at the NWQL (303/467-8042).

### **Treseder earns service award**

Deborah M. Treseder, NWQL administrative officer, has been presented the Superior Service Award of the Department of the Interior in recognition of "outstanding contributions to the administrative and management programs of the U.S. Geological Survey." The award was signed August 7 by USGS Director Gordon P. Eaton.

Treseder was cited for showing "exceptional leadership in the processing of budgets and district estimates of reimbursable work." Eaton said she "brought a thorough knowledge of Water Resources Division (WRD) administrative and management practices from the Idaho District that were applied at once to the operations of the NWQL."

Treseder was also lauded for developing and implementing the Administrative Information System, enabling WRD offices to track their budgets more accurately. "Since you joined the NWQL in September 1992, you have become a valued and trusted member of the senior staff," said Eaton.



Treseder

## Technical memos available on internal (USGS) home page

We would like to remind all National Water Quality Laboratory (NWQL) customers that the NWQL Technical Memoranda are available from the NWQL website at the following Uniform Resource Locator:  
[http://www.nwql.cr.usgs.gov/USGS/nwql\\_memo.html](http://www.nwql.cr.usgs.gov/USGS/nwql_memo.html)

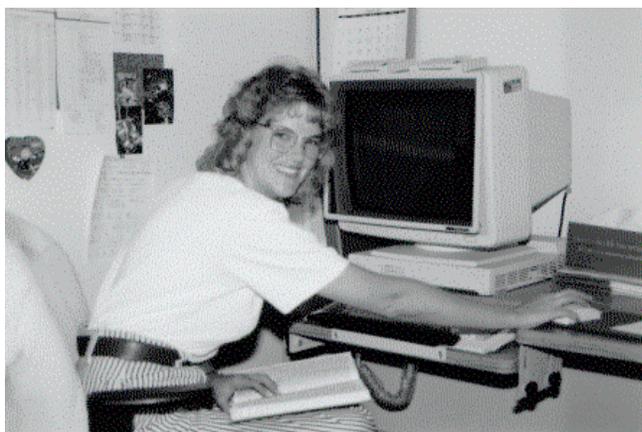
The memos contain information about such topics as availability of new methods, changes in reporting results, new schedules and pricing, guidelines for sample submission, labeling vials, and choosing a schedule. We encourage customers to review these memos for information pertaining to their samples before submitting samples to the Laboratory.

*by Mark Sandstrom*

### Organic quality assurance: A look at the blind-sample program for Lab processes

The organic blind sample program has provided quality assurance for laboratory processes at the NWQL since 1994. To meet its objective, double-blind samples are submitted to the Organic Chemistry Program. These samples are termed "double-blind" because both the sample origin and constituents are unknown to the analyst. Results of double-blind samples should accurately reflect the state of the laboratory processes since the samples do not receive special treatment.

This program is administered by the Quality Assurance Unit (QAU). The QAU currently submits biweekly samples for analysis by 18 different schedules and 6 unique labcodes. The results of completed analyses are pulled from the laboratory data base, data then are compiled, and quarterly meetings are held with each section in the Organic Chemistry Program to review results. When necessary, corrective actions are identified, and follow-through is ensured by the submission of additional blind samples. Summary reports of the results are distributed throughout the NWQL; however, the eventual goal is to expand distribution of these reports to NWQL customers.



**Opening Eyes to Blind Samples –**  
Kim Pirkey, chemist in the Quality Assurance Unit, says results of double-blind samples should accurately reflect the state of laboratory processed.

Customers needing more information about the organic blind-sample program should contact either Kim Pirkey [Geomail [kdpirkey@cr.usgs.gov](mailto:kdpirkey@cr.usgs.gov)] or Al Driscoll [Geomail [driscoll@cr.usgs.gov](mailto:driscoll@cr.usgs.gov)].

*by Kim Pirkey and Suranne Horodyski*

### Sample handling and analysis-Answers to vexing questions

**Q.** When I send a sample set to the NWQL, why do I get more than one laboratory identification number (labid) assigned? Is this a common occurrence?

**A.** Yes, this is a common occurrence. The NWQL generally logs in all samples for a sample set that are shipped in a single cooler or box with the same labid. However, if more than one Analytical Service Request (ASR) form is used when sending the sample sets, for example, if organic and inorganic schedules are requested on separate forms, then different labids are assigned to the samples associated with each ASR. In addition, if sample containers (bottles, jars, bags) for the same sample set are shipped in different coolers or boxes, then the samples in each cooler or box will have unique numbers assigned. The NWQL Login Unit processes coolers first, followed by the boxes. It is also possible that the sample containers in the boxes may be logged in on a different day because of carrier delivery or workload.

The labid (962440001) is broken down as follows:

96=Year

244=Julian day sample was logged in (244=Sept.1)

0001=Sequential number (0001=1st sample logged in on day 244)

When the analytical data are retrieved by the customer, the labid is sent in the star card under parameter code 99998. Because of NWIS-I restrictions, the year is not sent, so the above example would show up as 2440001 in the qwcards file. Also, the NWIS-I system does not allow multiple labids to be stored and retains only the first id sent, which is usually associated with a time-dependent sample (nutrient, VOC).

*by Steve Glodt*

## **New process being developed for national laboratory accreditation**

Many times our District customers or their cooperators call to ask if the NWQL is certified to perform analytical work. We understand the Districts need to have an independent assessment of our analytical capabilities to sell programs to cooperators. However, at the present time, environmental laboratory certification in the United States is restricted to work done for the Drinking-Water Program of the U.S. Environmental Protection Agency (USEPA).

The NWQL has in fact received provisional certification from the Colorado Department of Public Health to perform drinking-water analysis. To obtain this certification, the NWQL had to implement analytical methodologies specified by the drinking-water program. Many of the drinking-water methods actually are not as sensitive as those that have been offered by the NWQL for years. Another important point is that the certification granted by the Colorado Department of Health, while fully recognized by the other states in Region 8 of the USEPA, may not be recognized by other USEPA Regions or the states in other Regions.

Obtaining nationally recognized certification for environmental laboratory analysis is a problem that faces the NWQL and many other laboratories in the country. A solution to this problem may be on the horizon through an effort coordinated by the USEPA known as the National Environmental Laboratory Conference (NELAC). While NELAC was primarily designed to address the various concerns of several USEPA regulatory programs, it offers opportunities for laboratories like the NWQL to obtain certification for performance-based methods. In other words, we could be certified to do analytical work, nationwide, using our own methods.

Issues being addressed by NELAC include development of an accreditation process, identification of an accrediting authority, guideline for proficiency testing programs, procedures for on-site assessment of laboratories, and standards for laboratory quality systems.

*by Tom Maloney*

## **Workgroup reviewing QA/QC acceptance criteria for Organic Chemistry Program**

Since the beginning of the year, a workgroup consisting of Organic Chemistry Program supervisors, members of the Quality Management Program, and the Chief of NWQL have been meeting regularly to review quality assurance/quality control (QA/QC) practices used for organic analyses. The purpose of this review is to standardize and simplify the procedures used to set acceptance criteria and corrective-action policies.

The goal of the workgroup is to develop written guidance for each of the major QA/QC factors for organic analysis. These QA/QC factors include continuing calibration verifications (CCVs), surrogate and spike recoveries, and checks for limit of quantitation. The workgroup will address the need for a comprehensive understanding of how these QA/QC factors interact so that we may better understand the data quality of our analytical processes. Finally, the workgroup is addressing how to release QC data, QC acceptance limits, and the necessary data qualifiers needed by District customers to interpret their data.

Anticipated products of this effort will be the development of improved criteria for data acceptability, identification of computer applications necessary to automate the routine steps for determining acceptance criteria, adoption of standards for analysts to use, and the presentation of control limits that can be used by the analysts and our customers to assess the quality of the analytical data. The NWQL home page appears to be the likely means of communicating the QC data and control-limit information.

We anticipate the release of surrogate control limits on NWQL's internal (USGS accessible) home page in October. The NWQL plans to provide further updates on the progress of this workgroup in future issues of the *Newsletter*.

*by Tom Maloney*

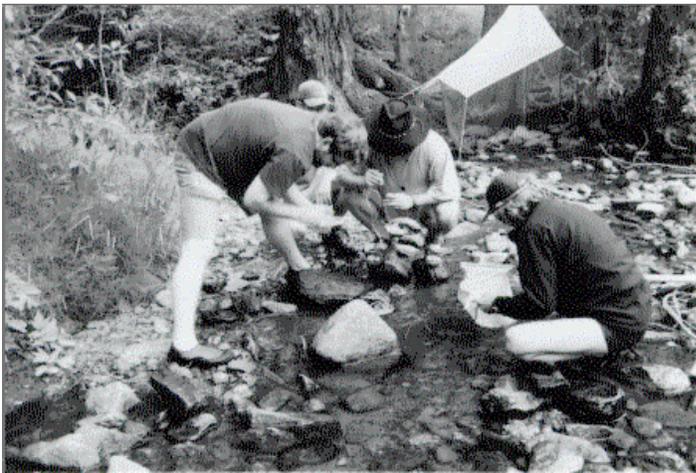
## Quality Systems moves to DFC with Office of Water Quality

Several members of the Branch of Technical Development and Quality Systems and Terry Schertz with the Office of Water Quality have moved to the Denver Federal Center from leased space in Golden, Colo. The new location is on the first floor of G-wing in building 53. New phone number for the Branch is (303)236-1870.

## BQAU reviews field methods for collecting, preserving aquatic samples

The Biological Quality Assurance/Quality Control Unit (BQAU) visited the Bridge Creek Picnic Area July 17 at Golden Gate Canyon State Park to collect and preserve aquatic macroinvertebrates and algae. Exercises were designed to acquaint the BQAU staff with current methods used by study-unit biologists in the National Water -Quality Assessment Program.

Morning and afternoon sessions featured streamside instruction by Allison Brigham, John Kingston, Steve Moulton, and Stephen Porter. Sixteen BQAU staff members participated in hands-on quantitative and qualitative sampling for aquatic macro invertebrates (insects, snails, crustaceans) and algae. Other methods, such as sweep-netting and ultraviolet light and malaise trapping, were demonstrated to illustrate the value of ancillary qualitative collecting in ecological studies. Participants also received instruction on stream and riparian habitat characterization. Jon Raese was a guest observer during the morning sessions.



**Picking Cassis Flies** – aquatic and terrestrial field-sampling methods were reviewed by biologists on a field trip in mid-July to Golden Gate Canyon State Park west of Denver. The Biological Quality Assurance/Quality control Unit collected invertebrates and algae from Bridge Creek and nearby ponds. Collecting Specimens are (left to right) Brady Richards, Dan Pickard, and Scott Grotheer (with kick net). Tent structure in background is a Townes malaise trap.

Special permission to use the Bridge Creek Site was granted by Chris R. Childs, senior ranger. The BQAU will provide the Golden Gate Canyon State Park with a list of the macroinvertebrates and algae collected in the samples and a curated reference collection of specimens to use in its public education program.



**Classifying Invertebrates** – John Sandberg, taxonomist with the Biological Quality Assurance/Quality Control Unit, sorts and identifies aquatic insects for biologists preparing study-unit reports for the National Water-Quality Assessment Program.

*by Steve Moulton*

## Radiologists meet at Lab

Two radiological work groups met at the NWQL in June. The American Society for Testing and Materials (ASTM) D19.04 met for two days to review proposed methods and discuss single-operator data. This group, composed of representatives from the Federal Government and the private sector, reviews and tests new methods for radiological determinations. If a method is believed to have merit, samples are sent for round-robin tests at multiple laboratories. The methods are reviewed and updated every 5 years after publication in the ASTM 11.02 manual.

The MARLAP (Multi-Agency Radiation Laboratory Protocols) work group met at NWQL for three days. This group is composed of representatives from six Federal Government agencies and one state (Kentucky). There are no members from the private sector. This group has been given the task of writing a guidance manual that would be approved by all Federal agencies.

*by Ann Mullin*

## Delay resolved in releasing data for schedules 2001 and 2010

The NWQL delayed releasing laboratory data for schedules 2001 and 2010 for samples received from May to mid-July because analyte concentrations in some samples exceeded the calibration range of 4 micrograms per liter (mg/L).

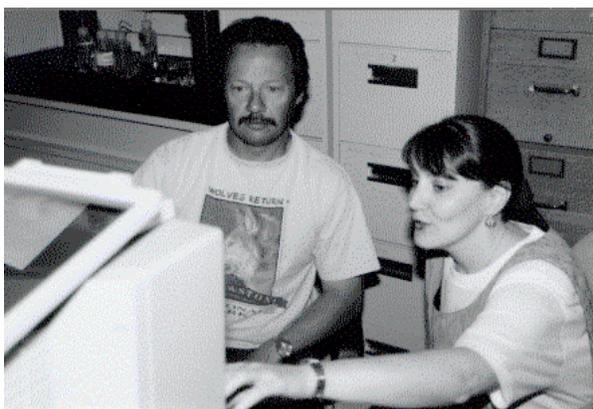
Normally, we use high-level (10 and 20 mg/L) calibration mixes to quantitate atrazine, simazine, alachlor, metolachlor, and cyanazine up to 20 mg/L (Zaugg, 1995, p. 5). When it became necessary to prepare new high-level standard solutions earlier this year, the highest standard purchased was 4 mg/L. Therefore, for a short time, we were unable to quantify concentrations greater than 4 mg/L. Since samples are analyzed at the lab in batches, delays in processing data for one sample in a batch caused delays for the whole batch.

We now have a 20-mg/L standard included in the calibration curve and have resolved this problem. Analysts have released all of the data which had been held back for lab review. Data for samples received through July should be available when this issue of the *Newsletter* goes to press.

We have also been re-evaluating the procedure for analysis of high-concentration analytes and might modify the procedure soon. In particular, we would like to add a dilution and re-analysis step to include more than the five herbicides now analyzed up to concentrations of 20 mg/L. This might involve additional costs. We would appreciate your comments on this plan, whether you prefer additional costs added to all samples (raise cost of the method), or costs added only to those samples with high-concentration analytes. Please send comments to Mike Schroeder [[schroede@usgs.gov](mailto:schroede@usgs.gov)].

*by Mark Sandstrom*

REFERENCE - Zaugg, S.D., Sandstrom, M.W., Smith, S.G., and Fehlberg, K.M., 1995, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of pesticides in water by C-18 solid-phase extraction and capillary-column gas chromatography/mass spectrometry with selected-ion monitoring: U.S. Geological Survey Open-File Report 95-181, 49 p.



**Studying analytical Techniques** – Karina Watkins, a chemist from the Australian Geological Survey, in Canberra, discusses pesticide analytical methods with Max Stroppel, chemist at NWQL. Karina spent about a week in early May discussing analytical techniques with U.S. Geological Survey scientists at NWQL. In Canberra, she is working on a project to determine pesticides in Australia's ground-water resources.

## New methods, article published

Hoffman, G.L., Fishman, M.J., and Garbarino, J.R., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory--In bottle acid digestion of whole-water samples: U.S. Geological Survey Open-File Report 96-225, 28 p.

Lindley, C.E., Stewart, J.T., and Sandstrom, M.W., 1996, Determination of low concentrations of acetochlor in water by automated solid-phase extraction and gas chromatography with mass-selective detection: Journal of AOAC International, v. 79, no. 4, p. 962-966.

Werner, S.L., Burkhardt, M.R., and DeRusseau, S.N., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of pesticides in water by Carbopak-B solid-phase extraction and high-performance liquid chromatography: U.S. Geological Survey Open-File Report 96-216, 42 p.

Copies of these publications or any other published methods are available from the NWQL by contacting Korey Williams [kcwill] by Geomail, telephone 303/467-8006, or fax 303/467-8240.

## Relational data base subject of DODEC meeting

The DODEC (Department of Defense Environmental Contamination) Laboratory Support Group sponsored a data-base meeting August 27 and 28 at the National Water Quality Laboratory (NWQL). District personnel from Arkansas, Colorado, Kansas, Maryland, New Mexico, North Carolina, Ohio, Utah, and Wyoming attended the meeting.

The DODEC data base is a relational data-base-management system that was developed in 1989 to support USGS cooperative programs with the U.S. Department of Defense. The data base uses the INGRES operating system and consists of tables for storing chemical and quality-control data and site descriptions. Advantages of the DODEC data base include ease of storage and retrieval of data components and direct interfacing to statistical, mapping, modeling, and word-processing software. Questions about the DODEC data base should be directed to Jim Lewis [jalewis] at the NWQL (telephone 303/467-8168).



**Continuing Education** – The National Water Quality Laboratory in June hosted two training sessions on Remote Data Entry for Central Region Districts. The entire Water Resources Division is now trained to use Remote Data Entry. The training was conducted by Pete Fox, Office of Financial Management, and Rich Cecchetti, from WRD's Financial Management/Report Section.

## Williams accepts new position with Office of Water Quality

I am pleased to announce that Bob Williams has accepted a new assignment for the Water Resources Division (WRD). On Monday, September 30, 1996, Bob starts a new position as part of the Office of Water Quality (OWQ) under Dave Rickert. Bob will be stationed at the National Water Quality Laboratory (NWQL) in a joint position with the OWQ, the NWQL, and the National Water-Quality Assessment (NAWQA) Program. Bob's primary focus will be on liaison and interface between these three organizations and the rest of the Division.

Bob left the NWQL in April 1995 to join the Yucca Mountain Project Branch in Denver. At the time, we advertised to fill the Assistant Chief position and then finally decided not to fill it. When we made that decision, we understood that customer liaison activities, which had been part of the Assistant Chief's position, needed to be improved. I think there is tremendous potential for a smoother and more efficient operation now that he is back at NWQL, albeit in a different role.

*by Pete Rogerson*

## NWQL seminar schedule

Elaine B. Lekas, Environmental Technologies Group, Inc., in collaboration with Geotech, "Handheld Potentiometric Stripping Analyzer for the Determination of Toxic Metals--Theory and Practice," July 31; John Sandberg, biotechnician, National Water Quality Laboratory, "Life Cycles of *Isoperla lata* Frison, *I. slossonae* (Banks), and *I. cotta* Ricker (Plecoptera: Perlodidae) in Two Central Wisconsin Streams," August 23; Bob Broshears, hydrologist, U.S. Geological Survey, "Mountaineering on Four Continents," September 12.

## Leave share for Betty McLain

Betty McLain, supervisor of the Atomic Absorption Unit, has been under medical care for the last year for back problems suffered in a car accident several years ago. Recently, a major flare-up caused her to undergo an extensive operation to fuse her spine using bone grafts. The long duration of this condition has exhausted all of her leave, and she is expected to be unable to work for up to 3 months.

If you would like to donate leave under the leave donation program, please contact Emily Alexander [ealexand] by Geomail, at the Denver Federal Center (DFC), Denver, CO 80225, Mail Stop 603, or call (303)236-5900, ext. 352.

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### Newsletter Staff

Jon Raese, Editor

The National Water Quality Laboratory Newsletter, is published quarterly by the National Water Quality Laboratory, U.S. Geological Survey, Box 25046, MS-407, Denver Federal Center, Denver, CO 80225-0046. For copies, call Jon W. Raese (303) 236-3464.

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