

**In this issue....**

**New tool for transferring water-quality data from labs to Water Science Centers ..... 1**

**Patton leads Methods group following Green's retirement ..... 2**

**Biology group develops method for determining biomass ..... 3**

**Water-quality training classes ..... 3**

**New publications ..... 4**

**Shipping changes for nitric acid preservatives ..... 4**

**News briefs ..... 5**

**Frequently asked questions ..... 5**

## New tool for transferring water-quality data from labs to Water Science Centers

BY KEN SKACH, OREGON WATER SCIENCE CENTER, WITH DORINDA GELLENBECK, NATIONAL WATER INFORMATION SYSTEM PROGRAM, DENVER

A new tool will soon be available to improve the delivery of water-quality data from source laboratories and from field workers to local National Water Information System (NWIS) data bases. The QW-data Transfer System (QWDX), developed in cooperation among NWIS, the Office of Water Quality (OWQ), and the National Water Quality Laboratory (NWQL), is currently (2007) in a beta-testing period by a few, selected laboratories. After successful completion of beta testing, the QWDX System will be made available to all U.S. Geological Survey (USGS) laboratories performing analyses for USGS customers. At this time, the NWQL will continue to use its current system, but is considering migrating to the QWDX in the future.

The QWDX is hosted and maintained by the NWQL and is located at <https://qwdx.cr.usgs.gov>.

### What can the QWDX do for me?

The QWDX will help to reduce the disparate data-dissemination mechanisms, used by internal USGS laboratories, to Water Science Center (WSC) customers. Access to the QWDX is through an internal USGS website, so it is easily available to USGS personnel. This system should make it easier for customers to load data into their NWIS data base and for internal USGS laboratories to make customer data available.

Water Science Center personnel who want to transfer water-quality field

data to WSC personnel in the office can upload field data directly to the QWDX. The office personnel will download the data from the QWDX for loading into NWIS, thus expediting the input of water-quality field data into the local NWIS data base while away from the office.

*(continued on following page)*



**MYERS VISITS LAB**—Mark D. Myers, the newly confirmed Director of the U.S. Geological Survey, toured the NWQL October 11 during a visit to the Denver Federal Center. Myers seemed especially interested in the hormone lab, perhaps because the previous week he provided testimony to a congressional committee on emerging contaminants in wastewater and Survey studies on endocrine disruption. Greg Mohrman, NWQL Chief, said he was pleased to give Myers a brief but thorough tour, and that research chemists helped to provide their expertise on these important environmental issues.

The QWDX can serve as a central repository of laboratory and field data, thereby reducing the chance of losing data files. This system could reduce the loss of data files that are currently sent by e-mail, stored on personal computers, or in paper files.

### How does the QWDX work?

The QWDX is a secure, web-based system available to internal USGS laboratories and WSCs. This system allows uploads and downloads of water-quality data formatted in tab-delimited NWIS batch files.

The QWDX system stores the source of all uploaded data and tracks whether data have been downloaded or not. Special tracking is built in to identify “laboratory reloads” of data. The QWDX checks every upload for required file format features, rejecting the entire upload if any format criterion fails. WSC data-base administrators control which field users will have access to upload field data destined for their WSCs.

The QWDX will be used primarily by USGS laboratories. A participating laboratory will upload NWIS tab-

delimited batch files to the QWDX, which can contain data for multiple WSCs. The QWDX determines the destination WSC of each sample from the uploaded record. WSC personnel can download data from the QWDX in NWIS tab-delimited batch files. The WSC personnel have certain responsibilities to mark downloaded data in the QWDX, and will continue to be responsible for loading the data into the local NWIS data base.

The QWDX works similarly for field data, but marks field data differently from laboratory data. The system outputs field data and laboratory data into separate tab-delimited batch files, since options for loading into NWIS likely will be different.

### How do I get access to the QWDX?

NWIS QW data-base administrators or laboratory users at WSCs need to e-mail requests for registration to the QWDX Administrator (GS-W QWDX Admin). All users need to be registered in the QWDX before they can log in. Users of the QWDX are either Lab users, NWIS QW data-base administrators, or Field users. Field

users will be registered by their NWIS QW data-base administrator.

The QWDX authenticates users’ identities with Lotus Internet userids and passwords. If users don’t know their Lotus Internet userid or password, they need to contact the local System Administrator.

### Where can I learn more about QWDX?

Cyber seminar training will be offered, focusing on using the QWDX for (1) laboratory personnel and (2) WSC personnel. Instructions about the seminars can be found at <http://water.usgs.gov/usgs/owq/training.html>.

Online documentation is available for the QWDX. These documents should help a user with most problems encountered during use of the QWDX. A link to the NWIS QWDATA User documentation also is available from the QWDX. A help group has been established if additional aid is required or questions arise. Send e-mail to GS-W Help QWDX for additional questions or assistance with the QWDX.

---

## Patton leads Methods group following Green’s retirement

Charles Patton, research chemist in the NWQL Methods Research and Development Program (MRDP), is the acting head of the program following retirement of Robert B. (Bob) Green, October 31. Patton described it as a 6-month detail. He can be contacted via e-mail at [cjpatton@usgs.gov](mailto:cjpatton@usgs.gov) or by telephone: 303-236-3956.

Meanwhile, the U.S. Geological Survey invited applicants to apply for Robert Green’s position as a supervisory chemist/physical scientist/hydrologist. Applications for the environmental analytical chemist position at the National Water Quality Laboratory, in Lakewood, Colorado, were accepted from November 16 to December 15, the closing date.

The MRDP supervisor is “responsible for leading focused research, development, testing, and evaluation of new analytical methods to support ongoing and future water-quality assessment and reconnaissance efforts nationally.”



**SUPERIOR SERVICE AWARD**—Robert B. (Bob) Green (right) received the Superior Service Award at a retirement luncheon October 26, in Lakewood, Colorado. Making the presentation is Greg Mohrman, Chief of the National Water Quality Laboratory. Green retired October 31 as Chief of the Methods Research and Development Program. Bob and his wife Charla plan to relocate to a new home in Oklahoma, but will continue to hit the ski slopes in Pagosa Springs, Colorado. Photo by Barbara Kemp.

## Biology group develops method for determining biomass of invertebrates

The Biology group has developed a custom method for determining biomass for benthic invertebrate specimens. National Water-Quality Assessment Program researchers hope to be able to correlate benthic invertebrate biomass data to nutrient data. This work is being done for a custom proposal for a U.S. Geological Survey Nutrient Enrichment Effects Team (NEET) study. The analysis was requested by Mark Munn, the NEET team leader.

In other news, the Physical Properties Unit had a high school student intern working in the laboratory the last few months. Lindsay Hislop participated through the Jefferson County Executive Internship Program and is enrolled at Lakewood High School in the International Baccalaureate Program. Hislop has had a chance to work with a number of different groups, processes, and personnel at the NWQL, including Biology, Prep, Metals, Nutrients, and the Methods Research and Development Program. She completed her 100-hour commitment December 13th.



• JEFF CAHILL

**STUDENT INTERN**—Lindsay Hislop, a Lakewood High School student in the Jefferson County Executive Internship Program, is shown working in the NWQL biology lab last month. Purpose of the internship was to gain experience in chemistry and biology and to guide her in post-secondary career options. Lindsay said the experience “narrowed my interests in careers and in colleges.” Added Lindsay: “This intership has allowed me to understand what the practical applications of biology and chemistry are, and what jobs are available in those fields.”



## Ron Berg retires

**R**on Berg, a supply technician in the Support Services Section, retired January 3, 2007, after almost 30 years of Federal service, including a stint in the U.S. Air Force. For more than 20 years, Berg was a permanent fixture at the NWQL. According to his section chief, Will Lanier, “Ron has worked in all units within the section and was always willing to provide assistance when and where he was needed.”

Berg says he plans to spend a lot more time behind the steering wheel of his motor home and on the lake in his boat with a rod and reel.

## Water-quality training classes

### Field Water-Quality Methods for Ground Water and Surface Water, QW1028.

June 4–15; and July 23–August 3, 2007, Denver. Registration deadline: January 19

### Water-Quality Field Methods Refresher, QW3190.

April 30–May 4, 2007, Denver. Registration deadline: January 19, 2007

For details on these classes, see <http://training.usgs.gov>

## U.S. Department of Agriculture regulated soils: Handling guidelines

All personnel involved in collecting and shipping regulated soil to the National Water Quality Laboratory (NWQL) must be compliant with Federal regulations. This includes any cooperator-collected soils destined for the NWQL or NWQL contract laboratories, for example, for radiochemical analysis.

Regulations protecting soil from the entry of animal and plant pests and noxious weeds is set forth in 7 CFR 330.300. U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), and the Plant Protection and Quarantine (PPQ) control the import of foreign soil and the movement of domestic soil with a system of regulations and permits. USDA regulations prohibit the shipment to, and shipment from, any laboratory that

*(continued on following page)*

does not hold a current Soil Permit. The NWQL possesses a Soil Permit issued by USDA, APHIS, and PPQ.

The requirements of this permit affect personnel who ship and receive soils from regulated areas, domestic and foreign.

- Shipments of regulated soils must be placed inside the sealed plastic bag provided by the National Field Supply Service and placed in a sturdy, leak-proof container (cooler). A cooler may contain regulated soils only, that is, no other nonregulated soils or other media samples.
- The plastic bag, shipping label (PPQ 550), content soil label, and the NWQL soil permit are purchased as a kit from One Stop, part number Q608FLD. Contact *NFSS@usgs.gov* or Roger Borrego at 303.236.3709 for availability.
- Labeling of regulated soils must have a PPQ Form 550 and content soil sample on the shipping container.
- A copy of the NWQL Soil Permit must be included in the shipping container with the Analytical Services Request form.

For specific information on shipping, labeling, receiving requirements, view locations that are included as USDA regulated soils, and to get copies of the PPQ Form 550 and NWQL Soil Permit, go to the link at [http://www.nwql.cr.usgs.gov/USGS/rapi-note/06-031\\_att.doc](http://www.nwql.cr.usgs.gov/USGS/rapi-note/06-031_att.doc).

The NWQL will not forward regulated soil samples to other laboratories, government or commercial, unless the receiving laboratory also possesses a current USDA permit.

NOTE: Violations of these Federal regulations can result in a criminal penalty of up to a \$5,000 fine, 1 year in jail, or both, or a civil penalty of up to \$1,000 per violation.

## New publications

(NWQL authors in **boldface**)

### Reports

Plumlee, G.S., Meeker, G.P., Lovelace, J.K., Rosenbauer, R.J., Lamothe, P.J., **Furlong, E.T.**, and Demas, C.R., 2006, USGS environmental characterization of flood sediments left in the New Orleans area after Hurricanes Katrina and Rita, 2005—Progress report: U.S. Geological Survey Open-File Report 2006-1023, 74 p. Available online at URL <http://pubs.usgs.gov/of/2006/1023/>

Sando, S.K., **Furlong, E.T.**, **Gray, J.L.**, and Meyer, M.T., 2006, Occurrence of organic wastewater compounds in drinking water, wastewater effluent, and the Big Sioux River in or near Sioux Falls, South Dakota, 2001–2004: U.S. Geological Survey Scientific Investigations Report 2006-5118, 168 p. Available online at URL <http://pubs.usgs.gov/sir/2006/5118/>

**Zaugg, S.D., Smith, S.G., and Schroeder, M.P.**, 2006, Determination of wastewater compounds in whole water by continuous liquid–liquid extraction and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Techniques and Methods, book 5, chap. B4, 30 p. Available online at URL <http://pubs.usgs.gov/tm/2006/05B04/>

### Editor's Note

The National Water Quality Laboratory has decided to cut back the frequency of publication for its Newsletter. Water Logs, effective with the current volume, will become a biannual publication. The second issue is scheduled for publication in July 2007.

---

## Shipping changes for nitric acid preservatives

On October 1, 2006, the Department of Transportation changed the limited quantity exemption rule to exclude shipments of nitric acid by aircraft. The National Field Supply Service (NFSS) can no longer use this exemption when shipping nitric acid preservatives by air transport. Effective immediately, One Stop orders for nitric acid preservatives (Q436FLD) will be shipped from the NFSS by Fed Ex ground transportation.

When placing orders for nitric acid preservatives, allow additional time for ground shipments, which take about 3 to 5 workdays, depending on location. Ground shipments to Alaska, Hawaii, and Puerto Rico will require the following number of workdays for delivery:

- Alaska – 5 to 7 workdays
- Hawaii – 5 workdays
- Puerto Rico – 6 workdays

Nitric acid preservatives can be shipped express overnight by cargo aircraft but will be regulated as dangerous goods. An additional charge of about \$36 will be added to the normal shipping charge for express shipments.

Note that this change does not apply to nitric acid-preserved samples being sent to the National Water Quality Laboratory (NWQL) because samples can be shipped without any restrictions.

For questions regarding this change, contact Roger Borrego at 303-236-3709, e-mail [rborrego@usgs.gov](mailto:rborrego@usgs.gov) or Will Lanier at 303-236-3710, e-mail [wlanier@usgs.gov](mailto:wlanier@usgs.gov).

## News briefs

Cardboard recycling is now available at the Laboratory. Two green rollaway bins have been placed in the warehouse corridor adjacent to the waste management area near the loading dock in building 95. Cardboard containers need to be broken down or flattened for the recycle bins.

\* \* \*

The Performance Work Statement (PWS) team met the week of November 13 at the NWQL to review and revise the PWS and associated technical exhibits. Preparing the PWS is part of the first phase of the A-76 (competitive sourcing) study.

\* \* \*

The Field Managers Team (FMT) met November 15 and 16 at the NWQL to discuss new initiatives at the U.S. Geological Survey, especially financial and policy issues. Greg Mohrman, NWQL Chief, joined the FMT in 2005. The team usually meets monthly by conference call, so this was the first face-to-face meeting in 3 years.

The Chief of the Office of Water Quality has issued a revised policy for the evaluation and approval of all USGS analytical laboratories. Timothy Miller says the “new policy requires more participation from the Water Science Center project personnel than the previous policy, with emphasis on maintaining data quality required to achieve project objectives.” For complete details, see Office of Water Quality Technical Memorandum 2007.01 at *qw07.01*.

\* \* \*

John Sausen, a specialist in liquid chromatography and mass spectrometry, presented a seminar October 11 at the NWQL entitled, “Advancements in Mass Spectrometry—Small Molecule Applications in Qualitative and Quantitative Analysis.”

\* \* \*

A U.S. Geological Survey user group is slated to meet March 6–8 at the NWQL to begin developing an integrated data storage and retrieval system for aquatic biological data for the National Water-Quality Assessment (NAWQA) Program. A central-

ized transactional data base (BioData) will be used to store aquatic ecological data in four major categories: fish, algae, aquatic macroinvertebrates, and in-stream and near-stream habitat. Tim Miller, Chief, Office of Water Quality, and Donna Myers, Chief, NAWQA Program, will co-chair the meeting.

---

## Frequently asked questions

***New analytical method expands the capability of determining a broad range of wastewater indicator compounds in natural whole water***

### **What does the new method offer?**

The new U.S. Geological Survey’s (USGS) method was developed in response to increasing concern over the effects of endocrine-disrupting chemicals in wastewater upon aquatic organisms. It is also useful in evaluating the effects of combined sanitary- and storm-sewer overflows upon the water quality of urban streams. The method provides an efficient means to detect compounds that may be toxic and endocrine disrupting that otherwise might not be reported because they are unregulated or not included in other USGS or U.S. Environmental Protection Agency methods.

The method focuses on the determination of compounds that are indicators of wastewater, exhibit endocrine-disrupting potential toxicity, or have widespread use. The method uses continuous liquid–liquid extraction (CLLE) and capillary-column gas chromatography/mass spectrometry (GC/MS) to determine 69 compounds typically found in domestic and industrial wastewaters. Among the analytes included are alkylphenol ethoxylate nonionic surfactant compounds, food additives, fragrances, antioxidants, flame retardants, plasticizers, industrial solvents, disinfectants, fecal sterols, polycyclic aromatic

*(continued on following page)*



**REPORTERS COVER LAB**—Jeremy Meyer and Katy Human, reporters with *The Denver Post*, listen to Greg Mohrman (right), NWQL Chief, during a tour of the laboratories October 12. Mohrman said the reporters were interested not only in learning more about the NWQL, but also about fish gender studies and new analytical methods.

hydrocarbons, and high-use domestic pesticides.

The new method for whole water complements the existing National Water Quality Laboratory (NWQL) solid-phase extraction method (NWQL schedule number 1433) developed for filtered water (Zaugg and others, 2002). Another complementary method to detect wastewater compounds in sediments and suspended particles using accelerated solvent extraction is available (Burkhardt and others, 2006; NWQL schedule number 5433).

**What are the features of the new method?** Analytes are extracted into dichloromethane using CLLE and determined by capillary-column GC/MS. The new method requires less labor, reduces the volume and operator exposure to solvent, and has fewer emulsion problems and is safer than separatory-funnel methods typically used for whole-water extractions.

Upon arrival at the NWQL, whole-water samples are immediately treated with the addition of 60 grams sodium chloride and stored at 4°C. Samples are extracted within 14 days of collection (before expiration of the holding time). Extraction is performed at ambient pH for 3 hours and at pH 2 for 3 additional hours. Finally, extracts are evaporated using a gentle stream of nitrogen to a final volume of 400 microliters and stored in a freezer at  $-10^{\circ}\text{C}$ .

**How are data reported?** Concentrations reported less than the reporting level are qualified as estimated. Because this is a trace-level method, concentrations greater than 40 micrograms per liter are likely to be qualified as estimated, as well. Estimated data are reported using the "E" code.

Project chiefs are encouraged to include field blanks and matrix spikes to assist NWQL chemists in interpreting analyte concentrations near the interim reporting level.

**What is the new method number, and laboratory and parameter codes?** The USGS method number is O-4433-06 (NWQL schedule number 4433) for wastewater indicator compounds in whole water. The new method replaces custom laboratory code 8033.

A list of the analytes, laboratory and parameter codes, reporting levels, units, and sampling containers used for samples is available on the NWQL USGS-visible web site at [http://www.nwql.cr.usgs.gov/USGS/USGS\\_gen.html](http://www.nwql.cr.usgs.gov/USGS/USGS_gen.html).

Click on LIMS Catalog (upper right corner). Choose a search category, schedule number in this instance, and enter schedule number 4433 to access detailed information about wastewater indicator compounds in unfiltered water.

**What procedures are required for shipping samples to the NWQL?** At least 600 milliliters of unfiltered water should be collected, placed into an amber glass bottle (bottle type GCC; No. Q27FLD in One-Stop Shopping catalog at URL <http://1stop.usgs.gov>), chilled, and maintained at  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  using the protocols outlined in the USGS national field manual for the collection of water-quality data (U.S. Geological Survey, variously dated). Samples with less material may have elevated reporting levels.

Ship samples by overnight carrier to the NWQL as soon after collection as possible. Samples must be chilled and maintained at  $4^{\circ}\text{C}$  during shipment.

**May any Water Science Center use the new methods?** Yes. On 28 June 2006, the Office of Water Quality approved the new water-quality analytical method for the determination of wastewater compounds in whole water by CCLE and capillary-column GC/MS.

**How do I obtain a copy of the new method?** Zaugg and others (2006) may be downloaded from the USGS

web site (<http://pubs.usgs.gov/tm/2006/05B04>), requested by E-mail to the author (sdzaugg@usgs.gov) or LabHelp@usgs.gov, or by calling 1-866-ASK-NWQL.

## References

- U.S. Geological Survey, variously dated, National field manual for the collection of water-quality data: U.S. Geological Survey Techniques of Water-Resources Investigations, book 9, chaps. A1 (Rev. 1/2005), A2 (Rev. 3/2003), A3 (Rev. 4/2004), A4 (Rev. 9/1999), A5 (Rev. 4/2004), and A5.6.4 (Rev. 1/2005), accessed 28 June 2006, at URL <http://water.usgs.gov/owq/FieldManual>
- Burkhardt, M.R., Zaugg, S.D., Smith, S.G., and ReVello, R.C., 2006, Determination of wastewater compounds in sediment and soil by pressurized solvent extraction, solid-phase extraction, and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Techniques and Methods, book 5, chap. B2, vi + 33 p., available online at <http://pubs.usgs.gov/tm/2006/tm5b2>
- Zaugg, S.D., Smith, S.G., Schroeder, M.P., Barber, L.B., and Burkhardt, M.R., 2002, Methods of analysis by the U.S. Geological Survey national Water Quality Laboratory—Determination of wastewater compounds by polystyrene-divinylbenzene solid-phase extraction and capillary-column gas chromatography/mass spectrometry: U.S. geological Survey Water-Resources Investigations Report 01-4186, vii + 37 p., available online at <http://nwql.usgs.gov/Public/pubs/WRIR01-4186.html>
- Zaugg, S.D., Smith, S.G., and Schroeder, M.P., 2006, Determination of wastewater compounds in whole water by continuous liquid-liquid extraction and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Techniques and Methods, book 5, chap. B4, vi + 30 p., available online at URL <http://pubs.usgs.gov/tm/2006/05B04>
- STEVEN ZAUGG, STEVEN SMITH, MICHAEL SCHROEDER, AND ALLISON BRIGHAM



**END OF THE LINE**—Tom Leiker, chemist in the Methods Research and Development Program, has retired after 32 years of government service. “You can have your cake and eat it, too,” said Leiker, November 30, as he nibbled dessert with friends and colleagues at the NWQL. He started with the U.S. Environmental Protection Agency in 1972, and then moved on to U.S. Fish and Wildlife, the Bureau of Reclamation, and finally, the past 19 years with the U.S. Geological Survey National Water Quality Laboratory. Primary focus of his research in recent years was devoted to understanding why the reproductive and thyroid functions in male carp have been weakened after exposure to environmental contaminants in wastewater. Leiker authored or coauthored more than 40 papers and reports.

## Newsletter Staff

Jon Raese, Editor and Photographer  
Suzanne Roberts, Layout and Design

*Water Logs*, the National Water Quality Laboratory Newsletter, is published biannually by the National Water Quality Laboratory, U.S. Geological Survey, Box 25046, MS-407, Federal Center, Denver, CO 80225-0046. For copies, call Jon Raese 303-236-3464 or send e-mail request to [jwraese@usgs.gov](mailto:jwraese@usgs.gov).

The purpose of *Water Logs* is to improve communications on water-quality issues in the U.S. Geological Survey. The Newsletter is for administrative use only. It should neither be quoted nor cited as a publication. The use of trade, product, or firm names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government. Visit the NWQL USGS-visible Home Page website at <http://wwwnwql.cr.usgs.gov/USGS>. The public-visible website is accessed at <http://nwql.usgs.gov/>. The Newsletter archive can be accessed at <http://nwql.usgs.gov/Public/news/news.html>.

