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**U.S. Department of the Interior
U.S. Geological Survey**

NWQL moving toward MEO implementation

By Dave Reppert, Analytical Services Chief/MEO Project Manager

The NWQL continues to implement the MEO (Most Efficient Organization) developed for the standard A-76 study conducted last year.

In June 2008, VSIP/VERA (Voluntary Separation Incentive Pay and Voluntary Early Retirement Authority) offers were made to personnel in some specific series and grades. A total of five NWQL employees opted to take the buyout.

The next step was the reduction in force (RIF) process. The RIF process was conducted by Central Region Human Resources personnel in late June, and the announcement of the reassignments to laboratory positions was delivered to all NWQL staff on July 8, 2008. The July 8 date was the start of the 61-day RIF period. There will be no changes made in the NWQL structure until after this date. Following this RIF period, personnel will begin their duties under the new NWQL/MEO structure.

The RIF process did not involve any involuntary separations of NWQL personnel. There were four changes to a lower grade, two separations of part-time employment with an offer of full-time positions in lieu of separation, 10 RIF-related reassignments, and 97 non-RIF actions. All applicable personnel accepted their reassigned positions, and NWQL management feels this is a manageable outcome to a very difficult situation.

It has been disconcerting for our laboratory personnel to have to live with the “unknown” associated with this process for so long, but they have handled it professionally. In September 2008, we started the actual transition process to the new structure. We plan to keep the disruption of our laboratory processes to an absolute minimum, just as we have done throughout the last 2 years.

We would like to thank all of the individuals who have offered encouragement throughout these difficult times, and vow to maintain the quality and integrity of the work being done at the NWQL as we make this transition.

National Archives agency approves legacy databases

The National Archives and Records Administration (NARA) has approved permanent legacy databases for the National Water Information System (NWIS) and the Laboratory Information Management System (LIMS). These additions have been posted to Schedule 1400, according to Daniel Bizu, the NWQL records manager. Bizu said NARA’s approval helps to validate the results produced by the NWQL.

FY09 prices announced for analytical services; rent impacts changes

Prices for fiscal year 2009 analytical services at the NWQL have been affected by an increase in facilities costs.

The NWQL leases space in building 95 on the Denver Federal Center from the General Services Administration (GSA), and when the building was occupied by the laboratory in 1999, an agreement with GSA for a fixed lease amount for the first 10 years was established. GSA honored this agreement, always with the understanding that the rent would be adjusted after 10 years of occupancy. The original occupancy agreement is now being renegotiated, and GSA, following its policies, has obtained a market survey appraisal of building 95. The appraisal indicates a need to raise the lease amount by about 100 percent, which translates to \$2 million annually.

The NWQL pricing model for FY09 resulted in an average decrease of 3.6 percent. According to Greg Mohrman, NWQL chief, "We have worked hard to hold down prices, and if there were no increase in rent, we would be passing along the decreased prices to

all customers." "To mitigate a large change in our prices in just 1 year," said Mohrman, "we have decided to incorporate one-half of the expected facilities increase during FY09." This will result in the average overall price changing from a -3.6 percent to a +5.4 percent increase for FY09. This facilities increase will continue through FY10, thereby resulting in the NWQL earning the full rent increase for FY10 over a 2-year period.

Then in FY11, the NWQL will once again have to increase prices because of the rent increase. The second half of the rent increase will be added to the FY11 pricing model. This will result in a second overall increase of about 7 percent, thus giving the NWQL the total 14 percent that is needed for the increased facilities costs compared to FY09 rent costs. "We believe it is best to make this two-step increase in prices to cover rent, thus again one increase in FY09 and the second of about equal percentage in FY11," added Mohrman.

To help lessen the effect of the GSA lease increase, the NWQL, working with the Office of Central Region Services, will complete an independent appraisal of current market value for negotiations with GSA. This appraisal may help lower the increase, but it is not expected to produce a drastic reduction in the proposed rent increase. The NWQL

and its customers have benefitted from 10 years of level rent assessment, and this result, combined with increased efficiencies in operations, have kept analytical cost increases relatively low, said Mohrman. Overall average price changes for NWQL procedures for the past 3 fiscal years demonstrate the success of these efforts:

Fiscal year	Percent change
2005 to 2006	-1.0
2006 to 2007	+3.0
2007 to 2008	+3.7
2008 to 2009	-3.6 (without the rent increase)

Over the 4 years shown above, the NWQL average price increase generally has been less than the rate of inflation as measured by the Bureau of Economic Analysis for Nondefense Government expenditures:

Fiscal year	Percent change
2005 to 2006	+4.1
2006 to 2007	+3.8
2007 to 2008	+2.7

Any reduction to the projected FY2010 GSA rent increases will be passed along to customers.

Doug Stevenson

Profile: Chief of Quality Assurance

Doug Stevenson, who joined the NWQL November 25, 2007, was born and raised in southern New Jersey, equidistant from Philadelphia and Atlantic City. He is the 2nd of six children.

Stevenson graduated with a degree in chemistry from Widener University in May 1978. He first moved to Denver in 1979, and began a career as a U.S. Department of Defense civilian chemist at Rocky Mountain Arsenal. He transferred to Anniston Army Depot in Alabama for 3 years before moving to the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA, now the Army Environmental Center) at Aberdeen Proving Ground, Maryland. He returned briefly to Rocky Mountain Arsenal before returning to Maryland to join a small start-up company named QuickSilver Analytics on the east coast.

In January 2000, Stevenson again returned to Denver after being hired by Foster-Wheeler Environmental (now Tetra Tech EC) to bring his chemistry and quality-assurance background to play in the final environmental cleanup of Rocky Mountain Arsenal.

His work history has been split almost equally between chemical warfare agent monitoring and disposal support and environmental remediation of U.S. Army facilities. The emphasis for this work was on the environmental analysis of soil, water, air, biota, and structural materials meeting strict scientific and legal data-reporting and data-quality requirements associated with litigation and Superfund Site documentation.

Stevenson has been married since 1990 to his wife Donna, who is employed as an Oracle DBA and teaches Jazzercise whenever possible. His daughter Daphne attended

the University of Florida on a full academic scholarship and graduated with degrees in astronomy and physics. She now works part time and raises three grandchildren (Tyler, Xavier and Logan). His son Douglas is a junior at Thornton High School, where he is in the International Baccalaureate Program. Douglas is a promising figure skater and has been to various competitions as a single skater, a dance skater, and a synchronized skating team member. He has competed at Junior Nationals twice in dance and at Nationals with the synchronized skating team.

Away from work, Doug and his family enjoy travel and have been to most of the Caribbean islands, Mexico, and Germany.



Stevenson

Newly appointed Associate Director for Water tours Laboratory

Matt Larsen has been named Associate Director for Water. Larsen has served as District Chief of the Caribbean District and Chief Scientist for Hydrology. As a research scientist, he has worked in geology and in water.

Larsen is shown below (on the right) with **James Gray**, chemist, during a tour of the NWQL August 7. Gray briefed Larsen on the gas chromatograph–tandem mass spectrometer (in the background).

Meanwhile, **Robert M. Hirsch** is returning to full-time research to address issues of climate change and long-term trends in water resources. Hirsch was part of the Bureau’s senior leadership for 14 years.



Photo by Donna Damrau

Visitors tour laboratory

Three Pakistanis from the Pakistan Council of Research in Water Resources visited the NWQL February 4 and 5. They met with management staff to discuss applications for the laboratory information management system.

The laboratory hosted about 15 USGS employees from the Office of Organizational and Employee Development on February 20. They were interested in learning about the NWQL to better serve laboratory needs. The group helps to provide training at the National Training Center.

Two researchers from the South Korean National Fisheries Research and Development (NFRD) Institute visited the NWQL in July to learn about USGS methods and research in emerging technologies. Both visitors presented seminars July 16: **Dr. Hee-Gu Choi** discussed the NFRD Institute and marine monitoring program; **Dr. Minkyu Choi** reported on organic wastewater compounds in Korean coastal water and assessed sources and distribution pathways.

David Applegate, newly appointed Acting Director for the Central Region, was a guest of the NWQL July 30. Applegate was briefed about NWQL activities and toured the laboratory.

HAYNE



Photo by Ranae Gonzales

Dr. Matthew Hayne of Geoscience Australia visited the NWQL February 21 for a general orientation and to build partnerships with the USGS. Geoscience Australia produces geoscientific information and knowledge for use in exploration for resources, management of the environment, and safeguarding infrastructure for all Australians.

NWQL Award Winners in USGS 33rd Annual Photo Competition

Runner Up, Best of Show:
Chris Lindley

Advanced Amateur, Color, Man-Made Structures: *Vickie Cree*

Advanced Amateur, Color, Nature: *Mark Cree and Vickie Cree*

Advanced Amateur, Color, People and Animals: *Mark Cree*
(2nd place)

Advanced Amateur, Color, Still Life and Close-Up: *Vickie Cree*

Professional, Black and White, Man-Made Structures: *Chris Lindley* (1st place and honorable mention)

Professional, Black and White, Nature: *Chris Lindley* (1st place)

NWQL paper recognized as one of the “top 50 articles” published from 2002 to 2007

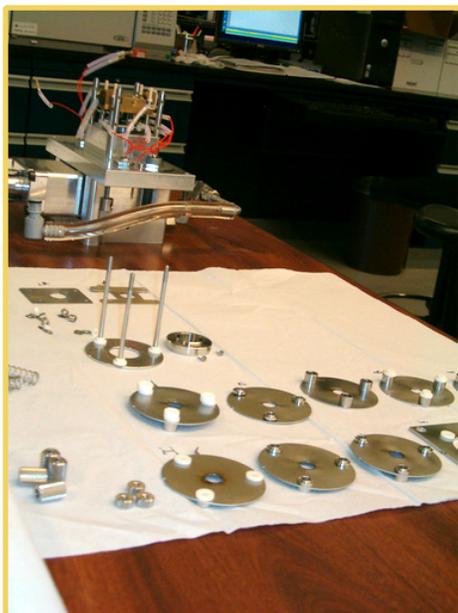
Elsevier this year received an award for publishing one of the “top 50 articles” from 2002 to 2007 in the *Journal of Chromatography A*. The authors (see following citation) received a certificate, and the lead author, Jeff Cahill, received a pen, presumably to encourage him to write future highly cited articles. The current (as of August 26, 2008) citation count on SCOPUS, the citation website developed by Elsevier, is 73.

Cahill, J.D., Furlong, E.T., Burkhardt, M.R., Kolpin, D.W., and Anderson, L.G., 2004, Determination of pharmaceutical compounds in surface- and ground-water samples by solid-phase extraction and high-performance liquid chromatography/electrospray ionization mass spectrometry: *Journal of Chromatography A*, v. 1041, p. 171–180.

New Zealand scientist visits lab and presents seminar

Dr. Greg Olsen visited the NWQL September 4 to learn about USGS methods and research in emerging contaminants. He works for New Zealand’s National Institute of Water and Atmospheric Research, which has responsibilities similar to the USGS Water Resources Discipline.

Olsen presented a seminar during his visit entitled, “Kiwi Organic Contaminant Geochemistry,” which included an introduction to his agency and a report on his research findings.



(Photo by Chris Lindley)

The disassembled “outer source” of the Waters’ *Quattro Micro GC* tandem mass spectrometer is shown during a scheduled preventive maintenance. The rings on the table are electrostatic lenses—a major component of the mass spectrometer’s mass analyzer. The instrument is used to determine hormones in samples of water, sediment, and biosolids.



(Photo by Chris Lindley)

Image of the analyzer with the lenses assembled. The analyzer is used to electrostatically focus ions of a specific, selected mass into a collision chamber, where subsequent fragmentation creates daughter ions used for the specificity required for the high-confidence detection of hormone compounds.

RETIREES—



HELEN STRIKES GOLD—On behalf of the NWQL, Helen Wharry (center) was happy to receive the Gold Award from the Metro Wastewater Reclamation District April 9. Helen is flanked by Cathy Gerali, district manager, and Charles Long, board chairman.



(Photo by Donna Damrau)

Metro Wastewater gives NWQL third consecutive Gold Award

For the third year in a row, the NWQL received the Gold Award from the Metro Wastewater Reclamation District. The award signifies 100 percent compliance with pretreatment requirements and a demonstrated commitment to environmental excellence. Helen Wharry, NWQL Safety, Health, and Environmental Compliance Section, received the award on behalf of the Laboratory at a breakfast awards ceremony April 9. The award was presented by Charles Long, the Metro District's board chairman, and by Cathy Gerali, district manager.

Tom Maloney, former chief of Quality Assurance, retired May 3rd. Also retiring on the same day were Leona Treloar and Mike Werito. A reception was held in their honor at the NWQL.



(Photo by Donna Damrau)

Steve Glodt (left), information technology specialist, and **Roger Borrego**, general supply specialist, were honored at a reception for their long-time service at the NWQL. Both retired April 3.

Frequently asked questions

New analytical method identifies and quantifies 14 commonly used human pharmaceuticals and personal-care products in filtered water

The U.S. Geological Survey's (USGS) new method was developed in response to the emerging area of concern over compounds derived from the use of human pharmaceutical and personal-care products that enter the environment via wastewater discharges.

The compounds in the new method were selected based upon human use (reflected by annual total prescriptions in the United States), common active ingredient doses, likely persistence through human metabolism, and, after excretion, persistence through common wastewater-treatment processes.

Because human wastewater is an important source of these compounds, the method complements other published USGS methods for wastewater indicators in water, such as ethoxylate surfactants, fragrances, food additives, antioxidants, phosphate flame retardants, plasticizers, industrial solvents, disinfectants, and fecal sterols.

What does the new method offer?

The new method is an efficient means of detecting and quantifying important, pharmaceutically active compounds at expected ambient environmental concentrations that typically range between 0.01 and 0.1 microgram per liter ($\mu\text{g/L}$). It is also applicable to aqueous samples, including ground and surface water, and domestic wastewater.

These compounds may not be reported routinely because they are unregulated or not included in other USGS, U.S. Environmental Protection Agency, American Water Works Association, or other official methods.

What are the features of the new method? The pharmaceuticals of interest are isolated by solid-phase extraction (SPE) with a modified styrene-divinylbenzene stationary phase and are determined

by high-performance liquid chromatography/mass spectrometry (HPLC/MS), using positive electrospray ionization operated in the selected-ion monitoring mode. The positive ions produced are detected, identified, and quantified using a quadrupole mass spectrometer. Instrumental analysis by HPLC/MS permits determination of individual pharmaceutical concentrations from 0.005 to 1.0 $\mu\text{g/L}$, based upon the lowest and highest calibration standards commonly used.

What is the new method number, and laboratory and parameter codes?

The USGS method number is O-2080-08 (NWQL schedule number 2080) for pharmaceuticals and personal-care products in a broad range of filtered water types.

A list of the analytes, laboratory and parameter codes, reporting limits and types, units, and sampling containers used for samples is available on the NWQL USGS-visible web site (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 2080 to access detailed information.

How are data reported? Concentrations for 12 compounds are reported without qualification and for two others as estimates. All compound concentrations for field samples are reported as micrograms per liter to four decimal places, but the number of significant figures reported differs (three for those reported without qualification, two for those that are estimated).

What procedures are required for shipping samples to the NWQL? A 1-liter sample of water is 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).

Send samples to the NWQL by overnight carrier as soon as possible after collection. Samples must be chilled and maintained at $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at all times. It's important to ship samples as soon as possible because of the holding times associated with some analytical techniques.

May any Water Science Center use the new method? Yes. On 1 February 2008, the Office of Water Quality approved the new water-quality analytical method.

How may I obtain a copy of the new method? Furlong and others (2008) is available for download from the USGS web site (http://pubs.usgs.gov/tm/tm_5b5/), requested by e-mail to the author (efurlong@usgs.gov) or LabHelp@usgs.gov, or calling 1-866-ASK-NWQL.

References

- Furlong, E.T., Werner, S.L., Anderson, B.D., and Cahill, J.D., 2008, Determination of human-health pharmaceuticals in filtered water by chemically modified styrene-divinylbenzene resin-based solid-phase extraction and high-performance liquid chromatography/mass spectrometry: U.S. Geological Survey Techniques and Methods, book 5, sec. B, chap. B5, viii + 56 p., available online at URL <http://pubs.usgs.gov/tm/tm5b5/>
- 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–A9, accessed 26 August 2008, at URL <http://water.usgs.gov/owq/FieldManual>
- Edward Furlong and Allison Brigham

Celebrating the International Year of Planet Earth

The International Year of Planet Earth (IYPE) is a global initiative of the International Union of Geological Sciences and the United Nations Educational, Scientific, and Cultural Organization to bring all nations together to focus on the geosciences.

Global efforts include the science program, which is focused on complex interactions within the earth system and its long-term sustainability; and the outreach program, including earth science educational ventures at all levels.

The goal of the Year is to recognize and draw attention to the benefits of the earth sciences for society. The United Nations proclaimed the year 2008 as the official IYPE with science and outreach activities spanning through 2009. The IYPE initiative is the largest international effort of its kind to promote the earth sciences.

Local events promoting IYPE include the National Ground Water Association/U.S. Environmental Protection Agency Remediation of Abandoned Mine Lands Conference, October 2 and 3 in Denver, Colorado.

Also marking the Year is a series of lectures at the Denver Museum of Nature & Science. A schedule is shown at

<http://www.geosociety.org/iype/lectureSeries.htm>.



New publications

(NWQL authors in **boldface**)

REPORTS

Alvarez, D.A., Cranor, W.L., Perkins, S.D., Schroeder, V.L., **Werner, S.L., Furlong, E.T.**, Kain, Donald, and Brent, Robert, 2008, Reconnaissance of persistent and emerging contaminants in the Shenandoah and James River Basins, Virginia, during spring of 2007: U.S. Geological Survey Open-File Report 2008–1231, 19 p.

Alvarez, D.A., Cranor, W.L., Perkins, S.D., Schroeder, V.L., **Werner, S.L., Furlong, E.T.**, and Holmes, John, 2008, Investigation of organic chemicals potentially responsible for mortality and intersex in fish of the North Fork of the Shenandoah River, Virginia, during spring of 2007: U.S. Geological Survey Open-File Report 2008–1093, 16 p.

Barnes, K.K., Kolpin, D.W., Focazio, M.J., **Furlong, E.T.**, Meyer, M.T., **Zaugg, S.D.**, Haack, S.K., Barber, L.B., and Thurman, E.M., 2008, Water-quality data for pharmaceuticals and other organic wastewater contaminants in ground water and in untreated drinking water sources in the United States, 2000–01: U.S. Geological Survey Open-File Report 2008–1293, 6 p. plus tables.

Furlong, E.T., Werner, S.L., Anderson, B.D., and Cahill, J.D., 2008, Determination of human-health pharmaceuticals in filtered water by chemically modified styrene-divinylbenzene resin-based solid-phase extraction and high-performance liquid chromatography/mass spectrometry: U.S. Geological Survey Techniques and Methods, book 5, sec. B, chap. B5, 56 p.

McCurdy, D.E., **Garbarino, J.R.**, and **Mullin, A.H.**, 2008, Interpreting and reporting radiological water-quality data: U.S. Geological Survey Techniques and Methods, book 5, chap. B6, 33 p.

Valder, J.F., Delzer, G.C., Price, C.V., and **Sandstrom, M.W.**, 2008, Study design and percent recoveries of anthropogenic organic compounds with and without the addition of ascorbic acid to preserve water samples containing free chlorine, 2004–06: U.S. Geological Survey Open-File Report 2008–1226, 85 p.

JOURNAL ARTICLES

Barnes, K.K., Kolpin, D.W., **Furlong, E.T., Zaugg, S.D.**, Meyer, M.T., and Barber, L.B., 2008, A national reconnaissance of pharmaceuticals and other organic wastewater contaminants in the United States—(I) Groundwater: *Science of the Total Environment*, v. 402, nos. 2 and 3, September 2008, p. 192–200.

Focazio, M.J., Kolpin, D.W., Barnes, K.K., **Furlong, E.T.**, Meyer, M.T., **Zaugg, S.D.**, Barber, L.B., and Thurman, M.E., 2008, A national reconnaissance for pharmaceuticals and other organic wastewater contaminants in the United States—(II) Untreated drinking water sources: *Science of the Total Environment*, v. 402, nos. 2 and 3, September 2008, p. 201–216.

Schultz, M.M., and **Furlong, E.T.**, 2008, Trace analysis of antidepressant pharmaceuticals and their select degradates in aquatic matrixes by LC/ESI/MS/MS: *Analytical Chemistry*, v. 80, no. 5, p. 1756–1762.

News Briefs

“No Child Left Inside” is the theme chosen for the 11th annual Earth Science Week, October 12–18, 2008. Sponsored by the American Geological Institute and its member societies, the U.S. Geological Survey again is a major contributor and supporter of this annual international event. The USGS, in conjunction with its sister Bureaus within the U.S. Department of the Interior and other Federal land managers, is launching an initiative to reconnect families to nature. To learn about these activities, contact Robert W. Ridky, USGS National Education Coordinator (703-648-4713), rridky@usgs.gov.

* * *

USGS Water Science Center personnel took the beginning groundwater training course on water quality April 28–May 2, June 9–13 and again July 21–25 at the NWQL. Students also toured the Laboratory at the conclusion of the courses.

* * *

Nancy Driver, former chief of the Quality Management Group in the early 1990s, announced her retirement from the U.S. Geological Survey May 28. Friends and colleagues can contact Driver at P.O. Box 260145, Lakewood, CO 80226; or via email nancy.driver@q.com.

* * *

The NWQL received results back from the New York Department of Health (NYSDOH) for the first quarter 2008: All 142 analytes received a satisfactory rating for 100 percent. It was the best performance to date on the waste-water proficiency study. Results include the newest accredited parameters—total arsenic, chromium, cobalt, copper, nickel, selenium, vanadium, and zinc by collision cell ICP–MS, and two additional ICP–MS analyses for total boron and strontium.

* * *

Mike Moran and John Zogorski, leaders for the National Water-Quality Assessment Program volatile organic carbon team, presented a report May 7 to the NWQL that covers 15 years of analytical data. Much of the data was produced by the NWQL.

* * *

Radiation safety training required for the radiation permit was held March 5. The training is mandatory for users listed on the permit. The class also was open to all interested laboratory personnel, especially for users of gas chromatographs and those analyzing for radon. The training was provided by Darrell Liles, USGS radiation safety officer.

New policy for interpreting and reporting of radiological data

The Office of Water Quality (OWQ) recently outlined basic practices that are required for interpreting and publishing radiological results in OWQ Technical memorandum 2008.06 (<http://water.usgs.gov/admin/memo/QW/qw08.06.html>). The policy is described fully in McCurdy and others (2008), which contains concepts for calculating and reporting radiological parameters that are based on nationally recognized standard and guidance references by the Multi-Agency Radiological Laboratory Analytical Protocols, American National Standards Institute (ANSI), American Society for Testing and Materials International, and U.S. Environmental Protection Agency.

All radiological results obtained from the National Water Quality Laboratory's (NWQL) contract laboratories (with the exception of tritium) include a narrative, sample-specific information, laboratory information, the result, the 1-sigma combined standard uncertainty (CSU), the sample-specific minimum detectable concentration (ssMDC), the contractual *a priori* MDC, the sample-specific critical level (ssL_c), the percent yield, the aliquant size, and results for laboratory quality-control samples.

The NWQL Laboratory Information Management System rounds contract laboratory results using ANSI procedure N42.23-1996 (American National Standards Institute, 2003). The CSU is rounded to two significant figures, and the radiological concentration and CSU are reported to the same number of decimal places.

Water Science Centers need specific information from the National Water Information System (NWIS) database to review radiological results. Therefore, with the exception of tritium and radon, all radiological results in NWIS for samples analyzed after March 1, 2003, will be updated to include the ssL_c and remark code with the rounded result and CSU to assist interpretation. For radiological samples analyzed before March 1, 2003, the ssL_c is unavailable and a 2-sigma uncertainty was reported under a separate parameter code.

The ssL_c was unavailable for tritium and radon samples analyzed prior to August 1, 2008, and the 2-sigma uncertainty was reported under a separate parameter code. As for tritium and radon samples submitted after August 1, 2008, the ssL_c and CSU were reported to NWIS.

Value-qualifier codes will be included with radiological data after NWIS 4.8 is released. The new radiological value-qualifier and remark codes with their explanations are as follows: (see box below)

By using the information recorded in NWIS, Water Science Centers are able to interpret and publish radiological results following the new policy requiring that all radiological results, whether positive, negative, or zero, be published with their associated CSU. For completeness and scientific accuracy, the ssL_c should be included because a result less than the ssL_c is specified as a nondetection. For example, when a nondetection is identified, the result is reported with its CSU and qualified as a nondetection; the result is not reported as "<ssL_c" or "<ssMDC". McCurdy and others (2008) contains examples for tabling and graphing radiological data that meet policy requirements for technical and nontechnical reports. In addition, the calculation of the ssLC and ssMDC is compared and contrasted to the calculation of NWQL long-term method detection level and laboratory reporting level, respectively.

- John Garbarino and Ann Mullin, with contributions by Allison Brigham.

References

McCurdy, D.E., Garbarino, J.R., and Mullin, A.H., 2008, Interpreting and reporting radiological water-quality data: U.S. Geological Survey Techniques and Methods, book 5, chap. B6, vi + 33 p., accessed 9 September 2008, at URL <http://pubs.usgs.gov/tm/05b06/>

American National Standards Institute, 2003, American national standard measurement and associated instrumentation quality assurance for radioassay laboratories: New York, New York, American National Standards Institute Report N42.23-1996, 64 p.

<u>Remark code</u>	<u>Explanation</u>
R	Nondetect, result below sample-specific critical level (ssL _c)
<u>Value-qualifier</u>	<u>Explanation</u>
(Blank greater than the sample-specific critical level (ssL _c)
)	Sample-specific minimum detectable concentration (ssMDC) is above the contractual <i>a priori</i> MDC
/	Matrix spike (MS) recovery is outside of contractual acceptable range
@	Exceeded sample holding time
\	Laboratory control sample (LCS) recovery is outside of contractual acceptable range
~	Duplicates are not within the contractual acceptance limits
=	Negative result may indicate potential negative bias
^	Yield is outside of contractual acceptable range

Richard Daddow retires October 3

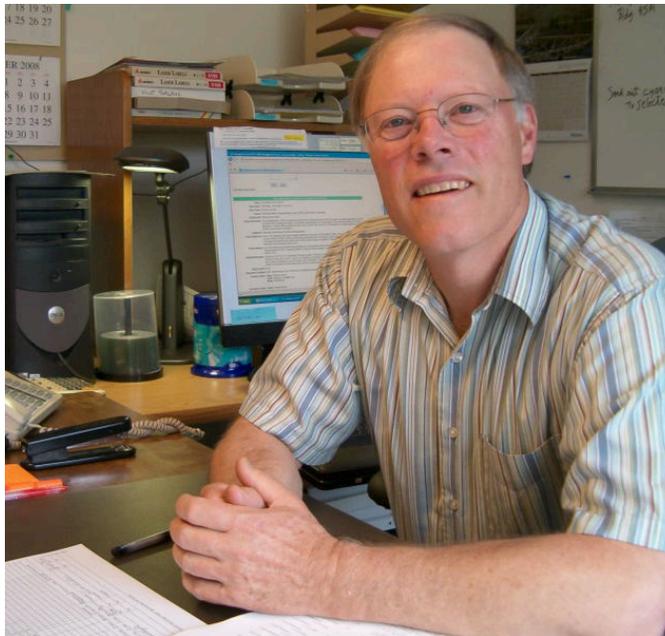
After 33 years of Federal Service, Richard Daddow, hydrologist, plans to retire October 3, 2008. He worked 24 years for the U.S. Geological Survey in Cheyenne, Wyoming and in Denver, Colorado, and for 9 years with the U.S. Forest Service in Ft. Collins, Colorado and in Cody, Wyoming.

Daddow started his Federal Service by working summer seasonal jobs as a surveyor, firefighter, and forestry technician for the U.S. Forest Service in California, Oregon, and Washington from 1970 to 1976. For two of these summer jobs, he was the fire patrolman at Spirit Lake and Mount St. Helens before the big eruption. In 1974, he was a Park Ranger in Yellowstone National Park.

Daddow started his Federal career in October 1978 with the USGS in the Wyoming District office in Cheyenne. He worked as a hydrologist and geochemist on the Northern Great Plains Regional Aquifer System Analysis project in the Powder River Basin of Wyoming.

In October 1980, he transferred to the U.S. Forest Service, Watershed Systems Development Group in Fort Collins, Colorado. He worked as a soil scientist and hydrologist on various U.S. Forest Service watershed

management procedures and guidance documents related to soil compaction, sediment transport, floodplain delineation, and water-rights channel maintenance flows.



DADDOW

In June 1985, Daddow transferred to the U.S. Forest Service, Shoshone National Forest in Cody, Wyoming. He was a forest hydrologist and soil scientist and worked on numerous environmental assessments and impact studies involved with oil and gas leasing, timber sales, water rights, water quality, range allotments, road construction, and soil surveys.

In July 1988, he transferred back to the USGS Wyoming District office in Cheyenne, where he worked as a hydrologist. He was project chief of a comprehensive water-resources study

of the Wind River Indian Reservation in Central Wyoming. In 1991, he was assigned as the quality assurance manager on a large Super-fund project related to ground-water and soil contamination on F.E. Warren Air Force Base in Cheyenne.

In January 1997, Daddow transferred as a supervisory hydrologist for the Office of Water Quality, Branch of Quality Systems in Denver, Colorado. He was the project chief of the Laboratory Evaluation Program and Standard Reference Sample project.

In January 1998, he transferred as a hydrologist to the Office of Ground Water, Department of Defense Earth Science Program (DODESP) office in Denver. He prepared the documentation for performance-based contracts and worked as the Contracting Officer's Representative (COR) for the DODESP analytical services and data validation contracts.

In August 2006 and until the present time, Daddow had the same job as the COR but was reassigned to the Office of Water Quality, National Water Quality Laboratory, on the Denver Federal Center.

Daddow said he plans to spend time with his family, enjoying their cabin in the Snowy Mountains in Wyoming, and catching some fish along the way. He has numerous projects lined up at home in Lakewood and wants to become a "great cook."

* * *

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