

National Wildlife Refuge

Chris Lindley, NWQL chemist and photographer extraordinaire, used a digital camera to record this scene in January at Bosque del Apache refuge near Socorro, New Mexico. The heart of the refuge is about 13,000 acres of moist bottomlands, including active floodplain of the Rio Grande. Tens of thousands of birds, including sand-

hill cranes (shown in the photo along with a lone bald eagle), Arctic geese, and many kinds of ducks gather each autumn and stay through the winter. Lindley spearheaded efforts to set up a Photography Club at the NWQL. Visitors are invited to view the photo gallery inside the main entrance to building 95 at the Denver Federal Center.



Steverson named to head Information Technology



James (Jim) R. Steverson took over as the new Chief of the Information Technology Section, effective February 9, following an introduction to the section by Greg Mohrman, NWQL Chief.

Steverson comes to the NWQL from Computer Sciences Corporation (CSC) in Golden, Colo., where he

served as senior program manager and director from August 1995 to August 2001 before CSC closed its offices in Golden. During this time, CSC provided IT consulting services.

Steverson was born in Oklahoma City, Okla., in 1943. He was a service dependent and moved across the United States during WW II and Korea. The family moved to Evergreen, Colo., in 1956, where he attended high school before transferring to the Oklahoma Military Academy in Claremore, Okla. After finishing high school and junior college, he returned to Colorado to attend Colorado State University. He earned a Bachelor of Science Degree in Mathematics and was commissioned a 2nd Lieutenant in the U.S. Army in June 1965.

He served in the Army for the next 30 years, specializing in the project management of Command and Control and Logistics computer systems deployed around the world. In 1975, he earned a Masters Degree in Logistics from Florida Institute of Technology and in December 1980 graduated from the Defense Systems Management College as a certified Department of Defense program manager. He retired from the Army as a colonel in August 1995 and went to work for CSC in Golden.

Steverson is married to Esther Jane Miller, a native of Bailey, Colo., where they currently reside. They have one son, Joel, who is married and living in Conifer, Colo.

News briefs

Pete Rogerson, senior chemist for the Office of Water Quality, was taken ill March 5 when he collapsed while exercising at the Wellness Center in Denver. Rogerson was taken to St. Anthony Central Hospital in Denver, where his attending doctor said he suffered a stroke. Rogerson was moved March 8 to Saint Joseph's Hospital and then moved again to a rehabilitation center in Boulder. At last report, he was making good progress.

A representative from the Denver Metro Wastewater Reclamation District, Barbara Orr, visited the NWQL March 10 to deliver the Wastewater Contribution Permit for Building 95. Orr met with the NWQL Safety, Health, and Environmental Compliance Office, and with Greg Mohrman, Lab Chief; Mike Reddy, Chief, Central Region, Branch of Regional Research; and Mike Vidler, General Services Administration.

As of April 1, the NWQL no longer accepts samples of gross alpha and gross beta for analysis because of reduced

sample loads. Greg Mohrman, Lab Chief, said it is uneconomical to continue the certifications and licensing for the method. He said that the Laboratory will continue to provide this analysis through the radiological contract lab, Eberline Services, in Richmond, Calif. Samples should be sent directly to Eberline. (See NWQL Rapi-Note 04-003.)

The NWQL recently passed all tests for the New York State Department of Health's (NYSDOH) 2003 4th quarter potable water performance-evaluation study with a satisfactory rating. The potable water studies replaced the U.S. Environmental Protection Agency's water-supply studies. This study is required for the NWQL to be accredited by the National Environmental Laboratory Accreditation Conference (NELAC) and also by the State of Colorado for the majority of Colorado's primary drinking-water constituents. This study concludes the NWQL's participation in the potable water studies; the Lab does not plan to be accredited for drinking-water methods after the current certificates

expire this year. Meanwhile, the NWQL is completing the requirements for NELAC accreditation through NYSDOH for USGS methods used by the NWQL for environmental samples. The second of two studies required for accreditation closed recently, and the NWQL should receive accreditation for its methods by late May or early June this year.

The annual USGS water-quality meeting and Forensic Hydrology Workshop sponsored by the Office of Water Quality is proposing its annual meeting for September, in the Northeastern Region (city and date not announced at presstime).

An electronic copy of the USGS NWQL *Quality Management System* document can be accessed by Geological Survey personnel at URL http://www.nwql.cr.usgs.gov/USGS/QMS_1.1.pdf. The QMS document will be available on the NWQL's public web site after the next round of changes.

Data-quality assessment of results on samples submitted by the Inorganic Blind Sample Project

Alkaline persulfate digestion

The NWQL began offering alkaline persulfate digestion as an alternative to Kjeldahl digestion for the determination of total nitrogen and total phosphorus (Patton and Kryskalla, 2003) in July 2003.

Nitrogen fractions measured by Kjeldahl digestion (USGS method I-2515/4515-91) and alkaline persulfate digestion are not equivalent. By operational definition, Kjeldahl nitrogen is the sum of organic nitrogen and ammonium originally present in samples; alkaline persulfate nitrogen is the sum of organic nitrogen, ammonium, nitrite, and nitrate, that is, total nitrogen.

Dissolved and total phosphorus concentrations determined by semi-automated, Kjeldahl block digestion (USEPA method 365.4; USGS method I-2610/4610-91), by acid persulfate digestion (USEPA method 365.1), and by alkaline persulfate digestion (USGS methods I-2650/4650-03) are equivalent.

The results from samples submitted blindly to the NWQL through the Inorganic Blind Sample Project (Branch of Quality Systems) indicate the persulfate digestion is performing as expected. Data for total nitrogen by alkaline persulfate from which nitrate plus nitrite have been subtracted are about 6 percent lower than Kjeldahl and show about a 95-percent recovery relative to expected values. This result is consistent with findings by Patton and Kryskalla (2003) that suggest a small positive interference of nitrate in the Kjeldahl digestion method. Because the expected values were derived from an interlaboratory comparison study using data from Kjeldahl, the expected values could be biased high in favor of the Kjeldahl digestion. Both methods demonstrate similar precision.

Data for total phosphorus by alkaline persulfate are about 2 percent lower than the expected values, whereas the data by Kjeldahl are about 3 percent higher than the expected values. Both biases are less than the overall precision of the method. And, both methods demonstrate similar precision.

Quality-control charts tracking the on-going submission of blind samples for the methods using the persulfate and Kjeldahl digestion are available at <http://bqs.usgs.gov/bsp/FY04charts.htm>.

• TEDMUND STRUZESKI,
BRANCH OF QUALITY SYSTEMS,
AND CHARLES J. PATTON,
NWQL METHODS RESEARCH

Arsenic speciation

In April 2002, the NWQL began offering methods for arsenic speciation in natural-water samples (Garbarino and others, 2002). All of the arsenic-speciation methods use inductively coupled plasma-mass spectrometry (ICP-MS) as an arsenic specific detector coupled with high-performance liquid chromatography to separate the species.

As of October 2003, the Branch of Quality System's Inorganic Blind Sample Project (IBSP) and the NWQL's Blind Blank Program have been monitoring the data quality to determine the effect of the chromatographic process on final results.

Data for IBSP samples show no statistically significant difference between bias of samples submitted for filtered arsenic (by ICP-MS) in relation to samples submitted for various arsenic species (chromatographic separation followed by ICP-MS). In addition, there was no statistically significant increase in variability caused by the separation process.

Data for NWQL blind blank samples parallel the IBSP data. These blind blank data were used to establish new interim reporting levels (IRLs) for the 2004 water year. Moreover, a long-term method detection level (LT-MDL) study is currently (2004) underway. The NWQL expects the arsenic methods to have laboratory reporting levels (LRLs) in place for the 2005 water year.

IBSP quality-control charts tracking the on-going submission of blind samples for arsenic-speciation methods are available at <http://bqs.usgs.gov/bsp/FY04charts.htm>.

Quality-control charts that track the submission of blind blank samples for the arsenic-speciation methods are available at <http://nwql.usgs.gov/Public/BBP/BBPSplashPage.html>.

• TEDMUND STRUZESKI,
BRANCH OF QUALITY SYSTEMS,
AND GRETCHEN RATTERMAN,
NWQL QUALITY ASSURANCE

References

- Patton, C.J., and Kryskalla, J.R., 2003, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Evaluation of alkaline persulfate digestion as an alternative to Kjeldahl digestion for determination of total and dissolved nitrogen and phosphorus in water: U.S. Geological Survey Water-Resources Investigations Report 03-4174, 33 p.
- Garbarino, J.R., Bednar, A.J., and Burkhardt, M.R., 2002, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Arsenic speciation in natural-water samples using laboratory and field methods: U.S. Geological Survey Water-Resources Investigations Report 02-4144, 40 p.

New mercury analyzer placed into service

A Tekran 2600 cold vapor atomic fluorescence mercury analyzer was recently put into service as a replacement for a failing instrument. There has been no change to the methodology (Garbarino and Damrau, 2001).

Chase Davis and Stacey Warrick tested the instrument with various mercury solutions, Branch of Quality Assurance Standard Reference Water Samples (SRWS), and National Institute of Standards and Technology traceable standard reference materials to demonstrate that the new instrument provides the same data quality as reported in the approved method. The reporting level will remain unchanged even though short-term studies have indicated that the new instrument is capable of performing below that level. Long-term studies will be used to establish a new reporting level.

Mercury results from the new instrument were released to the data base starting March 15, 2004. The analysis frequency for quality-control samples will be increased in the sample-analysis protocols during the early operation of the instrument for additional quality assurance.

• JEFF PRITT AND JOHN GARBARINO

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.



MERCURY ANALYZER—Analyst Stacey Warrick prepares to analyze samples on the new mercury instrument.

New publications

(NWQL authors listed in **boldface**)

JOURNAL ARTICLES

Kinney, C.A., Mosier, A.R., **Ferrer, Imma, Furlong, E.T.**, Mandernack, K.W., 2004, The effects of the fungicides mancozeb and chlorothalonil on trace gas fluxes in fertilized grassland soils: *Journal of Geophysical Research–Atmospheres*, v. 109 (D05303), doi: 10.1029/2003JD0003655.

_____, 2004, The effects of the herbicides prosulfuron and metolachlor on trace gas fluxes in fertilized grassland soils: *Journal of Geophysical Research–Atmospheres*, v. 109 (D05304), doi: 10.1029/2003JD0003656.

Ulrich, E.M., Wong, C.S., Rounds, S.A., Van Metre, P.C., Wilson, J.T., Garrison, A.W., and **Foreman, W.T.**, 2003, Enantiomer fractions of chlordane components in sediment samples from U.S. Geological Survey sites in lakes, rivers and reservoirs: *Organohalogen Compounds*, v. 62, p. 331–334.





MEDIA TRAINING—Heidi Koontz, USGS Central Region Office of Communications, provided media training for the NWQL leadership team and supervisors February 24. Greg Mohrman, Lab Chief, makes a point during a break in the action.

Letters, faxes, and e-mail

Thank you for e-mailing me the latest issue of the NWQL Newsletter [v. 12, no. 1, January 2004]. It is good to see the replacement of Kjeldahl (persulfate digestion) come about. I enjoyed reading it.

Will be going to Mexico at least three times this year. This is the only way I can tolerate winter and cold weather (my knees like it).

• JUAN VASQUEZ

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