

## **Workload estimates developed through AIS**

Beginning in fiscal year 1997, the NWQL will be gathering its analytical workload estimates through the Administrative Information System (AIS).

During the development of AIS and the Budget Module, the Districts required reference tables listing NWQL procedures and their prices be made available. On completion, the NWQL and the Office of Water Quality realized that this information could also provide details about analytical workload. With changes in the District programs each year, it is crucial that the NWQL has forecasting information on which to plan staffing needs and analytical methods.

As the cost centers prepare their FY97 budgets, project leaders will have a useful tool to enter detailed budgetary information for samples to be processed at NWQL. The budgetary information will be entered by the project leader, or designee, transferred to the local water-quality specialist for review (if required by the District), then forwarded to the cost center administrative officer (AO). The cost center AO will be responsible for generating the transfer file, transferring it to the NWQL, and printing an agreement that formalizes the requirements anticipated by the cost center and the NWQL. Project leaders can access the data base as follows: open AIS; click on Project Management; click on Project Budget Header; click on Project Budget Detail-Laboratory (the Management Category is OCL).

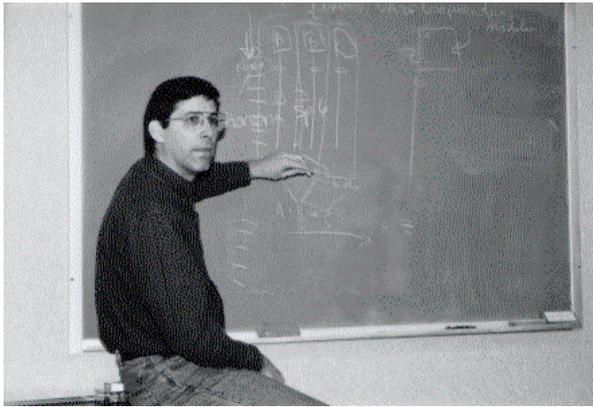
This tool for estimating workload is currently available. A memorandum will outline the requirements for using the system. There is time to familiarize yourself with the system if you or your staff have not yet done so. The NWQL will accept these estimates beginning October 1, 1996. The first estimates will be required from all customers by January 6, 1997. Revised estimates can be transferred to the NWQL at any time. New estimates will be required on the current cycle--January, April, and July.

Your NWQL contact on these procedures is Deborah Treseder, (treseder) (303) 467-8017.

*by Deborah Treseder*

## **Jordanians tour Laboratory**

A delegation from the Water Authority of Jordan toured NWQL May 29. Mark Sandstrom, acting for the chief of the NWQL, explained the mission of the Laboratory and its relation to the Water Resources Division. Kevin Dennehy, supervisory hydrologist in the Colorado District, helped to receive the delegation and discussed the South Platte River Study Unit of the National Water-Quality Assessment Program. The U.S. Geological Survey has encouraged interaction between Jordan and Israel to resolve water issues.



**Collaborative Research** – Pat Kociolek, director of research for the California Academy of Sciences, San Francisco, presented a seminar May 10 entitled “Consistent Versus Correct Taxonomy: Implications for Large Monitoring Programs.” Kociolek spent a week at NWQL, including collaborative research on diatom taxonomy with John Kingston, algal taxonomist with the Biological Quality Assurance/Quality Control Unit.

## Lab changes Uniform Resource Locator

The Uniform Resource Locator (URL) for the NWQL's World Wide Web site, which was <http://wwwnwql.cr.usgs.gov> is now our "public" page. The URL for the "USGS only" page that you have (hopefully) become familiar with, is now at <http://wwwnwql.cr.usgs.gov/USGS>. Sorry for the inconvenience. Please update your bookmarks!

*by Chris Lindley*

## Plasma Unit transfuses itself, sets new goals to improve service

The Plasma Unit is not resting on its laurels. Analytical time for samples in the Inorganic Chemistry Program's Plasma Unit has been less than two weeks for all filtered acidified determinations that require Inductively Coupled Plasma - Atomic Emission Spectrometry (ICP-AES) or Inductively Coupled Plasma - Mass Spectrometry (ICP-MS), or both analyses. Fast delivery was achieved by making operations more efficient as well as through teamwork by unit personnel. Some of the short- and long-term goals to improve efficiency follow.

### NEW METHODS AVAILABLE

**Aluminum and boron.** The use of aging Direct Current Plasma - Atomic Emission Spectrometry (DCP-AES) instruments required additional processing time for aluminum and boron determinations. To improve delivery while still maintaining equivalent quality, the Plasma Unit is now using ICP-AES technology to determine these two trace elements. A recently approved report (Struzeski and others, 1996) enables the Plasma Unit to offer dissolved aluminum and boron by the ICP-AES technique. Not only is the data quality equivalent to the old method for these two trace elements, but the ICP technique is also more cost effective than the DCP-AES method, for the NWQL and for its customers. Since ICP-AES is a multielement technique and dissolved aluminum and boron are often requested with other trace elements determined by ICP-AES, this transfer of technology is saving operating costs and has decreased personnel requirements that were needed to operate the two aging DCP-AES instruments. Cost and ordering information are outlined in NWQL Technical Memorandum 96.10.\* In addition, customers still enjoy the same sample analysis time offered by the ICP-AES and ICP-MS methods.

**Dissolved metals.** Last year, about 6,000 samples were analyzed by the Atomic Absorption Spectrophotometry (AAS) technique using two AAS instruments. Technical Memorandum 96.04, distributed March 20, 1996, outlines the transfer of AAS determinations to ICP-AES.\* The use of ICP-AES for these elements requires a single instrument and a single operator, improving efficiency. The method has equivalent or better precision than the AAS technique.

### ONGOING DEVELOPMENT

**Automation.** Automating data handling is one of the most exciting projects in the Plasma Unit. The long-term goal of this project is to have a real-time logic-checking routine using historical on-line statistical quality-control (QC) data. This real-time QC logic-checking and automation will minimize operator interaction and enable unattended operation, thereby improving efficiency. In addition, cationic checking will be used prior to transferring data to the Laboratory Information Management System.

## FUTURE METHODS

**Whole-water recoverable metals.** Personnel from the Plasma Unit and Methods Research and Development Program are jointly developing a method for the whole-water recoverable determination of metals by ICP-AES and ICP-MS. This new method will be used to improve efficiency by replacing AAS techniques with ICP-AES multielement technology. In addition, having the capability to analyze whole-water recoverable samples by ICP-MS will enable the Laboratory to offer an alternative technique to Graphite Furnace Atomic Absorption Spectrophotometry (GFAAS) for low-level metal determinations. This alternative technology can decrease operating costs and personnel requirements.

*by Ed Zayhowski*

## REFERENCE CITED

Struzeski, T.M., DeGiacomo, W.J., and Zayhowski, E.J., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of dissolved aluminum and boron in water by inductively coupled plasma-atomic emission spectrometry: U.S. Geological Survey Open-File Report 96-149, 17 p.

\* For copy of memo, see NWQL Home Page at <http://wwwnwql.cr.usgs.gov/USGS>

## **New titles in print**

Furlong, E.T., Vaught, D.G., Merten, L.M., Foreman, W.T., and Gates, P.M., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory- Determination of semivolatile organic compounds in bottom sediment by solvent extraction, gel permeation chromatographic fractionation, and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Open-File Report 95-719, 67 p.

Struzeski, T.M., DeGiacomo, W.J., and Zayhowski, E.J., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory-Determination of dissolved aluminum and boron in water by inductively coupled plasma-atomic emission spectrometry: U.S. Geological Survey Open-File Report 96-149, 17 p.

Copies of these reports are available from NWQL by contacting J.W. Raese via Geomail, [jwraese](mailto:jwraese), telephone 303/467-8054, or fax 303/467-8240.

## **Biotechs from Lab acquaint middle school students with ecosystem diversity**

On May 2, 1996, over 100 seventh graders from Everitt Middle School in Wheat Ridge participated in a field exercise to familiarize themselves with the aquatic and terrestrial ecosystems of the Prospect Park Greenbelt.

Mike Langdon, one of their teachers and an organizer of the event, invited the NWQL's Biological Quality Assurance/Quality Control Unit (BQAU) to assist with a stream ecosystem station located on a reach of Clear Creek in the park. Biotechnicians Jason Nelson, Daniel Pickard, Brady Richards, Joseph Sluzark, and Rebecca Spawn demonstrated basic principles in stream ecology. The principles included biodiversity, habitat use, biological productivity and impacts of human activity on stream ecosystems, and using algae and benthic macroinvertebrates (for example, leeches, crayfish, and blackfly larvae) collected from the creek.

During the morning, the students moved through a series of stations that illustrated stream, lake, wetland, grassland, and forest ecosystems. They spent the afternoon collecting samples or simply observing producers (algae and terrestrial plants), consumers (insects, frogs, and small furry animals), and decomposers (fungi and bacteria) to acquaint themselves with the flora and fauna of each ecosystem.

According to many of the students, the BQAU's stream station was a big hit. Mike Langdon expressed an interest in BQAU's being a regular participant in the annual Prospect Park program.

*by Brady Richards*

## Survey staff trained in radiological safety

The Nuclear Regulatory Commission requires that all personnel listed as users on a nuclear permit receive radiation safety training. To comply with this requirement, the Central Region Radiological Safety Committee (RSC) had Dr. Jack Higginbotham conduct an intensive one-day session April 16 at the Denver Federal Center. Higginbotham is a health physicist and an associate professor of nuclear engineering at Oregon State University.



**Radiation Safety** – Dr. Jack Higginbotham (left), instructor for radiation safety training, received high marks from assembled students. Also shown are Linda Oasheim (standing), Mike Schroeder, Duane Wydoski, and Jamie Alexander, all from the NWQL.

The training covered: (1) the basics of radiation such as the types, half-life, activity, and properties of major beta emitters, (2) the effects of ionizing radiation, (3) dose limits, (4) surveys, (5) radioactive waste, and (6) emergency response. About 45 Survey personnel attended the compulsory training. Another training session will be held in September or October.



**Chief Hydrologist Visits Lab** – Bob Hirsch (right), Chief Hydrologist of the Water Resources Division, is briefed by Steve Mouton (left), macroinvertebrate specialist for the Biological Quality Assurance/Quality Control Unit (BQAU), during a brief stopover May 17 at the NWQL. Mark Sandstrom, Chief of the Methods Research and Development Program, and other members of senior staff assisted in the briefing. They are shown touring the BQAU laboratory, where biological material is sorted and subsequently identified for the National Water-Quality Assessment Program.

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## MAIL BASKET

### ***Gibs appreciates improved sample turnaround time***

May 6

I want to thank the personnel of the NWQL for the tremendous improvement in the turnaround time in the March-April sampling period.

As specified in the New Jersey/NWQL standard operating procedure (SOP), the District should receive the data [Schedule 936, acid-preserved nutrients] within 14 days of overnight shipment. In the January-February sampling period almost none of the data were received within the 14-day time period. After this sampling period, the SOP was reviewed both in the New Jersey District and the NWQL to find alterations that would improve on this performance. In the March-April sampling period, data from only three samples were received after 14 days from shipment.

I again congratulate everyone for their efforts.

Jacob Gibbs, Water-Quality Specialist,  
West Trenton, New Jersey

## **Response**

I echo the thank-you note from Jack Gibs for the excellent effort to get nutrient data from New Jersey turned around in 14 days or less. I know we did not establish the 14-day holding time with the acid-preserved nutrients in mind, and it was, and is, a challenge. Congratulations on great progress! Let's also examine what might have happened to cause the final three samples to be late and how we could improve our operations. Keep up the good work!

Pete Rogerson, Chief,  
National Water Quality Laboratory

## ***Inorganic analysts, Login, QAU, and ADP lauded***

April 12

I sent nutrient samples in 8 or 9 days ago. I have the results in my hot little hands even though they were handled over a weekend and sent by mail. I also sent major ion samples 14 days ago by parcel post. I have those results in my now sweating hands! Is this exciting or what?

You know that what you're doing over there is like tossing meat to the wolves. We're going to expect this service all the time and want more and more of the same.

Thanks for a great job. I know there are a lot of steps and a lot of people involved in the effort, so please convey my thanks from the Upper Colorado River NAWQA team.

Robert Boulger, Jr., Hydrologic Technician,  
Grand Junction, Colo.

## **Volunteers from Lab give up Saturday for public outreach**

Personnel from NWQL pitched in for public outreach during the U.S. Geological Survey's Open House, Saturday, April 27, in Golden, Colo. Dennis Markovchick, Ralph White, Steve Glodt, and Armin Burdick set up an exhibit featuring a gas chromatograph and greeted the public. Dennis reports that the event "was a big success." He thanked the volunteers for going the "extra mile" beyond their regular work assignments.

## **Seminars listed at NWQL**

Pat Kociolek, Director of Research, California Academy of Sciences, "Consistent Versus Correct Taxonomy-Implications for Large Monitoring Programs," May 10; Mike Thurman, Hydrologist, Kansas District Office, "Analysis of Acetochlor-Sulfonic Acid Metabolites by High-Performance Liquid Chromatography-Preliminary Results in Surface Water and Ground Water of the Central United States," May 8; Bill Foreman, Methods Research and Development Program, "Pesticides in Air and Rain at Urban and Agricultural Sites in the Midwestern United States, 1995-Preliminary Results," May 1; Zell Peterman, Chief, Isotope Hydrology Team, Yucca Mountain Project, "Analytical Techniques Used in Isotopic and Geochronologic Studies," April 10.

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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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