

Introduction to Field Water-Quality Methods for the Collection of Metals—2007 Project Summary

By Monica L. Allen

The U.S. Geological Survey (USGS), Region VI of the U.S. Environmental Protection Agency (USEPA), and the Osage Nation presented three 3-day workshops, in June-August 2007, entitled “Introduction to Field Water-Quality Methods for the Collection of Metals.” The purpose of the workshops was to provide instruction to tribes within USEPA Region VI on various USGS surface-water measurement methods and water-quality sampling protocols for the collection of surface-water samples for metals analysis. Workshop attendees included members from over 22 tribes and pueblos. USGS instructors came from Oklahoma, New Mexico, and Georgia. Workshops were held in eastern and south-central Oklahoma and New Mexico and covered many topics including presampling preparation, water-quality monitors, and sampling for metals in surface water.



Attendees from the July 2007 workshop held in Santa Fe, New Mexico, watch Monica Allen and Jim Wellman clean sampling equipment.

Attendees spent one full classroom day learning the field methods used by the USGS Water Resources Discipline and learning about the complexity of obtaining valid water-quality and quality-assurance data. Lectures included (1) a description of metal contamination sources in surface water; (2) introduction on how to select field sites, equipment, and laboratories for sample analysis; (3) collection of sediment in surface water; and (4) utilization of proper protocol and methodology for sampling metals in surface water. Attendees also were provided USGS sampling equipment for use during the field portion of the class so they had actual “hands-on” experience to take back to their own organizations.



Attendees from the August 2007 workshop held in Pauls Valley, Oklahoma.

Attendees from the June 2007 workshop held in Tahlequah, Oklahoma.



USGS instructor Stephanie Buck demonstrates collecting a flow-integrated water sample.

Art Horowitz discusses sampling for metals in surface water with attendees.





Attendees calibrate multimeters.

The final 2 days of the workshop consisted of field demonstrations of current USGS water-quality sample-collection methods. The hands-on training ensured that attendees were exposed to and experienced proper sampling procedures. Attendees learned integrated-flow techniques during sample collection, field-property documentation, and discharge measurements and calculations. They also used enclosed chambers for sample processing and collected quality-assurance samples to verify their techniques.

Benefits of integrated water-quality sample-collection methods are varied. Tribal environmental programs now have the ability to collect data that are comparable across watersheds. The use of consistent sample collection, manipulation, and storage techniques will provide consistent quality data that will enhance the understanding of local water resources. The improved data quality also will help the USEPA better document the condition of the region's water. Ultimately, these workshops equipped tribes to use uniform sampling methods and to provide consistent quality data that are comparable across the region.

Attendees collect field properties.



George Craft of USEPA collects a flow-integrated water sample.



Attendees demonstrate processing water samples in a chamber.

For more information, visit the USGS Web site at:

<http://ok.water.usgs.gov/>

or contact:

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Attendees practice collecting flow-integrated samples with their own equipment.

