

# COLLECTION OF NATIONALLY COMPARABLE AND DEFENSIBLE WATER-QUALITY DATA

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## **Biographical Sketch of Author**

Franceska D. Wilde is a hydrologist and ground-water geochemist in the USGS Office of Water Quality. In this position, she developed a national water-quality field manual, serves as coordinator and managing editor of the National Field Manual Project, provides counsel on water-quality sampling, and identifies technological and research issues. Prior to joining the Office of Water Quality, she headed field research on acidic drainage from abandoned coal mines and on the effects of storm-water infiltration on ground-water chemistry. Ms. Wilde received her BA in geology from Hunter College and completed graduate studies at Johns Hopkins and George Washington Universities.

## **Abstract**

The U.S. Geological Survey (USGS) has developed a fluid, web-based system by which to document the existing and proposed USGS requirements, standard procedures, and guidelines for the collection of ground-water and surface-water water-quality data. The purpose of this NATIONAL FIELD MANUAL FOR THE COLLECTION OF WATER-QUALITY DATA is to (1) establish and communicate scientifically sound data-collection methods, (2) encourage consistent use of these field methods in order to produce nationally comparable data, and (3) provide sampling methods that, when properly applied, result in data that are reproducible within defined limits of variability.

The data needed to monitor the quality of national, regional, and local water resources are collected by Federal, State, and local governmental agencies, educational institutions, and the professional private sector. Costly duplication of effort often occurs because inconsistencies in sampling techniques and protocols lead to data that are not comparable. Data comparability is essential if the information gleaned is to be synthesized over local, regional, and national scales and shared among the scientific, regulatory, management, and private sectors.

Comparability, reliability, and defensibility of water-quality data depend on the correct and consistent implementation of accepted scientific methods and technical procedures in the collection of these data, and on the documentation and quality control of the procedures used. The USGS originated this field-manual series as one part of its program to meet those goals. This effort has developed into an ongoing project in which existing field methods can be reviewed and revised and new topics are examined and addressed. The nine chapters of this field manual that currently are online include guidance related to sampling preparations and equipment selection, equipment decontamination, collection and processing of samples for inorganic and organic analytes, field-parameter measurements, indicator bacteria and other microorganisms, and stream-bottom materials. The URL for this document is: <http://water.usgs.gov/owq/FieldManual>.

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