

USER'S MANUAL FOR THE NATIONAL WATER INFORMATION SYSTEM OF THE U.S. GEOLOGICAL SURVEY

WATER-QUALITY SYSTEM, Version 4.3

by

Dorinda J. Gellenbeck, Carolyn J. Oblinger, Donna L. Runkle,
Terry L. Schertz, Jonathon C. Scott, and Robert L. Taylor

1 INTRODUCTION

This user documentation is designed to be a reference for the Water-Quality System (QWDATA) within the National Water Information System (NWIS). For the new user, the “Introduction” and “Getting Started” sections are the recommended places to begin. The experienced user may want to go straight to the details provided in the program section (section 3). Code lists and some miscellaneous reference materials are provided in the Appendices. The last section, “Tip Sheets,” is a collection of suggestions for accomplishing selected tasks, some of which are basic and some of which are advanced. Where appropriate, these Tip Sheets are referenced in the main text of the documentation.

1.1 NWIS Description

As part of the U.S. Geological Survey's (USGS) program of disseminating water data to the public, the Water Resources Discipline (WRD) maintains a distributed network of computers and file servers for the storage and retrieval of water data collected through activities at approximately 1.4 million sites. This system is called the National Water Information System (NWIS).

The NWIS is a distributed water database in which data can be processed over a network of workstations and file servers at USGS offices throughout the United States. The system is composed of four subsystems: the Ground-Water Site-Inventory System (GWSI), the Water-Quality System (QWDATA), the Automated Data-Processing System (ADAPS), and the Site-Specific Water-Use Data System (SWUDS).

Many types of data are stored in the NWIS distributed, local databases, including:

- Site Information
- Time Series (flow, stage, precipitation, chemical)
- Peak Flow
- Ground Water

- Water Quality
- Water Use

The NWIS structure and the types of data available in the four subsystems are shown below in figure 1.

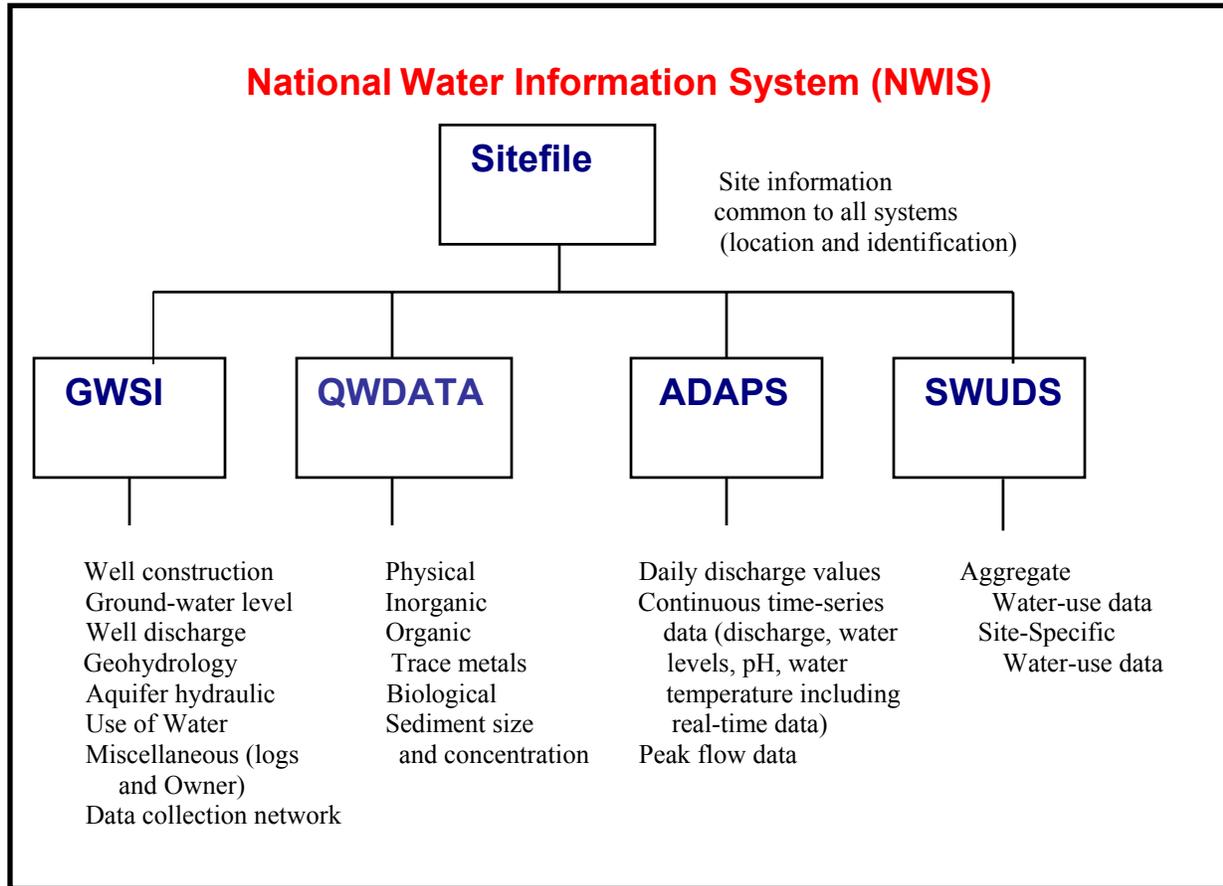


Figure 1. NWIS structure and types of stored hydrologic data.

1.2 QWDATA System Description

NWIS provides for use of one or more logical water-quality databases within one Ingres database, all accessed using one copy of the NWIS software. One logical water-quality database consists of a water-quality file (QWFILE), a station file (SITEFILE), and shared reference files. The QWFILE is a keyed-indexed file of Ingres tables managed by a UNIX-based software system. This system allows records to be retrieved efficiently on the basis of the values of selected data defined as KEY elements: agency code, site ID, begin date, begin time, end date, end time, and medium code. The SITEFILE is accessed to select water-quality records by SITEFILE data elements, such as site ID, site type, and location. Reference files, such as the parameter code file and the geologic-unit code file, are implemented as Ingres tables and are used for checking the validity of data entry values.

Each water-quality record to be stored is initialized by “logging in” the data. This is typically done when field data are available. When a sample is logged in, a record number (unique within each logical water-quality database) is automatically assigned to each analysis. The record number may be used later to access the analysis for updating or viewing. Personnel who have access rights for entering data may log in analyses.

1.3 User Access and Setup

Information on this section can be obtained by accessing the following URL:

http://www.nwis.er.usgs.gov/nwisdocs4_3/nwis_security.pdf

1.4 Acknowledgements

Acknowledgement is given to the many people who contributed to the preparation, review, and testing of this documentation. This group includes:

Melanie Clark
Jim Eychaner
Ed Pustay
Rick Wagner

Richard Coupe
Kerry Garcia
Yvonne Stoker