



Ohio Department of Natural Resources Division of Water Fact Sheet

Fact Sheet 92-8

Water Well Log Computerization System

The Division of Water currently maintains over 725,000 well log and drilling report forms that have been filed with the State since the turn of the century. This well log collection represents the most comprehensive and detailed geologic and hydrogeologic database in Ohio. Each well log is a legal document filed by drillers and maintained by the Division of Water under Ohio Revised Code Section 1521.05.

Well Logs Provide Basic Data

Well log data is used extensively by the Division of Water to prepare ground water resource, pollution potential and detailed aquifer maps, and to assist with various ground water use conflict investigations. Well log data are used within the Department to prepare bedrock topography, drift thickness, glacial and bedrock geologic maps, for coal and industrial minerals permitting, and oil and gas regulatory activities. In addition, well log data are used to provide ground water and well data for a variety of permitted or regulated activities including solid and hazardous waste disposal, underground storage tanks, wellhead protection and public water supply.

System Configuration

A digital well log system utilizing magnetic and optical disk storage and retrieval technology has been implemented to facilitate the retrieval of well log data along with well log images to support various applications. The creation of this system has also streamlined the processing of incoming well logs. The system was developed using proprietary software called Step2000 which retrieves well log data from a separate Oracle database.

The well log images are stored on a RAID drive as a method of protecting against disk failure. As a further precaution, these images are also stored as a backup set on optical platters. Although the optical platters offer data stability they offer a relatively slow

retrieval speed. To enhance system performance, the images are retrieved from the RAID drive from any connected client within the ODNR complex. The entire system is connected to an uninterrupted power supply to further protect against power failures.

Image Capture, Data Entry and Retrieval

Well logs are scanned in a batch mode and temporarily stored on a hard drive for data processing. Well log data are interactively entered into the database through the display of the well log image and the database fields in Step2000. Data entry of each well log requires approximately 3 to 5 minutes depending on the length of the log record. Once data entry for each well log is complete, the image of the log is transferred to optical disk. Well log location maps and data for each township are also scanned and entered into the database to allow retrieval of well logs from topographic maps.

Well logs can be retrieved by directly searching the database (through Step2000) on a number of key fields including owner name, street address, driller, yield, and aquifer type. The system also allows the user to search between ranges of street numbers or drill dates. Data retrieved from a search can be downloaded for processing in other types of scientific software such as ground water flow modeling programs and geographic information systems.

Public Data Access

Prior to 1999, well log data was not electronically available to the public. Before this, well log data was only available by calling a staff geologist who would perform a search and report the results of the search. In October 1999 a link to the web was established at the following address:

<http://www.dnr.state.oh.us/water/maptechs/wellogs/app/>

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This on-line search is easy to perform by following on-screen instructions. While the image of the log is not yet available, other important well details such as depth, yield, static water level and aquifer type are listed. This data is especially important to water well drillers where rapid access to well log records minimizes downtime on current jobs and provides ready information for future job bids and estimates.

Realtors and homeowners needing a specific log have the same ready access to individual well log records as do environmental consultants and real estate developers. This on-line search function has proved very popular, averaging over 2000 hits per month.

Visitors to the Division of Water can also perform well log searches on public access terminals. These terminals use the Step2000 software which allows

users to search many criteria not currently available on the web application. Well log images and location map images can be displayed and printed from these terminals.

The Division of Water views the development of this database as an important step in promoting the proper management and protection of Ohio's ground water resources.

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Well Log Computerization System Diagram

