CASE STUDY: CITY OF REDMOND – WELLHEAD PROTECTION PROGRAM, EQUIS IMPLEMENTATION

Project Overview

The City of Redmond (City) has several water quality related programs (e.g., Groundwater Monitoring, Drinking Water, Surface Water) responsible for contributing to the protection and management of ground and surface water resources. These water quality programs (Programs) have either regulatory responsibility authorized by state or county oversight agencies or, have local authority through ordinances. Each Program has different reporting needs internally, to the public, and for meeting regulatory requirements. However, all the water quality Programs have a common need to understand the hydraulic connections between surface, storm, and groundwater. They also need to understand the potential risks to surface and groundwater resources. The primary source of risk is through contamination, however, there are also risks to the built environment, such as excessively deep foundations being inundated by groundwater. Currently, each Program collects, stores, and analyzes data independent of the other Programs to meet their basic operational and regulatory needs. However, the ability to combine data from the Programs in a centralized system would greatly enhance overall watershed management, provide significant efficiencies in reviewing/analyzing data, and help reduce risks.

"The ability to immediately start mapping sampling locations in ArcGIS was established very early on and proved to be an asset."

Elaine Dilley, City of Redmond

Solution

In order to provide a central water quality repository, the City implemented the EQuIS Professional (Version 5.3, SQL 2000) software solution in May 2008. The EQuIS software, in conjunction with other technical software (such as ArcGIS) and some custom features, allowed the City to manage, track, store, and report water quality data at the Program level as well as provide a city-wide view of all water quality information that facilitated expanded analysis and water resource protection.

Approach

The City teamed with GeoEngineers, Inc. (GEI), an earth science and technology consulting firm, to implement the EQuIS solution. The City needed to collect historical analytical data (hardcopy reports), water level data (pressure transducers and manual measurements) and map sample locations within ArcGIS.

GEI created a path to add the historical data used through a combination of custom data entry templates and custom electronic data deliverable (EDD) formats. They also complimented the out-of-the-box capabilities of EQuIS with

additional custom tools through MS Access and ArcGIS that provided the City with the means to efficiently manage and analyze the City's data. GEI also provided a method to track the sample data back to a specific hardcopy report by adding a new bibliography table within the EQuIS framework.

Results

As a direct result of the project, the City's ability to detect contamination and declines in the water table before a supply well is adversely impacted has dramatically improved. The City can also complete public data requests more efficiently and with greater detail than before the EQuIS system was in place.

Facts

The following lists project details as of May 2009.

- Entered analytical and spatial data from nearly 250 environmental reports.
- Approximately 130,000 water level measurements (recorded from manual measurements and data loggers) in EQuIS.
- Over 40,000 analytical records stored in EQuIS and available for analysis.
- Approximately 1,250 sampling locations that stored in EQuIS can now be easily mapped within GIS.

"Your team (GeoEngineers) has kept the end in mind. They have held true to their promise to be extremely collaborative and work with me to determine the best possible solution for each milestone along the way."

Elaine Dilley, City of Redmond