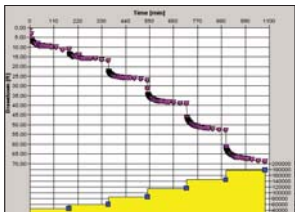
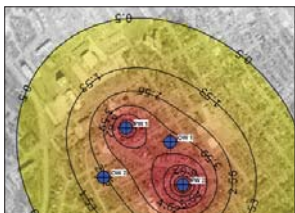


Derivative analysis



Preview of drawdown versus time data



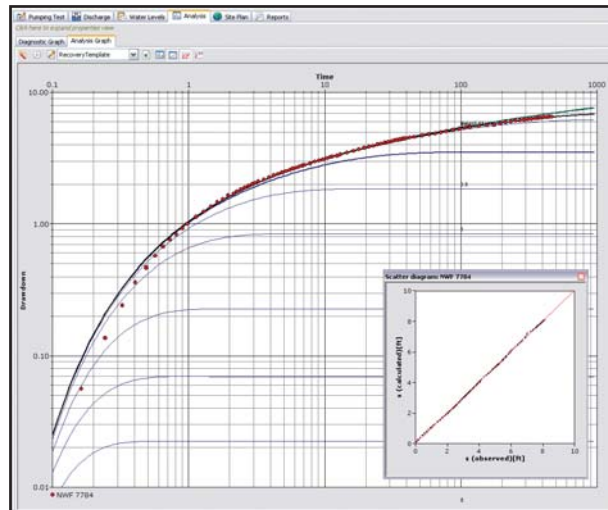
Display drawdown contours with colour shading

AquiferTest Pro is compatible with:

- Diver* dataloggers
- Hydro GeoAnalyst*
- HydroManager*

AquiferTest Pro

Pumping Test and Slug Test Data Analysis Software



Applications:

- Estimating the hydraulic properties of aquifers and aquitards (hydraulic conductivity, storativity, transmissivity)
- Predicting drawdown effects resulting from groundwater pumping
- Optimizing pumping test design considering well diameter, pumping rate, screened interval, etc.
- Optimizing the placement of new pumping wells due to proximity to existing wells
- Mapping and contouring drawdown from groundwater pumping

Overview

Groundwater management begins by determining the characteristics of the aquifer. Numerous water level measurements are taken in the field during pumping or slug tests and are then interpreted using an analytical model of aquifer flow. These aquifer characteristics are then used to predict drawdown effects caused by pumping, and to determine the presence of flow boundaries or well interference during pumping. However, interpreting the field measurements is often a tedious task that involves managing vast amounts of data over time.

AquiferTest Pro

AquiferTest Pro* is ideal for storing, analyzing, and reporting pumping and slug test data allowing for the analysis of virtually any aquifer condition! These powerful analytical capabilities are complemented by a suite of flexible and easy-to-use graphing techniques and reporting capabilities.

Used by groundwater and environmental consultants, regulators, and educational institutions around the world, AquiferTest Pro leverages the latest software development technologies to give you the best available software solution for managing, interpreting and presenting your aquifer testing data.

Features & Benefits

AquiferTest Pro*, a popular software package available for graphical analysis and reporting of pumping test and slug test data, now includes more functionality and more features requested from our users. Designed by hydrogeologists for hydrogeologists, AquiferTest Pro expands the available solution methods and improves communication with groundwater dataloggers.

Program Design

- Easy to use and navigate with the data and analysis separated into 5 or 6 simple pages (tabs) depending on the type of test used.
- Windows browser panels can be used to show/hide lists from the view
- Single file format (SDI application). Files are smaller in size and more manageable and there is now one program window for each project file. As such, it is possible to open several instances of the program and work on several projects at the same time.

Analysis Features

- Diagnostic Plots – Compare observed data or drawdown derivative data to standard curves in log-log or semi-log scales to help determine the type of aquifer and diagnose the presence of well effects, boundary effects, etc. before running the analysis
- Display the Statistics of the Fit – Show the statistics of the best fit line and export to .TXT or .XLS file formats
- Scatter graph of calculated vs observed drawdown **NEW**
- Analysis Plots – Choose from a Drawdown plot or Type Curve (dimensionless) plot on the fly
- Automatically or manually fit data to type curves – manually adjust parameters for any analysis type using the mouse **NEW**
- Automatically display family of type curves for traditional methods (Hantush, Neuman) to assist in curve fitting **NEW**
- Derivative Smoothing reduces noise in data set **NEW**

Analysis Methods

AquiferTest Pro supports pumping test solutions for:

- Confined, Unconfined or Leaky aquifers
- Fracture Flow (Dual Porosity) aquifers
- Fully and Partially Penetrating Pumping Wells and/or Observation Wells or Piezometers, and Horizontal Pumping Wells **NEW**
- Aquifers of Infinite Extent or Bounded by Recharge or Barrier Boundary
- Isotropic or Anisotropic Aquifers
- Constant or Variable Discharge Rates
- Single or Multiple Pumping Wells
- Well Losses, Well Bore Storage, and Well Skin Effects **NEW**
- Specific Capacity Analysis, Well Performance

Analysis methods include:

- Confined: Theis, Cooper-Jacob
- Unconfined: Boulton, Neuman (improved performance **NEW**), Theis-Jacob correction
- Leaky: Hantush, Hantush with storage in aquitard
- Fractured: Warren Root, Moench
- Recovery Analysis: Agarwal and Theis Recovery
- Well Bore Storage: Papadopulos & Cooper.
- Well Skin Effects (Agarwal) **NEW**
- Horizontal Wells: Clonts & Ramey **NEW**
- Slug Tests: Bouwer-Rice, Hvorslev, Cooper-Bredehoeft-Papadopulos, and Butler (High K with Oscillations) **NEW**

Graphs

- Flexible graph settings (specify interval, max, min, grid lines, log scale)
- Save custom graph settings as a template for future analysis
- Floating parameters dialog for adjusting T, S and K values for multiple wells
- Display calculated parameter values for all wells simultaneously
- Fit multiple wells to one type curve simultaneously or display multiple drawdown or type curves
- Use the standard type curve or derivative type curve for curve fitting and parameter calculation
- Contour drawdown data using colour shading or contour maps with a site map in the background
- Export contour lines and well locations to shapefiles **NEW**
- Export contour maps to graphics format (.BMP) or copy to the clipboard

Data

- Import data from .TXT, ASC, .XLS, and .XLSX **NEW**
- Import Diver Datalogger files (.MON) and other data logger formats
- Import wells from .TXT, .SHP, or .XLS, .XLSX file formats
- Data filter to reduce the number of data points and improve calculation speed
- Filter option to keep data points where the discharge rate changes to ensure that critical data points are not lost

Data Preprocessing Options

AquiferTest Pro complies with the US EPA Protocol: "US EPA-SOP for Aquifer Pumping Tests" (EPA/540/S-93/503), which requires pumping test data to be corrected for barometric effects and/or local/regional water level trends. There are three data preprocessing options available:

- Data Trend Correction – Determine if the water level trend affected the pumping test results by running a t-test analysis on the data set to determine the significance of the trend. The drawdown can then be corrected according to the trends, and the corrected drawdown data may be used for the calculation of aquifer parameters.
- Create and Save a Custom Data Trend Correction – This trend may be used to account for the influence of tidal effects during a pumping test. Apply this trend to a single well or all wells.
- Barometric Correction – Import barometric data from the test and calculate the Barometric Efficiency (BE) of the aquifer. Using a t-test analysis, determine the significance of the barometric influence and correct the drawdown according to the barometric effects. The corrected drawdown data may be used for the calculation of the aquifer parameters.

Project Units

- Save units as defaults for all new projects
- Easily change units and convert values on the fly
- Imperial gallons per minute or day as well as U.S. gallons are a unit option for discharge rate

Reports and Printing

Several standard pre-defined reports including:

- Site Map
- Well Symbols
- Time vs. Drawdown Data
- Trend Correction Analysis
- Barometric Correction Analysis
- Analysis Plot
- Analysis Summary Results Table
- Customize company name, logo and report header information
- Print all reports at once, from one window
- User defined reporting fields can be inserted anywhere on the report layout **NEW**