

THE EPANET WATER QUALITY MODEL

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EPANET is a software package developed by US EPA's Drinking Water Research Division for modeling hydraulic and water quality behavior within water distribution systems. Starting with a geometric description of the pipe network, a set of initial conditions, estimates of water usage, and a set of rules for how the system is operated, EPANET predicts all flows, pressures, and water quality levels throughout the network during an extended period of operation. In addition to substance concentration, water age and source tracing can also be simulated.

EPANET offers a number of advanced features including:

- modular, highly portable C language code with no pre-set limits on network size
- a simple data input format based on a problem oriented language
- a full-featured hydraulic simulator
- improved water quality algorithms
- analysis of water quality reactions both within the bulk flow and at the pipe wall
- an optional graphical user interface running under Microsoft® Windows™. The Windows user interface allows one to edit EPANET input files, run a simulation, and view the results all within a single program. Simulation output can be visualized through:
 - color-coded maps of the distribution system with full zooming, panning and labeling capabilities and a slider control to move forward or backward through time,
 - spreadsheet-like tables that can be searched for entries meeting a specified criterion,
 - time series graphs of both predicted and observed values for any variable at any location in the network.

EPANET is currently being used to analyze a number of water quality issues in different distribution systems across the country. These include: chlorine decay dynamics, raw water source blending, altered tank operation, and integration with real-time monitoring and control systems.

For More Information:

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