KYPIPE

kypipe.com

Steady-state, transient pressure, flow analysis and design tools for piping systems.

Software designed and supported by civil and mechanical engineers.

Powerful. Cost-effective. Easy to use.

Steady State • Surge • Gas • Steam • SWMM • All in one seamlessly integrated software suite.

KYPipe focuses on technology and software development, and we have since 1973. The following pages introduce you to our ongoing developments and latest releases. Our prime objective is to provide you, the user, with an extremely powerful steady-state and transient hydraulic analysis and design tool that is cost-effective and easy to use.

Evaluate the software for yourself. Download a free demo at www.kypipe.com or call us at (859) 263-2234 for a DVD.

Free evaluations

KYPipe provides free, fully-working demonstration copies of the latest version of Pipe2000 and technical support at no cost, even during your evaluation.

KYPipe network modeling consists of two components: the graphical user interface and the underlying model engines. The GUI is used to develop the distribution model, enter data, and present results. The modeling engines perform all the underlying engineering calculations.

Although it is the GUI that you see and interact with, the embedded engines are critical components, because they dictate the true engineering capabilities and limitations of your modeling software.

Overall KYPipe modeling capabilities

- High level of expertise and free technical support
- Ongoing model development activities and the ability for you to add important future capabilities at a reasonable cost
- The range of capabilities and ease of use of the GUI
- Tightness of the integration of steady-state and transient modeling
- Confidence that you can recommend KYPipe software to your clients
- The most used and tested hydraulic modeling software worldwide

With KYPipe's expertise in software development and our superior support teams, our primary commitment is to developing advanced pipe network modeling technology.

Steady-state and transient pipe network modeling is a complex engineering task, and access to expert modeling support is essential. Our Pipe2000 GUI combines state-of-the-art graphics with many innovative features to accelerate, improve, and add important capabilities to pipe network modeling. The main objective of our GUI is to provide a simple and intuitive interface for developing and analyzing hydraulic models and presenting results.

Pipe2000 includes some very advanced graphical presentations, new powerful dynamic data features, and very tight integration to important related capabilities, such as pressure surge analysis and dynamic calibration. As always, we offer either free updates of the same version, or reasonably priced upgrades of new versions to current users, and working evaluation versions at no cost. With KYPipe, you have choices that will provide significantly greater modeling capabilities at considerably less cost.

Free technical support has been a KYPipe standard for 40 years. You may contact any one of a number of software developers and engineers with questions, at KYPipe.com/contact.

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Pipe2000 Graphical User Interface

This program allows users to develop pipe system models with just a few intuitive steps. The GUI is equipped with many unique features that make the Pipe2000 series the hydraulic modeling standard.

Pipe2000 Graphical User Interface

Pipe2000 is the graphical user interface (GUI) for the development and simulation of piping system models. Pipe2000 supports calculations for incompressible flow (KYPipe and EPANET), compressible flow (Gas and Steam), transient flow (Surge), fire sprinkler analysis (GoFlow), and stormwater modeling (SWMM). For all applications, there are a series of operations for developing a pipe system model, entering data, and analyzing the piping system.

The Pipe2000 graphical user interface was designed to create comprehensive pipe system models, accessing and running associated engineering analysis engines, and presenting results in a variety of ways. The models are entirely made up of pipe links, end nodes and internal nodes. Using this approach, only a few simple steps are required to develop and modify pipe systems and define the associated data.

Pipe2000 can input a background map and drawings in a variety formats. In addition, scaled grid lines may be used. Using a scaled background map or grid lines will allow pipe links to be precisely scaled (length calculated) as they are created.

A wide variety of pipe distribution system devices are supported and users can maintain an associated extensive table of data and records, which can be customized to their specifications. In this way, Pipe2000 can serve the multiple purposes of providing and maintaining extensive GIS records, generating up-to-date data files for hydraulic and water quality models, and providing facility management capabilities.

Technical Specs

Windows XP or higher, 2 GHz or faster, 4 GB memory, 200 GB storage, USB port or network access to USB port of a system.

Universal Pipe2000 Features

Internet Maps and Elevations import worldwide maps and retrieve system elevations from the Internet for model backgrounds and complete contour reference.

Animated Maps and Pipe Profiling allow users to create stunning animated presentations with KYPipe's animated maps and pipe profiling features. Tanks and reservoir levels, pump speeds, water flow or velocity rates, and surge devices can all be animated in detail. Map pressure contours can be displayed simultaneously with color emphasis of node demands and pipe flows, allowing the user to analyze models thoroughly and exhibit dynamic presentations.

CAD and GIS, Import/Export is a DXF exchange feature that allows the user to import and export piping data (lines and polylines) from Auto CAD to create a pipe system. The GIS exchange feature imports and exports Pipe2000 data to and from SHAPE files.

Contouring and Emphasis generate, display and print contour maps for a variety of node data and results, e.g., elevation or pressure.

Unique Elements and Devices include junctions, tanks, reservoirs, pumps, VFD pumps, sprinklers, regulating valves, control valves, and others. In addition, KYPipe models a number of unique devices such as hydrotanks, vacuum breakers, variable pressure supplies, combined holding tank-pump elements, and loss elements.

Pipe Schedules allow users to select the pipe type from one of many pipe schedules, and the pipe data fields are automatically filled. This is a great time-saving feature. Users can create their own pipe schedules or select from hundreds available.

Device and Element Libraries allow users to create customized libraries that contain data for devices such as pumps, valves, air vacuum valves, surge tanks, back flow preventors and pipe libraries. A library can be created for any of these devices. A large number of pipe libraries are distributed with the software.

Operational Control Settings for visual display and control of system condition settings.

Meters and Demands let loads and demands be applied in multiple ways. Complex scenarios and meter records may be incorporated.

ADDITIONAL INFORMATION.....**KYPipe.com/Gui**
ONLINE TUTORIALS.....**KYPipe.com/Kynetic**
PUBLICATIONS.....**KYPipe.com/Pubs**

KYPipe

KYPipe is a water/liquid distribution modeling software. It has been developed and continually updated by civil engineering professors from the University of Kentucky for over 40 years. The software is qualified for nuclear applications and is applied by engineers around the world. KYPipe is the most widely used and trusted hydraulic analysis modeling software with many capabilities not available anywhere else.

Optimization Features

Optimal Design Module
Select optimal diameters for a specified section of a system to minimize total pipe installation costs.

Optimized Calibration
Minimize the differences between observed field data and model predictions. This feature considers all data simultaneously to provide the best calibration possible.

Branch Diameter Analysis
Assign the diameters of branch lines based on the design flow, which can be based on the number of users serviced by each pipe. Field data can be utilized for calculating equivalent flow. This feature is especially valuable when designing low-pressure sewer systems and rural water systems.

Optimal Pump Scheduling
OPS calculates the most economical way to operate a complex distribution system with multiple pump stations.

Hydrant Flow Calculations
Provides calculated fire flows for each hydrant, which will maintain a specified minimum pressure anywhere in the distribution system as well as the required pressure at a pumper. Apply the hydrant monitor element and operate the nozzle while connecting a hose to another connection. The hydrant monitor will analyze up to three valves open simultaneously. NFPA hydrant color codes may be applied to emphasize the hydrants and detailed hydrant records can be maintained within the model.

Instantaneous Peak Demand Rural Analysis
IPD calculates model demands using peak demand diversity curves recommended for rural and sparsely populated water systems where using conventional demands will result in inadequate designs.

Flushing Analysis
Identify pipes that attain a specified velocity when a flushing scenario is analyzed. This analysis generates a special set of map labels, color-coded pipes, and a flushing report.

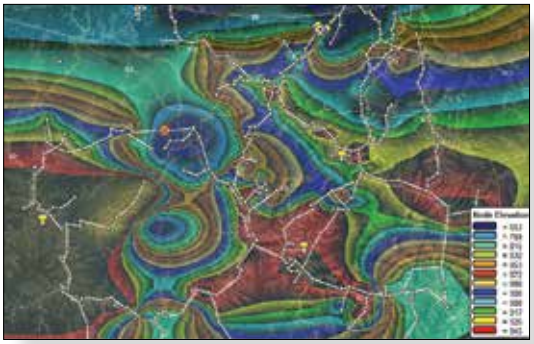
Extended Period Simulation
EPS simulates extended periods with automatic pump and tank controls, demand curves, and specific changes at designated times.

Automatic Residential Demand Distribution
Specify the total residential demand and number of residential connections, and the demand will automatically be distributed throughout the system.

Demand Types and Patterns
Distinct types of demands may be defined (e.g., residential, industrial, commercial or agricultural). A series of factors may be applied to the various demand types as steady-state scenarios, or over time in the extended period simulation.

Water Quality Analysis
This feature calculates chemical concentrations and water age. It also traces a chemical from a source and calibrates bulk and wall reaction rates.

Meters
Apply meter demands to metered connection nodes anywhere in the distribution system. The meter demand is distributed equally to the end nodes. Meter records are held in spreadsheet format and can be updated on the fly.



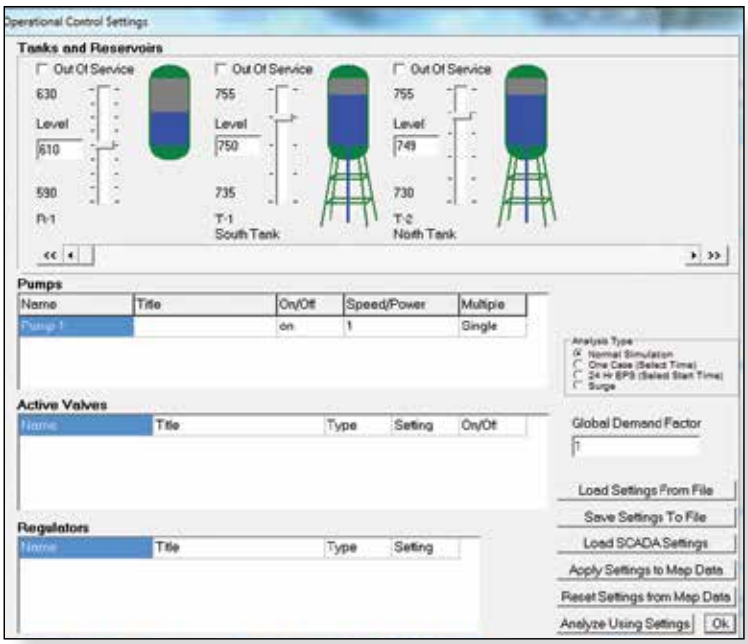
Make stunning displays of network results and parameters with satellite background images from the Internet. Import elevation data from multiple sources.

KYPipe

Operational Control Settings
OCS is a tool used for presentations and operational and design studies. The screen displays the operating conditions for pumps, tanks, valves, regulators and demands, and allows the user to change the conditions and launch the analysis from within the OCS screen. This feature also provides a platform for applying SCADA data.

Direct Parameter Calculations
Also referred to as constraints, calculates pipe system parameters to exactly satisfy stated pressure requirements at designated locations in the piping system for a range of operating conditions.

Pump Modeling Tools
Includes parallel and series pumps, variable speed pumps, constant flow and constant head pumps. Develop system head curves and select optimum pump.

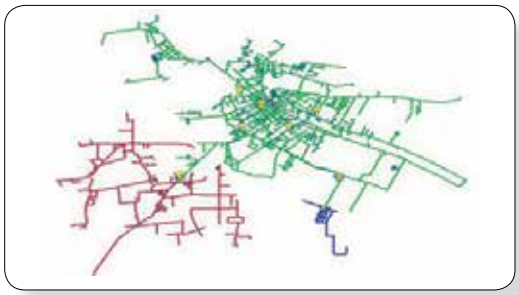


Operational control settings screen for controlling device settings and design studies. This feature is available in all the Pipe2000 engines.

Temperature Dependent Analysis
TDA allows for modeling liquids with significant changes in density and viscocity at different parts of the distribution system. Based on the user-specified node temperature, the program first calculates the correct viscocity and density for each pipeline, then calculates the appropriate Darcy-Weisbach friction factors, taking into account the correct viscocity and density for each pipe.

Hydrotank Modeling
This element provides pump cycle control, and combines the tank and pump controls, which automatically maintain the pressure between the high and low specified settings.

Locate Pressure Zones
Define and emphasize pressure zones within the system.



Locate Pressure Zones tool applies a color emphasis to each zone.

Pipe2000 GUI Features

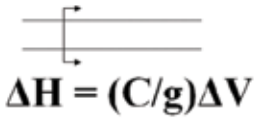
- **Comprehensive error checks**
- **Export to PDF, JPG and BMP**
- **Fire flow** *(KYPipe & GoFlow only)*
- **Fitting and loss coefficients**
- **Inventory and cost**
- **Maps, labels, notes, legend, and logo**
- **Menus and hints in multiple languages**
- **Multiple scenarios/changes**
- **Node images**
- **Optional backgrounds**
- **Pipe break and intrusion calculator**
- **Pipe emphasis and contouring**
- **Report customizing**
- **Skeletonization** *(KYPipe & Surge only)*
- **Sprinkler systems** *(KYPipe & GoFlow only)*
- **Water quality sensor placement tool** *(KYPipe only)*

ADDITIONAL INFORMATION.....**KYPipe.com/KYPipe**
ONLINE TUTORIALS.....**KYPipe.com/Basics**

Surge

Surge is an integrated transient analysis software and has undergone numerous QA procedures, including efficiency in large, complex distribution networks with astonishing speed. Surge easily identifies risks, designs adequate surge protection, ensures longevity of your system and protects customers' safety and health.

Wave Method



The WM is a computational technique for transient flow analysis, based on the concept of pressure wave generation and propagation in pipe systems. This method permits Surge to accurately calculate transients with extreme speed.

Animated Maps, Plots and Pipe Profiling

Create stunning animated presentations for pressure waves, cavitation, and surge control device operation. Display map pressure contours simultaneously with color emphasis of node demands and pipe flows to analyze models thoroughly and exhibit dynamic presentations.

EPA-Surge is a powerful transient analysis wizard. This feature was designed specifically for EPANET users so that transient analysis can be performed on EPANET models easily. The wizard will utilize a working EPANET file to define a piping system and the conditions for initiating a transient analysis. The transient analysis can be initiated by valve action or pump action or both.

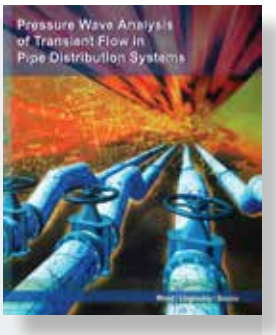
Unique Elements and Devices

Cutting-edge elements and devices are continually integrated, keeping Surge a cut above the rest. Siphon breakers, dynamic air valves, pressure relief valves, surge anticipation valves, and surge bladder tanks are just a few of the unique devices available.

Pump Modeling

Model parallel and series pumps, and variable speed pumps. Account for abnormal pump operation, reverse flow and turbining during pump trip with built-in Suter files.

Pressure Wave Analysis of Transient Flow in Pipe Distribution Systems



By Don J. Wood, Srinivasa Lingireddy and Paul F. Boulos

This book is a working reference for engineers, students and practitioners. It presents an innovative and efficient approach for modeling and controlling hydraulic transients that can be directly applied to engineering practice.

For more information visit: http://KYpipe.com/Surge_Book

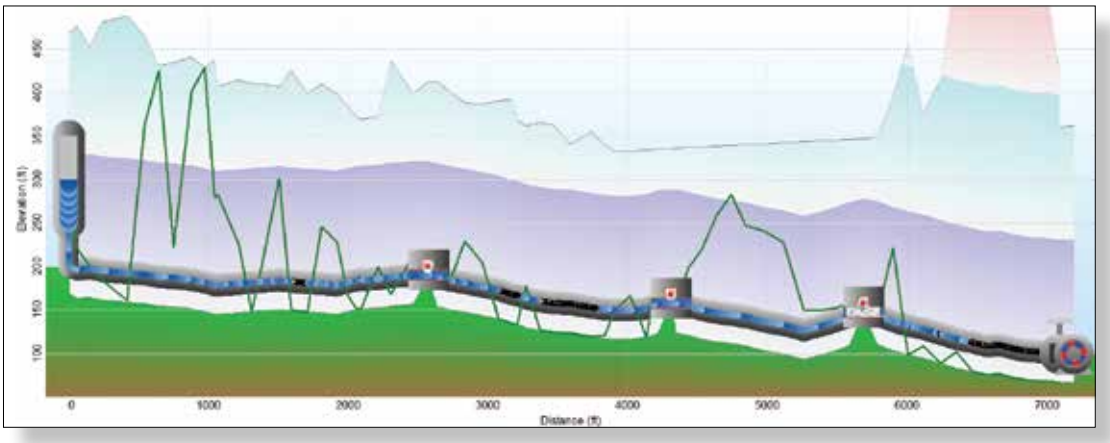
TranSurge with CAD Profiles

This product is a brand new ultra-simplified version of the Pipe2012 graphical interface, specifically geared toward transmission main modeling. This exceptionally streamlined version of Pipe2012: Surge software is expected to drastically reduce the time and effort needed for building flawless transmission main models and designing efficient surge protection systems.

Built-in Valve Characteristics

Included in the Surge program are a number of built-in standard valves characteristics: gate, global, butterfly, and many more valves are included. This feature allows users to accurately model valve actions.

ADDITIONAL INFORMATION.....**KYPipe.com/Surge**
ONLINE TUTORIALS.....**KYPipe.com/Surge-0**



Striking animated presentations that capture cavitation in a piping system.

Gas

Gas analyzes steady-state flows and pressures in gas distribution networks. The ideal gas law is used to describe the pressure-temperature-density relationships. Flow in a Gas model is steady, one-dimensional, and isothermal. Temperature variations may be accommodated in various pipe lines. The program is useful for determining the effects of demand or load changes, and it can accommodate large networks, looped systems, and multiple supply and load points. Several scenarios may be set up in a single model, such as load changes or open/closed valves.

Equations

Darcy-Weisbach equations and ideal gas law are used to describe pressure-temperature density relationships in Gas. Non-ideal gas and constant density gas analyses are also available. Mass flow calculation is used to calculate velocity.

Input

SYSTEM PARAMETERS:

- **Pipes** - Diameter, Darcy-Weisbach roughness, fittings (bends, T's, reducers, etc.), length (may be scaled by default)
- **Nodes** - Elevation, loads
- **Compressors/Fans** - Pressure/flow characteristics or useful power
- **Supplies** - Supply pressure or pressure/flow characteristics for variable pressure supplies
- **Loss Element** - Loss/flow characteristics
- **Regulator** - Pressure setting
- **General** - No initial flow or pressure assumptions are required. Any number of parameter changes may be made within the same analysis. At least one fixed pressure node or reservoir is required for each system.

Analysis Types

- Operating temp
- Ratio of specific heats
- Absolute viscosity
- Specific gravity or molecular weight


Landfill gas collection system

Ideal Gas Analysis

- Operating temperature
- Ratio of specific heats
- Absolute viscosity
- Specific gravity or molecular weight
- Critical temperature
- Critical pressure

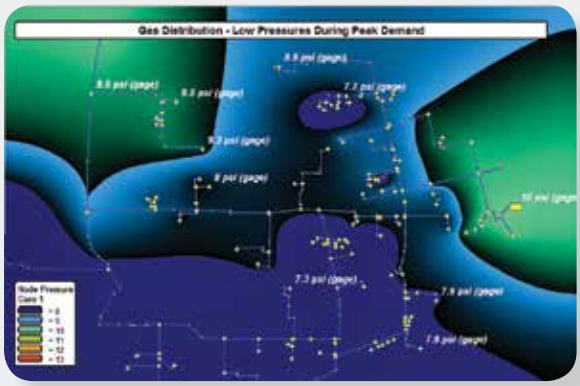
Non-Ideal Gas Analysis

- Absolute viscosity
- Gas density

Constant Density Gas Analysis

- Quickly reference the required input data for a variety of standard gases

ADDITIONAL INFORMATION.....**KYPipe.com/Gas**
ONLINE TUTORIALS.....**KYPipe.com/Gas-0**



Pressure Units - English or SI / Gauge & Absolute

Psi	cm water	kPa, Pa
Psf	mm water	Bar
Atm	Inches water	Kg/sq cm

Output

- Steady-state pressure (one-dimensional, isothermal)
- Steady-state flow
- Pressure drop/loss
- Friction factor
- Mean flow velocity
- Area ratio
- Area of constriction for pipe
- Maximum mach number (choking flows)
- Minimum and maximum pressure, loss, and velocity tables
- Density

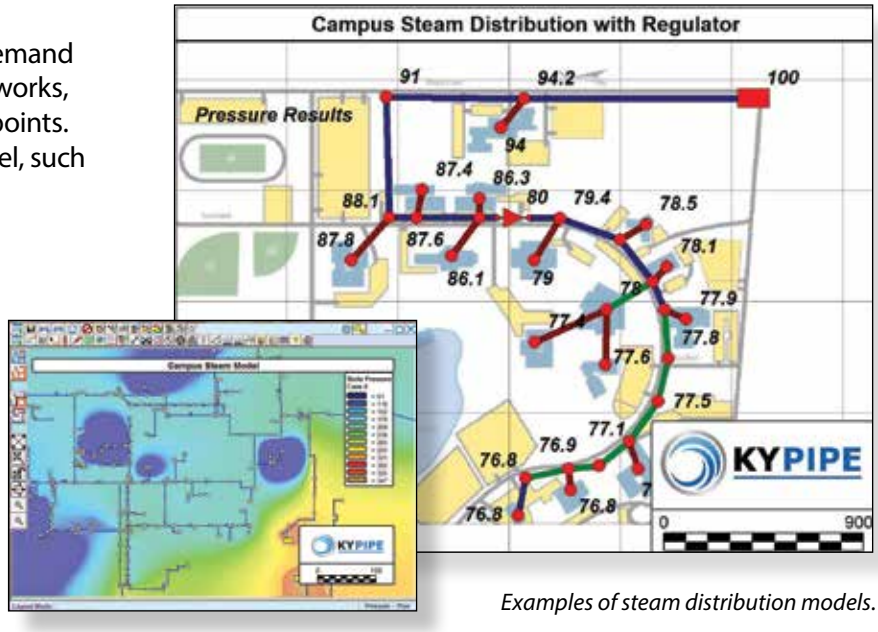
Flow Units - English or SI

SCF/min - SCM/min (standard cubic ft or m)	lb/day - kg/day
SCF/hr - SCM/hr	lb/sec - kg/sec
MSCF/day - MSCM/day (1,000 SCF or m)	lb/hr - kg/hr
MSCF/hr - MSCM/hr	lb/sec - kg-mol/sec (mol-moles)
st/hr - mt/hr (standard or metric tons)	
st/day - mt/day	

Steam

Steam analyzes the steady-state flows and pressures in steam distribution networks. Flows are steady, one-dimensional, and saturated.

Steam is useful for determining the effects of demand or load changes. It can accommodate large networks, looped systems, and multiple supply and load points. Several scenarios may be set up in a single model, such as load changes or open/closed valves.



Examples of steam distribution models.

Input

SYSTEM PARAMETERS:

- **Reference Pressure** - highest supply pressure for the system
- **Global Load** - factor that may be applied to assigned loads
- **Pipes** - Diameter, Darcy-Weisbach roughness, fittings (bends, T's, reducers, etc.), length (may be scaled by default)
- **Nodes** - Elevations, loads
- **Compressors/Fans** - Pressure/flow characteristics or useful power
- **Supplies** - Supply pressure or pressure/flow characteristics for variable pressure supplies
- **Loss Elements** - Loss/flow characteristics
- **Regulators** - Pressure setting
- **General** - No initial flow or pressure assumptions are required. Any number of parameter changes may be made within the same analysis. At least one fixed pressure node or reservoir is required for each system.

Model Features

- Multiple compressors with pressure-flow characteristic
- Multiple pressure reducing valves (PRVs)
- Multiple steam generating sources (both high and low pressure stations)
- User-specified steam loads

Calculation Features

- Uses appropriate data from the latest steam tables to calculate the required state parameters (IAPWS-IF97).
- Automatically balances mass, energy and other thermo-dynamic equations irrespective of the model complexity.
- Incorporates a mass flow rate-based temperature mixing model.
- Allows for multiple scenario simulations in one model run, e.g., what-if scenarios, such as:
  - Studying the effect of increasing or decreasing of load factors in a single run.
  - Changing certain model parameters/characteristics, e.g., pipe diameter, pipe roughness, on/off status of a valve, specific load change at any node.

ADDITIONAL INFORMATION.....**KYPipe.com/Steam**
ONLINE TUTORIALS.....**KYPipe.com/Steam-0**

Output Reports

- Complete list of input data
- Pipe results – pipe flow rate, head loss, velocity, average density
- Node results – loads in lb/hr (or kg/hr), loads in MBTU/hr, pressure in absolute and gauge units, density
- Low pressure areas are highlighted
- Highest mach number (indication of choking condition) and the pipeline in which it occurred is listed
- Summary of results including total load in the system
- Flows in/out of each supply/receiving node
- Detailed report on pressure reducing valves (PRVs), flow rates, specified pressure setting, pressure drop
- Detailed report on compressor operation

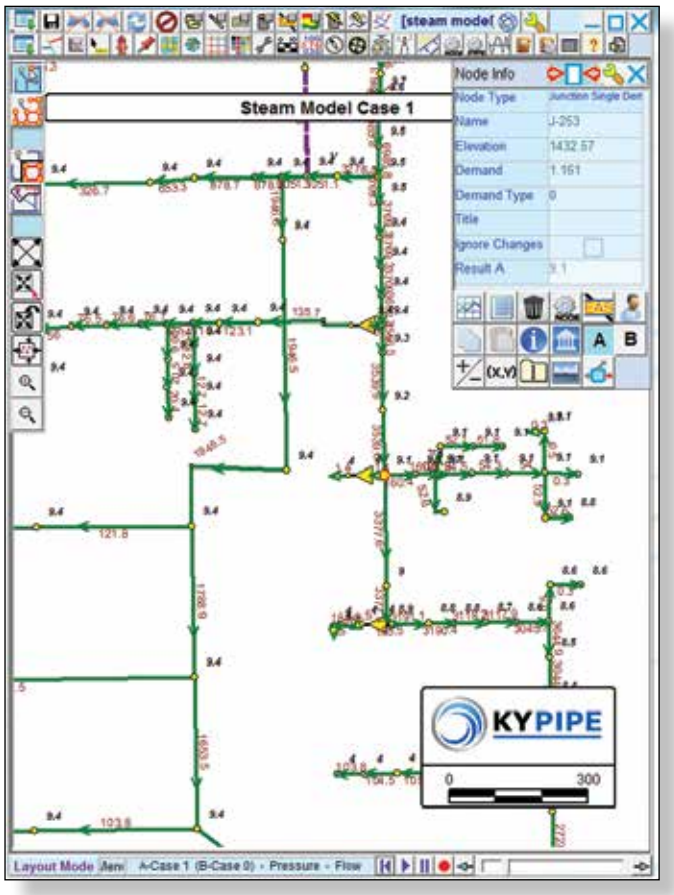
Mass Flow Units - English or SI

kg/hr
lb (mass)/hr
MBTU/hr

SuperSteam

SuperSteam is an advanced version of Steam. SuperSteam was developed specifically for modeling distribution networks designed for superheated steam.

SuperSteam includes all the capabilities of the original Steam model and can render complex steam distribution networks with multiple supply sources generating either superheated or saturated steam, multiple compressors, and pressure-reducing valves. SuperSteam employs data from the latest steam tables (IAPWS97) for various thermodynamic properties of the steam.



Output Report

- Pipe Results - heat loss, average viscosity
- Node Results - enthalpy, temperature, saturated temperature, superheat

Model Features

- Temperature specification at known locations
- User-specified heat transfer coefficients for pipes
- User-specified ambient temperature

Calculation Features

- Calculates heat loss for each pipe line based on flow and pressure drop across the pipe line, pipe heat transfer coefficient, etc.
- Tracks saturated temperatures for all nodes and sets the temperatures to saturated temperatures if the calculations force them to go below saturated values.
- Temperature at any node is equal to the volumetric average of the temperature of all the pipes feeding the node.
- Steam loads may be input at junction nodes, which can be used to simulate condensation loss.

Node Results:

Junction No.	Node Title	Load (LB/HR)	Load M-BTU/HR	Pressure (PSIA)	Pressure (PSIG)	Density (LB/ft^3)
J-1		123	117.731	24.68	9.98	0.05
J-2		0	0	26.7	12	0.06
J-3		1	0.913	64.019	49.319	0.14
J-4		521	498.695	24.668	9.968	0.05
J-5		0	0	24.644	9.944	0.05
J-6		0	0	24.667	9.967	0.05
J-7		0.23	0.224	24.123	9.423	0.05
J-8		225.41	215.945	24.124	9.424	0.05
J-9		225.41	215.936	24.149	9.449	0.05
J-10		0	0	24.12	9.42	0.05
J-11		35.78	34.273	24.117	9.417	0.05

**** THE RESULTS FOR THIS CASE FOLLOW ****

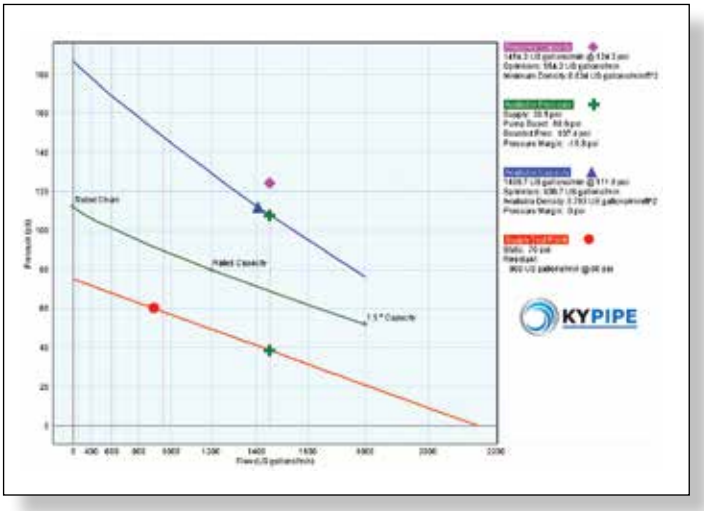
Convergence Accuracy = 0
Pipe Results:

PIPE NO.	NODE #1	NODE #2	FLOW (LB/HR)	LOSS (PSI)	VELOCITY (FT/S)	DENSITY (LB/CU FT)	FRICTION FACTOR	AREA RATIO
P-1	J-1	J-218	-520.866	0	-6.85	0.06	0.023	0.007
P-2	J-218	J-1	520.865	0	6.84	0.06	0.023	0.007
P-3	J-220	J-1	-918.732	0	-12.07	0.06	0.02	0.013
P-4	R-1	J-20	405940.359	3.23	836	0.12	0.009	0.73
P-5	J-585	J-586	0	0	0	0.05	0	0
P-6	J-29	J-31	5302.389	0.01	9.2	0.14	0.016	0.009
P-7	J-202	R-1	-2232.504	0	-3.88	0.14	0.019	0.004
P-8	J-20	J-16	7118.053	0	12.97	0.14	0.015	0.013
P-9	J-215	J-216	1006.378	0	5.37	0.14	0.02	0.005
P-10	J-7	J-8	-1946.752	0	-5.16	0.05	0.02	0.005
P-11	J-107	J-108	2334.473	0.03	19.92	0.05	0.017	0.021
P-12	J-7	J-10	1946.517	0	6.52	0.05	0.019	0.007
P-13	J-11	J-10	-1946.518	0	-6.54	0.05	0.019	0.007

ADDITIONAL INFORMATION.....KYPipe.com/Steam
ONLINE TUTORIALS.....KYpipe.com/Steam-0

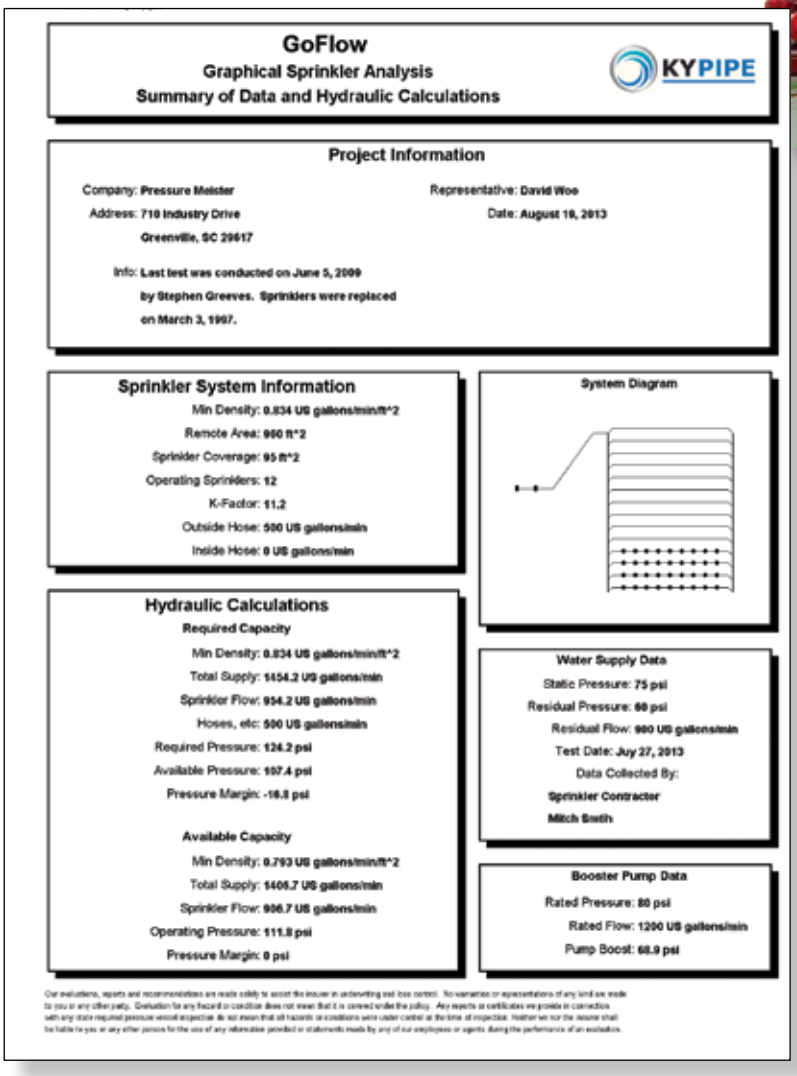
GoFlow

GoFlow has been developed for sprinkler system analysis with input from two major insurance companies. It includes automatic layouts, over 200 backflow preventers, pipe schedules from three different hazard classifications, supply plot, hydraulic summary, required capacity, remote area analysis, and ESFR.



Elements and Libraries

- Full library of commercial back-flow preventers
- Pressure supply connections to main
- Fire pumps
- Fire tanks
- Sprinklers and rack sprinklers



GoFlow
Graphical Sprinkler Analysis
Summary of Data and Hydraulic Calculations

KYPIPE

Project Information

Company: Pressure Meister
Representative: David Woo
Address: 710 Industry Drive
Greenville, SC 29617
Date: August 19, 2013
Info: Last test was conducted on June 5, 2009 by Stephen Greeves. Sprinklers were replaced on March 3, 1997.

Sprinkler System Information

Min Density: 0.834 US gallons/min/ft^2
Remote Area: 960 ft^2
Sprinkler Coverage: 95 ft^2
Operating Sprinklers: 12
K-Factor: 11.2
Outside Hose: 500 US gallons/min
Inside Hose: 0 US gallons/min

System Diagram

Hydraulic Calculations

Required Capacity
Min Density: 0.834 US gallons/min/ft^2
Total Supply: 1454.2 US gallons/min
Sprinkler Flow: 954.2 US gallons/min
Hoses, etc: 500 US gallons/min
Required Pressure: 124.2 psi
Available Pressure: 107.4 psi
Pressure Margin: -16.8 psi

Available Capacity
Min Density: 0.793 US gallons/min/ft^2
Total Supply: 1406.7 US gallons/min
Sprinkler Flow: 906.7 US gallons/min
Operating Pressure: 111.8 psi
Pressure Margin: 0 psi

Water Supply Data

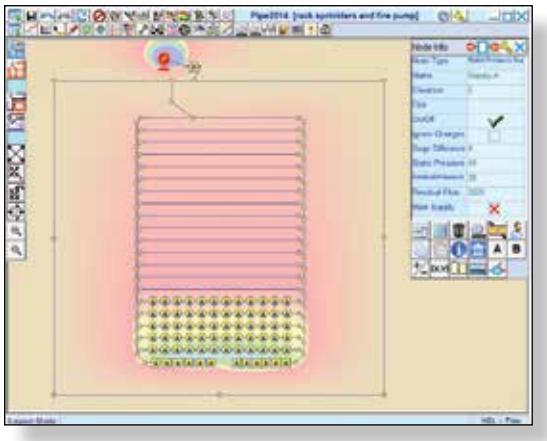
Static Pressure: 75 psi
Residual Pressure: 60 psi
Residual Flow: 960 US gallons/min
Test Date: July 27, 2013
Data Collected By:
Sprinkler Contractor
Mitch Smith

Booster Pump Data

Rated Pressure: 80 psi
Rated Flow: 1200 US gallons/min
Pump Boost: 68.9 psi

Generate Systems Feature

Automatically generate sprinkler configurations. Combine configurations to build complex systems.



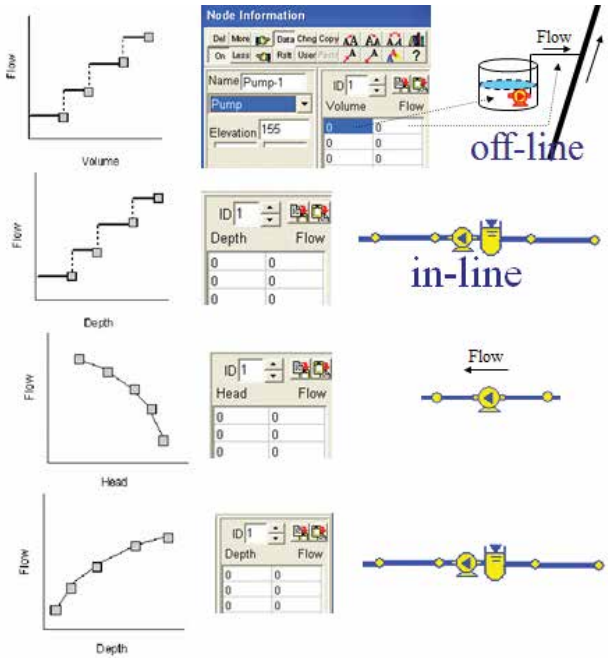
ADDITIONAL INFORMATION..... KYPipe.com/Goflow
ONLINE TUTORIALS..... KYPipe.com/Goflow-0

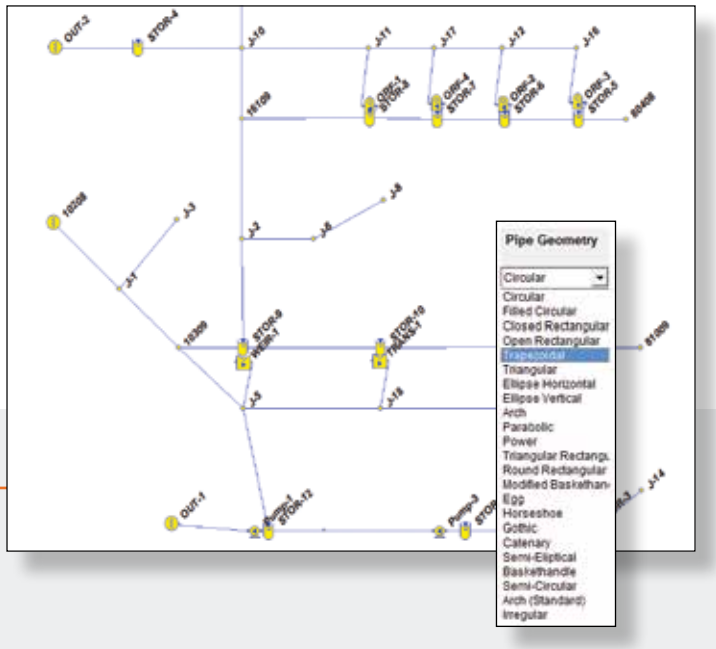
SWMM

SWMM is the de facto international standard for storm water and sanitary sewer collection systems. KYPipe's 40 years of extensive development experience in network modeling software is used to make a seamless integration of EPA SWMM with Pipe2000 GUI, the most powerful graphical user interface. This allows water and wastewater utilities to save time and money when developing powerful SWMM models.

The SWMM models contain 24 different conduit cross sections, including natural canal cross sections. These various cross sections include a powerful run-off modeling tool that allows for both kinematic and dynamic wave routing, along with three different ways to model infiltration and other features. With SWMM, you can model many special elements such as storage/treatment units, flow dividers, pumps, weirs, and orifices. The software can make a model from various conditions, such as dry-weather pollutant buildup over different land uses, or the routing of water quality constituents through the collection system, as well as other water-quality features.

Detailed storm drainage model shown over CAD drawing.





Rain Gauge Data

- Evaporation, Temperature, Windspeed
- Sub Areas
- Snow Pack
- Time Series
- Aquifer
- Groundwater
- Pollutants
- Land Uses
- Coverages
- Buildup
- Washoff
- Treatment
- Dry Weather Flow
- Loadings
- Patterns
- Rainfall Derived Infiltration/Inflow (RDII)
- Hydrograph
- Irregular Pipe
- Curves

ADDITIONAL INFORMATION.....KYPipe.com/SWMM

GoPlot and Pump Cycles

The frequent need for loss control specialists to carry out related activities, including water supply evaluation and fire pump testing, led to the development of the GoPlot engine. This engine quickly produces high-quality water supply curves with or without fire pumps. GoPlot produces fire pump test plots and very high-quality, comprehensive fire pump reports. Many GoPlot features were incorporated in GoFlow to simplify and speed up the process of carrying out and documenting these important tasks.

GoPlot

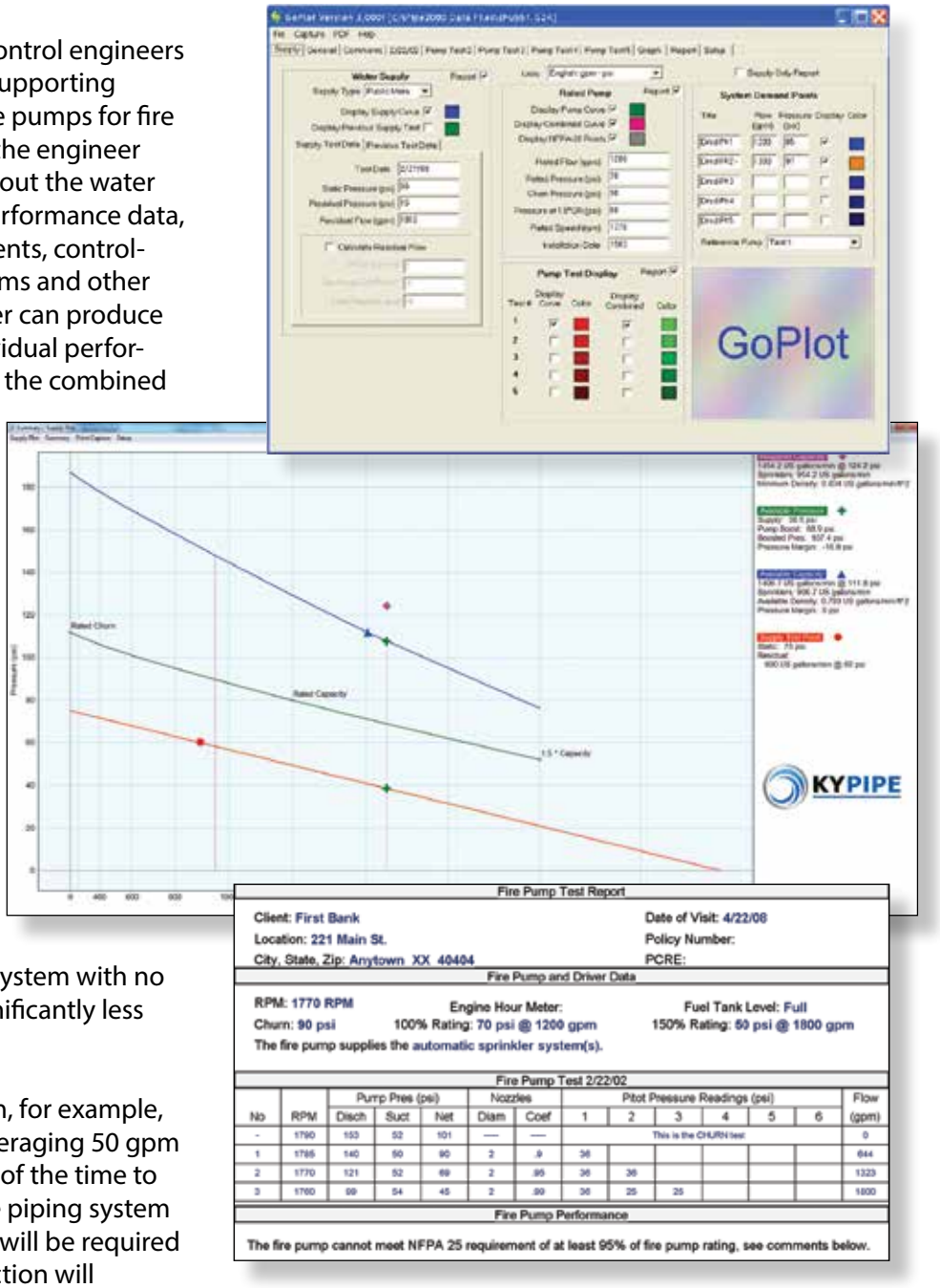
This program is designed for loss control engineers who prepare reports that contain supporting graphs to evaluate supplies and fire pumps for fire protection systems. GoPlot allows the engineer to enter a variety of information about the water supply, the rated and test pump performance data, and auxiliary information about clients, controller and driver data, fire pumps, alarms and other pertinent information. The engineer can produce a variety of plots showing the individual performance of supplies and pumps, and the combined performance of these critical elements. GoPlot also generates a report that includes all of the information the engineer selects.

This program is designed to provide user-friendly access to data entry screens, and graph and report generating. The engineer chooses which data they want to enter, which plots they wish to generate, and what information they want to be in the report.

Pump Cycles

Hydro-pneumatic tanks are often used to control pump cyles for pumps providing flow to a piping system with no storage capacity and demands significantly less than the pumping capacity.

A pump with a capacity of 500 gpm, for example, feeding a system with demands averaging 50 gpm will be required to pump only 10% of the time to satisfy the demand. However, if the piping system has no storage capacity, the pump will be required to start and stop constantly. This action will produce pressure transients that will damage both the pump and the piping system. With some storage capacity the number of pump starts and stops can be minimied.



Standard GoPlot and Pump Cycles reports.

ADDITIONAL INFORMATION:
KYPipe.com/Goplot
KYPipe.com/Pump_cycles_overview

KYPipe and Surge Training Courses

Three-Day Course

Comprehensive KYPipe and Surge training courses are offered throughout the year. The course is offered in three one-day sessions. Private courses for any of our products are also available. Attendees have the option to register for 1, 2 or all 3 days. Each day of training provides 1 CEU or 8 PDH credits.

COURSE OUTLINE

DAY ONE - KYPipe
Basic Hydraulic Modeling
- Introduction to modeling
- Using GUI
- Layout piping systems
- Backgrounds, maps, and grids
- Steady-state and surge analysis
- Extended period simulations
- Network data

DAY TWO - KYPipe
Advanced Hydraulic Modeling
- Reports, tables, plots, and profiles
- Special features
- Fire flows and flushing
- Import and export files
- Controlling pump cycles
- Hydrotank modeling
- Pipe model calibration
- Water quality analysis

DAY THREE - SURGE
Transient Hydraulic Modeling
- Causes of pressure surges
- Pressure surge complications
- Data requirements
- Method of calculation comparison
- Surge control devices and sizing
- Pump inertia and wave speed
- Case studies

KYPipe and Surge Self-Paced Training (SPT)

KYPipe offers self-paced training courses for KYPipe and Surge Modeling. The courses are narrated by Dr. Don J. Wood, professor emeritus of civil engineering at the University of Kentucky and founder of KYPipe.

This course is designed to provide a deeper understanding of hydraulic modeling. You will learn how to utilize advanced tools and apply best practices, and analyze flows and pressures when building hydraulic distribution systems within KYPipe software. This course can be taken anywhere, anytime, and can be reviewed as many times as you would like.

KYPipe course materials include a 50-pipe evaluation version of KYPipe software. Self-Paced Training Surge course materials include a 10-pipe evaluation version of Surge software.

SPT COURSE OUTLINE

KYPipe - Basic Hydraulic Modeling
- Introduction to modeling using Pipe2012 GUI layout
- Piping systems backgrounds, maps, and grids
- Steady-state and surge analysis
- Extended period simulations
- Network data

SURGE - Transient Hydraulic Modeling
- Causes of pressure surges
- Pressure surge complications
- Data requirements
- Method of calculation comparison
- Surge control devices and sizing
- Pump inertia and wave speed
- Case studies

SPT KYPipe and Surge Bundle
KYPipe and Surge SPTs may be purchased together for a bundled price.

Each course offers 1 CEU or 8 PDHs. PDH and CEU certifications are awarded upon successful completion of the final exam.

ADDITIONAL INFORMATION:
KYPipe.com/Short_course
KYPipe.com/Self_paced_training_course

KYPipe develops software for pipe network analysis. Based in Lexington, Kentucky, with distributors in six continents, the company was formed by Dr. Don Wood. Under the leadership of Drs. Don Wood and Srinivasa Lingireddy, KYPipe is the software of choice for hydraulic network distribution modeling.

We invite you to experience it for yourself by downloading a free demo at www.kypipe.com.

Don J. Wood, Ph.D.
Professor Emeritus of Civil Engineering, University of Kentucky

The author of more than 100 technical papers dealing with steady-state and transient flow, Dr. Wood has received numerous awards in recognition of his work in pipe network flow modeling. He is the principal developer of the KYPipe and Surge software programs.

Srinivasa Lingireddy, Ph.D.
Former Associate Professor of Civil Engineering, University of Kentucky

The author of dozens of papers in technical journals, Dr. Lingireddy has received national awards for his work in hydraulic modeling. He has more than 20 years' experience in pipe network modeling and has provided technical consulting services for scores of top engineering firms.

KYPipe, LLC
Phone: 859-263-2234
Email: Orders@kypipe.com
KYPipe.com