EngineeredSoftware, Inc.

Using Fluid Flow Software in Plant Operations

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Introduction

Fluid flow software provides a clear picture of how a piping system operates by calculating the flow rates and pressures in the system. Initially this software was mainly used to design the piping system, but recently more plant personnel are using this type of software to simulate the operation of existing fluid piping systems.

To become more useful for plant personnel, the software has to be easy to use while showing the interaction of the pipelines, pumps, components, and control valves in the system. In addition, the information has to be easy to share with others and provide access to information needed to operate and maintain the fluid piping system.

This white paper describes how PIPE-FLO, a fluid flow computer program developed by Engineered Software, provides owners and operators of piping systems with the tools they need to gain a clear picture of their system operation. Examples are presented that show how this software is currently meeting the needs of the plant operating market.

Total Picture

To be effective in the plant operating market, the piping software must provide the user with sufficient information to design, build, operate, and maintain the system through the plant life. The total picture provides the user with information he or she needs to fully understand the operation of the system.

To provide this total picture, PIPE-FLO includes the following features:

- A piping schematic showing how the items in the system are connected.
- A calculation engine capable of showing the flow rates and pressures within the piping system and highlighting problem areas.
- The ability to easily communicate with others as to how the system operates.
- Access to information needed to design, build, operate, and maintain the piping system.

Other programs can provide the user with one or more of the necessary features, but the value of PIPE-FLO is the integration of these tasks into a single application.

Visualization

The first step is providing the user with a clear picture of how the items in a piping system are connected. Piping schematics show the location of tanks, pumps, components, control valves, and pipelines and how they are connected. A piping schematic identifies each item in the system using the project's equipment naming convention.

Piping schematic drawings can be created using CAD software, providing the user with the ability to easily maintain these design documents. General-purpose CAD software has a long list of features making it useful for other types of drawings as well. But the large feature set of CAD software results in a steep learning curve one must overcome to effectively utilize the software.

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