

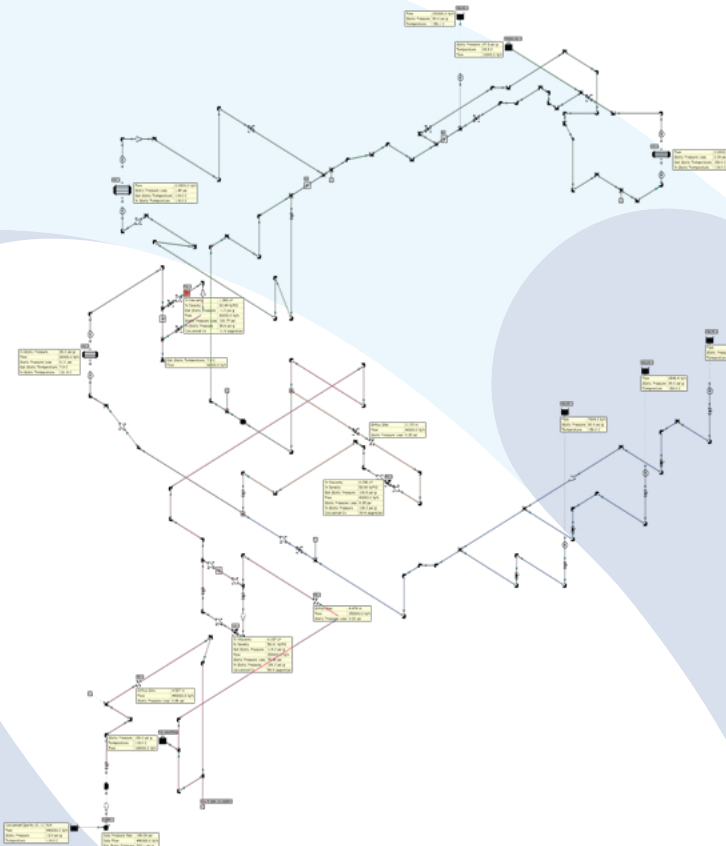
**Company Profile:** TECSAR is an independent, employee owned, consulting engineering company, established in 1980. Since that time, the company continues to grow in range and depth to provide professional services to industrial clientele throughout Ontario, Ohio, Michigan, Quebec and Alberta.

Initially concentrating on the petrochemical and refinery industries, the company's expertise now covers a wide range of associated process refining and manufacturing industries. Brewing, Distillation, Bio Diesels, Ethanol, Alcohol, Power Generation, Agri Foods, Ammonia Plants etc. are among the client portfolio served.

**More information:** <http://www.tecsar.com/>

### Projects Overview:

A client was experiencing water hammer in a process water cooling exchanger due to flashed steam collapsing. The result was noise, vibration and damage/failure of the exchanger. This project required the relocation of a flow control valve to the outlet of the exchanger to maximise pressure until the process water was cooled, thereby preventing the hammer.



## Customer Profile

TECSAR

Consulting Engineering

**Challenge -** A client was experiencing water hammer in a process water cooling exchanger due to flashed steam collapsing. The result was noise, vibration and damage/failure of the exchanger. This project required the relocation of a flow control valve to the outlet of the exchanger to maximise pressure until the process water was cooled, thereby preventing the hammer.

**Solution -** With the use of Fluid Flow, we were able to assess each of the possible on-line tie-in locations (each will multiple operating cases) and rule out those that could not be made to function adequately for all operating scenarios. The system was commissioned and is operating exactly as per the FluidFlow predictions.

### Benefits of using FluidFlow -

- Allows for easy evaluation of multiple case scenarios which has provided us with the ability to identify bottleneck for any foreseeable flow case.
- Allows for easy communication of results with clients
- Senior Engineers can review the work of Engineers-In-Training much more quickly and have greater confidence in the work.
- Significant time savings
- Significant capital savings

### Challenges:

The relocation of this control valve would change the flow distribution of the water in the network which needed to be corrected with the installation of additional new and modified control valves. This effort was complicated by the fact that the client needed to make these changes on-line and therefore our design options were confined to the few tie-in locations which were not in the ideal location for the flow balance.

With the use of Fluid Flow, we were able to assess each of the possible on-line tie-in locations (each will multiple operating cases) and rules out those that could not be made to function adequately for all operating scenarios.

**Conclusion :** Previously, this analysis would have been handled via a combination of manual calculation and spreadsheets. Evaluating the multiple options would have been very time consuming. Our previous software would not have had the ability to converge under many of the scenarios provided.

The client is very pleased with the results, especially given that we were able to avoid an outage for these changes. The avoidance of a site outage is of significant value.

### Testimonial:

FluidFlow allows for easy evaluation of multiple case scenarios which has provided us with the ability to identify bottlenecks for any foreseeable flow case. We have often proven to clients that the bottlenecks or problems with their systems are not where they initially believed them to be, resulting in field changes that fix the complete problem rather than a portion of it.

In one case we used the software to prove to a client that a steam header system did not have the required capacity for a proposed project. This resulted in the redirection of the capital dollars and a saving of approximately \$800k.

**Nathan Latour - Senior Process Engineer**

### About FluidFlow

FluidFlow is the software to design any pipe flow system. With FluidFlow, you can quickly design and analyze; incompressible, compressible, two-phase, non-Newtonian, settling slurry, pulp and paper pressure drop systems within one single package. Thermal analysis is also included with comprehensive databases. FluidFlow typically saves engineers 80% time vs Excel and 40% time vs competitor packages.



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