

Problems with the Canadian Oil Pipeline Proposal

By Dr. Weldon Vlasak

Project management: Most of my background has been in the area of engineering system design, product design and bringing product to production. However, late in my career I was promoted to several top level positions, such as Director of Engineering, Manager of the Fiberoptics Group, and Systems Engineer. At ITT, I worked on three projects that had a price tag of \$200M to \$500M. I was given the responsibility of troubleshooting the problems with the initial proposals and made some key discoveries that were consequently solved. I had to learn how proposals are properly made and analyzed. ISO 2000 is an international specification that was based on General McArthur's methodology for re-building Japan after WWII and which was very successful. There are some of these basic and essential requirements for developing a new project on a large scale that apply to the Canadian Oil Pipeline.

Project History: I have a varied background that includes electronics, electromagnetics, mechanical testing of missiles, oceanography, radar, radio communications, oceanography, hydraulics, semiconductors, system design, production testing, ultrasonics, IR, mechanical design, production of heart pacers, instrumentation, failure analysis, medical electronics, electrooptics, signal processing, and project engineering. I have been a consulting engineer, and one of my projects involved a pumping system for fluids, so I do know some of the problems involved in pumping systems.

The Canadian Pipeline Project: The first step in a project is to set the goals. It is much more than simply piping oil across the United States. One of the main goals is the price of pumping, but that is not my concern, nor is the cost of building the pipeline. That is a Canadian responsibility, and they will have less tendency to consider our responsibilities and concerns. Therefore, there should be portions of the contract that address our issues. There are several issues that are of great importance to us.

We first need to consider the concerns of those who land will be taken from them, which is primarily the farmers and other land owners. This is done by the law of Eminent Domain, in which the land is taken from them with out their permission. Will they get sufficient remuneration for not only the loss of the land, but the difficulties associated with the rights of the oil company for ingress and egress. The land owner has no control over what the oil company can do in using this part of his property, and it can cause him no end of problems. Noise and smell can also be an issue.

For me, the number one issue is the danger of a spill or explosion. This is the key issue. As I understand it, there will be shutoff valves every 100 miles along the line. Valves do not always work as designed, and failures can always happen. If a failure occurs at the down-side valve and it cannot be shut immediately, it is possible that most all of the oil in that 100 mile section could spill out. Although the pipe is to be buried, it is only covered to the top of the pipe, which does not prevent full leakage. The pipe is 3 ft. in diameter,

which is an area of 7 square feet. The length of a section is 100 miles, or 528,000 feet. Thus there is 3,696,000 cubic feet of oil in that length of line. There are 5.615 cubic feet per barrel of oil, which equates to a total of 656,237 barrels of oil in one section of line. If the break occurs half way up, then the oil spill would be half as much, etc. If the break occurs over a river or creek, then the damage would be quite extensive. Think of the problems that would occur if this amount of oil was to enter the Missouri river! In one proposal, the pipeline would come very close to the town of Wilber. If a valve was located near Wilber, and an accident of this type was to occur, Wilber could be destroyed. Is this scenario possible? It has already occurred in similar consequences: (<http://www.texasobserver.org/whistleblower-landowners-transcanada-is-botching-the-job-on-keystone-xl-pipeline/>). This link also includes information about the poor quality of the pipe of Canadian pipeline, which enhances the possibility of failure.

When in service, it will be poorly maintained, with only 36 personnel, which is insufficient to control the shutoff gate states, let alone the service, control and management requirements.

There is also the possibility of a fire anywhere along the pipeline, in which case the whole thing could blow up in one great fire rippling along the line.

Don't take too much stock in politician's (of either party) opinions, since they are not generally well-informed. Instead, look to the analytical engineers and those who have had direct experience with pipelines on their property. The above link has information in the regard.

Hope these few comments, from an engineering aspect, are taken in good will!

Weldon Vlasak