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Pipelines are forever? Tankers not the only problem - Patrick Brown

The Trans Mountain Expansion Project (TMX) proposes to 'twin' the existing Trans Mountain pipeline system between Edmonton and Burnaby. In its application to the National Energy Board, Trans Mountain is requesting that a single Certificate of Public Convenience and Necessity (CPCN) be issued which would cover the operation of both new and old pipelines. Is this a good idea?

In addition to the 987km of new pipeline, the proposal continues use of 158km of the 'anchor loop', a 2008 replacement line paralleling the original line through Jasper Park. It also includes the 'reactivation' of 193km of that abandoned 60-year-old line, and the rest of the original 1146kms, built in 1953.

The existing pipeline currently operates under a permit issued in 1951, with some changes to permitted pressure levels issued when operating conditions (and the condition of the line) changed.

Trans Mountain was built to supply Vancouver and northwest Washington refineries with crude oil from Alberta. It is still the only pipeline carrying oil across the Rockies. It presently carries product batches ranging from crude oil to gasoline.

Trans Mountain is now owned by US pipeline conglomerate Kinder Morgan and is currently seeking approval to triple the capacity of the line to transport unprocessed Alberta Tar Sands diluted bitumen (dilbit) for export to Asia.

The 'Jump Off' and West

The existing (and original) Trans Mountain pipeline was routed over the edge of BC's interior plateau (elevation 3,660ft) down into the canyon of the Coquihalla River, about 30 miles north of Hope (elevation 100ft). This drop of some 3,000ft came to be known as the 'jump-off', and, 60 years later, still has no pipeline equivalent anywhere in North America.

Its builders, uncertain about the additional line pressures and hydraulic effects which could result from this sudden change in elevation, had originally planned heavier wall pipe below the drop, but opted instead for a system of pressure relief valves and surge tanks at Hope. The saving, according to *The Building of Trans Mountain: Canada's First Oil Pipeline Across the Rockies*, (written by Neill Wilson and Frank Taylor), was

some \$5 million 'by avoiding need for heavier wall pipe to withstand high pressures during accidental shut-offs in the low sections of the system'. It also seems that the gravity-induced pressure eliminated the need for pumps all the way to Burnaby.

Nearly all of the original pipe, thinner wall than originally specified, remains. And operating pressures have increased. The line has been receiving increased maintenance attention over the past few years.

At Hope, the Coquihalla River flows into the Fraser River. Concern about a possible spill into this river system, so important to salmon, was heightened by the discovery of a pipeline leak in the Coquihalla Canyon in June, 2013. This leak, originally reported as 20 barrels, was apparently absorbed in the surrounding soil. After hundreds of truckloads of contaminated soil were removed, it was subsequently re-estimated at 113 barrels.

The New Pipeline

Plans for the new twin pipeline indicate that its route would follow the Coquihalla Highway (Route 5), avoiding any sudden elevation change. However, the original pipeline would continue to be used, including the 'Jump-off' and the

Coquihalla Canyon segment.

Older Pipelines Carrying Dilbit

The existing Trans Mountain pipeline is similar in age and construction to the Pegasus pipeline from Patoka, Illinois, to Nederland, Texas, presently owned by Exxon. This pipeline, built in 1948 to carry diesel oil, was abandoned in 2002, but repurposed and reversed in 2006 to carry dilbit south. Some sections are only 20 inch diameter with 5/16 inch wall thickness.

On March 29, 2013, this pipeline sustained a 22ft split in a residential subdivision in Mayflower, Arkansas, spilling some 5,000/bbl of dilbit, 3,000 of which went into a nearby lake. Investigators, saying that the pipe was brittle and could not flex with changes in pressure and flow in the line, cited a pipe manufacturing process that could produce 'hook cracks'. Eleven seam welds had failed during a 2006 hydrotest at lower than operating pressure levels, and 12 seam cracks had been found in line inspection in 2010.

Dilbit was also implicated in the July 25, 2010 spill from Enbridge's line 6B in Kalamazoo, Michigan. A longitudinal split

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in the 30inch diameter, ¼ inch wall thickness pipeline, built in 1968, dumped over 20,000bbl of diluted bitumen into the Kalamazoo River. Three years later, the cleanup is not completed—the greatest difficulty being bitumen sinking to the bottom of the river.

Old Pipes Last Forever?

Kinder Morgan's application for the 'twinning' of the Trans Mountain pipeline is deceptive. While the new parallel line departs from the original in many ways, it does retain the use of the existing pump stations and its capacity will be more like triple than double.

Repurposing old pipeline to transport diluted bitumen to Burnaby for tanker shipment to Asia has also introduced new hazards to Vancouver Harbour and the southern BC coast.

Inland, current locations and frequencies of repairs speak to the probability of spills into BC's major river systems.

The most remarkable aspect of this proposal is the application for permission to pump dilbit at maximum capacity through a 60-year-old pipeline, built with 60-year-old technology, over a route which, even sixty years ago, was recognized as having unique hazards.

The Kinder Morgan Trans Mountain Expansion Project is in fact seeking approval for two pipelines, one new one and the other 60-years-old. They should be evaluated separately. The old pipeline needs separate and careful consideration by the NEB panel. ✍