

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION ) HP07-001  
BY TRANSCANADA KEYSTONE PIPELINE, )  
LP FOR A PERMIT UNDER THE SOUTH )  
DAKOTA ENERGY CONVERSION AND ) **SURREBUTTAL**  
TRANSMISSION FACILITIES ACT TO ) **TESTIMONY OF**  
CONSTRUCT THE KEYSTONE PIPELINE ) **EDWARD D MILLER**  
PROJECT )

**1. Please state your name for the record.**

Answer: My name is Edward D. Miller.

**2. Did you provide direct testimony in this proceeding?**

Answer: Yes.

**3. Whose rebuttals are responding to?**

Answer: I am responding to the rebuttals of Meera Kothari, Heidi Tillquist, and Brian Thomas.

**4. At question 11, Ms Kothari states that TransCanada has installed thousands of miles of pipe over the last three decades and has not experienced a failure. How do you respond?**

Answer: TransCanada had several problems with pipe that was installed about 30 years ago in the 1970s, including ruptures, explosions and fires. However, TransCanada also owns and operates the Foothills pipeline, which

experienced a significant failure in 1994 including an explosion, major fire and TSB investigation (report number P94H0003.) The failure occurred 12 years after installation of the pipeline, which was built in 1982.

**5. At question 11, Ms Kothari states that liquid pipelines carry crude oil and do not ignite in an explosion or fire. How do you respond?**

Answer: Explosions and fires do happen on crude oil pipelines. An explosion and fire on an Enbridge pipeline in Minnesota on November 28, 2007 resulted in significant damage, including the loss of human life. The pipeline involved in the incident (Line 4) delivers heavy Canadian crude oil to the US, much like the proposed Keystone pipeline will.

It is important to note that accident rates on hazardous liquid pipelines are significantly higher than rates on natural gas pipelines (EXHIBIT C of my direct testimony.)

**6. At question 13, Ms Kothari states that the risk is not significantly higher to operate a pipeline with a 0.8 design factor.**

Answer: There is additional risk; it is a matter of whether that additional risk can be mitigated by the measures that she listed.

**7. At question 15, Ms Kothari states that the Alyeska and Burnaby pipeline incidents referred to bear little relation to the facts surrounding this application. How do you respond to this?**

Answer: The Alyeska incident is actually part of the DNV Frequency

Volume Analysis that accompanies TransCanada's application. As shown on the cover of that report, Ms. Kothari was the client contact. The study included three examples of crude oil spills, all of which involved Alaska, including the Alyeska spill. It appears that DNV selected 3 crude oil spills as far away from the proposed Keystone pipeline as possible. A far more relevant selection of crude oil spill examples would include those listed on my EXHIBIT D and EXHIBIT M.

Since the Alyeska spill is included in the Frequency Volume Analysis, it can be used to point out additional flaws in that study. For instance, in the study TransCanada assumes that it will be able to clamp or gel block every small and medium leak anywhere on the entire pipeline within four hours of notification. That is an aggressive assumption that is not supported by actual experience. In fact, the Alyeska pipeline continued to leak for about 36 hours after discovery even though the exact spill site had been identified, the site was easily accessible, no excavation was needed, and weather conditions were favorable.

The Burnaby spill points out the fact that no matter how advanced your pipe materials or your installation techniques are, third party activities including excavation remain a risk regarding pipelines. Despite having Kinder Morgan personnel at the construction site, the incident still occurred. Even though the spill happened in July, there are still 5 families who have not been able to return to their homes yet (BurnabyNow, Nov 10, 2007.) Another important issue regarding this spill is the dispute over who will have to pay for the cleanup, the city or the pipeline company.

**8. At question 4, Ms Tillquist states that many of the values reported in EXHIBIT C are not reproducible. How do you respond to this testimony?**

Answer: I support my EXHIBIT C as is. In order to reproduce the numbers, it is critical to use the exact same data file and reporting criteria. EXHIBIT C was calculated using the Jan 2002 – Sep 2007 Office of Pipeline Safety incident database for hazardous liquid pipelines (without modification.) The top report in EXHIBIT C was calculated by including all records reported to the OPS in barrels, in the new reporting format, where the amount spilled is 5 barrels or more. The bottom report is the same, except that it includes crude oil spills only. Data records reported in gallons are not included on either report on EXHIBIT C.

The result of using a smaller reporting threshold is shown in EXHIBIT Q, which is included here. This report is identical to EXHIBIT C, except that the reporting threshold shown in EXHIBIT Q is all the way down to 1 gallon (the smallest possible non-zero spill.) As shown in this report, the smallest possible average hazardous liquid pipeline spill (2002-2007) is 282 barrels. All non-zero spill records in the entire database are included on this report. The bottom report in EXHIBIT Q is for crude oil spills only (of 1 gallon or more.)

**9. At question 5, Ms Tillquist states that pipelines in most other countries are significantly younger than pipelines in the US. How do you respond?**

Answer: Hazardous liquid pipelines in Europe are similar in age profile to

the figures listed by Ms Tillquist for pipelines in the US. The European group CONCAWE recently published a report (report no. 4/07) showing that about 70% of pipelines in Europe are at least 30 years old. Nearly forty percent of hazardous liquid pipelines are more than 40 years old. However, based on information in that same report, incident rates on CONCAWE pipelines are much lower than those in the US.

**10. At question 7, Mr. Thomas responded to your EXHIBIT J, which shows a data omission example in the Frequency Volume Analysis. How do you respond?**

Answer: Mr. Thomas provides a detailed scenario of a pipeline spill including the dynamic and static phase of the incident. As part of the dynamic phase, his example appropriately includes the nine minutes of time required to shut down the pumps. During that time, his analysis shows that 3,684 barrels or about 155,000 gallons of oil are spilled.

**11. Does that conclude your testimony?**

Answer: Yes it does.

Dated this 29<sup>th</sup> day of November, 2007.

\_\_\_\_\_/ signed / \_\_\_\_\_

Edward D Miller

**PHMSA Office of Pipeline Safety  
Hazardous Liquid Pipeline Operators  
Accident Summary Statistics by Year  
Hazardous Liquid Spills - 1 gallon or more**

Year	Number of Accidents	Water Involved	HCA's Involved	Property Damage	Gross Loss Barrels	Net Loss Barrels	Ave Spill Barrels	Ave Spill Gallons
2002	443	43	56	\$49,106,732	92,929	73,926	210	8,810
2003	422	44	64	\$52,526,342	81,310	50,951	193	8,092
2004	362	53	66	\$145,515,991	89,228	68,941	246	10,352
2005	359	47	67	\$150,498,599	138,062	46,239	385	16,152
2006	333	29	60	\$49,798,528	137,486	54,253	413	17,341
2007	230	23	43	\$27,520,068	66,974	48,617	291	12,230
<b>Totals</b>	<b>2149</b>	<b>239</b> 11%	<b>356</b> 17%	<b>\$474,966,260</b> \$221,017	<b>605,989</b>	<b>342,927</b>	<b>282</b>	<b>11,843</b>

**PHMSA Office of Pipeline Safety  
Hazardous Liquid Pipeline Operators  
Accident Summary Statistics by Year  
Crude Oil Spills - 1 gallon or more**

Year	Number of Accidents	Water Involved	HCA's Involved	Property Damage	Gross Loss Barrels	Net Loss Barrels	Ave Spill Barrels	Ave Spill Gallons
2002	184	18	13	\$30,368,412	20,404	8,943	111	4,657
2003	179	14	13	\$19,493,734	28,976	14,180	162	6,799
2004	158	32	20	\$104,040,222	31,857	19,805	202	8,468
2005	183	27	22	\$103,324,012	103,031	19,323	563	23,646
2006	164	15	21	\$26,091,468	84,432	5,996	515	21,623
2007	117	11	16	\$10,115,181	12,307	1,488	105	4,418
<b>Totals</b>	<b>985</b>	<b>117</b> 12%	<b>105</b> 11%	<b>\$293,433,029</b> \$297,902	<b>281,006</b>	<b>69,735</b>	<b>285</b>	<b>11,982</b>

Database Generated on 10/19/2007

There are 2,218 accident records in this database.

There are 89 records that have 0 in the LOSS field/column. They are not included on this report.

**EXHIBIT Q**