

Hazardous Liquids Pipeline Data and Incidents

Presented to Sierra Club of Chester
County, Pennsylvania

March 10, 2016

Risk = Likelihood times Severity

Severity	Medium	High	Critical
	Low	Medium	High
	Low	Low	Medium
	Likelihood		

PHMSA “Acceptable Level of Risk”

Acceptable Level of Risk for regulations and special permits is established by consideration of risk, cost/benefit and public comments. Relative or comparative risk analysis is most often used where quantitative risk analysis is not practical or justified. Public participation is important in a risk analysis process, not only for enhancing the public's understanding of the risks associated with hazardous materials transportation, but also for insuring that the point of view of all major segments of the population-at-risk is included in the analyses process. **Risk and cost/benefit analysis are important tools in informing the public about the actual risk and cost as opposed to the perceived risk and cost involved in an activity.** Through such a public process PHMSA establishes hazard classification, hazard communication, packaging, and operational control standards.

Safety Goals

FAA

- **No accident-related fatalities occur on commercial service aircraft in the U.S.**
- **“We will take action to manage risk by proactively identifying hazards and risk based on continuous analysis of data.”**

PHMSA

- **By 2016, we aim to:**
- **Reduce the number of pipeline incidents involving death or major injury to between 26-37 per year.**
- **Reduce the number of hazardous liquid pipeline spills with environmental consequences to between 65-81 per year.**

Number of Inspectors

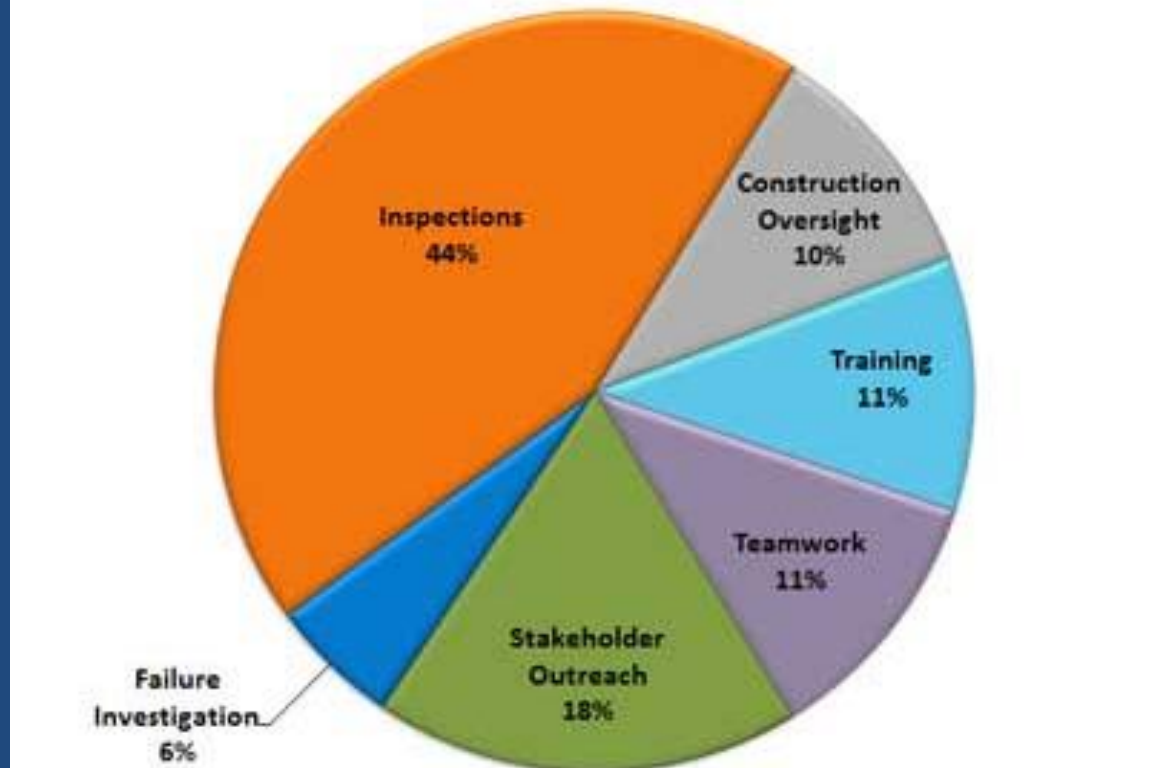
FAA

- 66 major air carriers
- About 2,000 safety inspectors assigned to these carriers

PHMSA

- 2.5 million miles of pipelines. “That's enough to circle the earth about 100 times.”
- Approximately 3,000 companies operating pipelines
- About 200 inspectors

OPS Inspector Effort Allocation 2014 All Regions

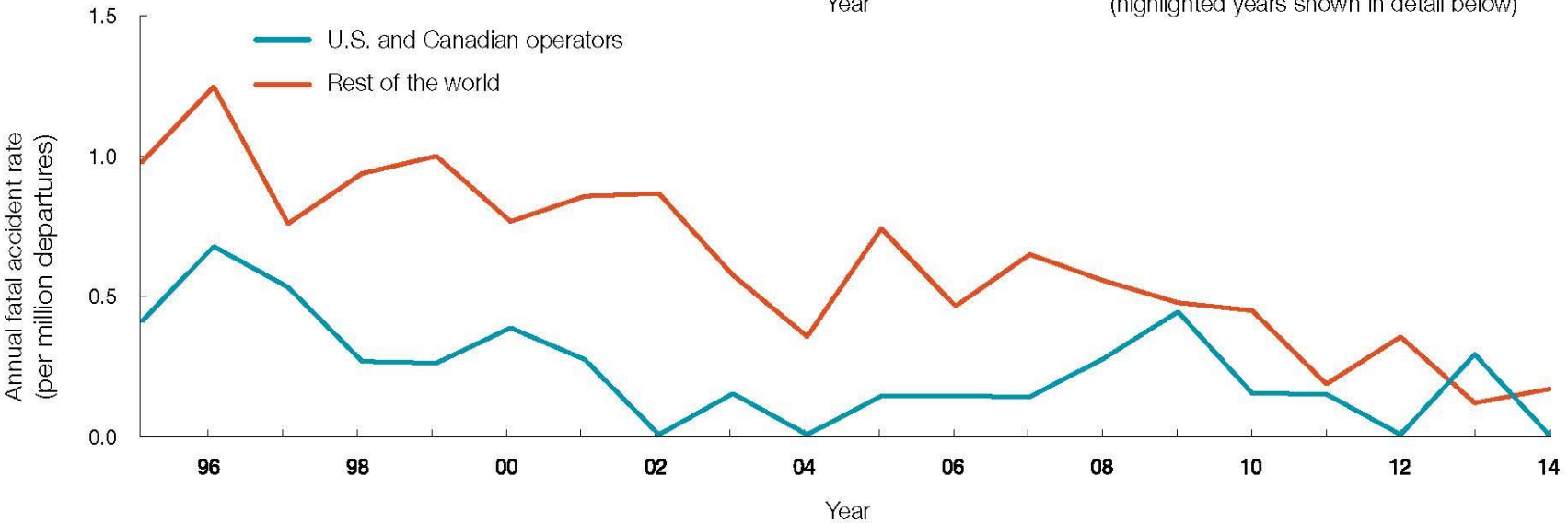
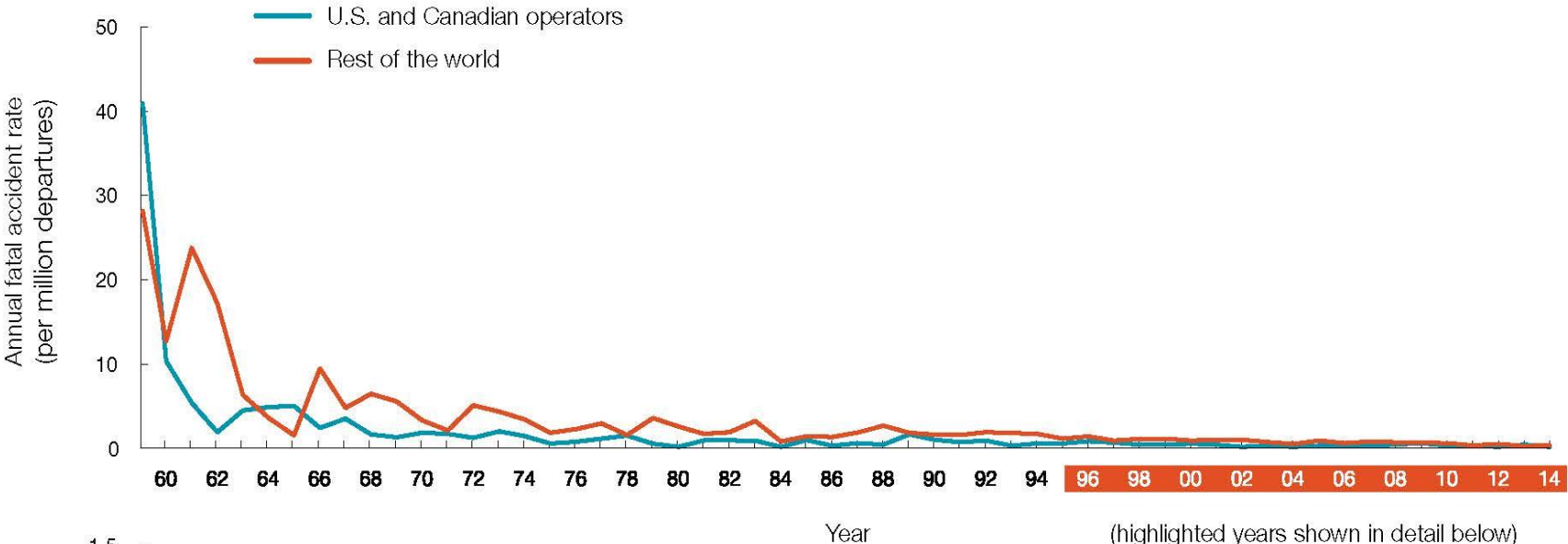


PHMSA's 139 federal inspection and enforcement staff and over 300 state inspectors are responsible for regulating **nearly 3,000 companies** that operate 2.6 million miles of pipelines, 118 liquefied natural gas plants, and 6,970 hazardous liquid breakout tanks. Through PHMSA oversight programs, serious pipeline incidents have decreased by 37% since 2009.

PHMSA pipeline safety personnel spent 78 percent of their time conducting safety-related activities, including inspections and incident investigations on the ground, in the lab, and at the office, as well as enforcement and public outreach. **In 2014, PHMSA pipeline safety personnel initiated 1,071 inspections of pipeline operators.**

U.S. and Canadian Operators Accident Rates by Year

Fatal Accidents | Worldwide Commercial Jet Fleet | 1959 through 2014



Pipeline Incidents (all systems) 1996-2015

PHMSA Pipeline Incidents: (1996-2015)
Incident Type: All Reported **System Type:** ALL **State:** ALL

Calendar Year	Number	Fatalities	Injuries	Total Cost As Reported
1996	381	53	127	\$114,467,631
1997	346	10	77	\$79,757,922
1998	389	21	81	\$126,851,351
1999	339	22	108	\$130,110,339
2000	380	38	81	\$191,822,840
2001	341	7	61	\$63,092,462
2002	642	12	49	\$102,167,588
2003	672	12	71	\$139,057,814
2004	671	23	60	\$267,836,502
2005	719	17	47	\$1,245,463,189
2006	639	21	36	\$151,983,767
2007	611	15	49	\$153,903,544
2008	659	8	56	\$565,519,340
2009	627	13	64	\$179,070,183
2010	588	22	108	\$1,692,635,198
2011	594	14	56	\$426,819,470
2012	572	12	57	\$228,451,836
2013	618	9	44	\$349,045,145
2014	701	19	96	\$309,789,624
2015	701	12	50	\$321,868,379
Grand Total	11,190	360	1,378	\$6,839,714,124

PHMSA Pipeline Incidents: Multi-Year Averages (1996-2015)
Incident Type: All Reported **System Type:** ALL **State:** ALL

Pipeline Incidents (hazardous liquids) 1996-2015

PHMSA Pipeline Incidents: (1996-2015)

Incident Type: All Reported System Type: HAZARDOUS LIQUID State: ALL
Offshore Flag : ALL Commodity: ALL

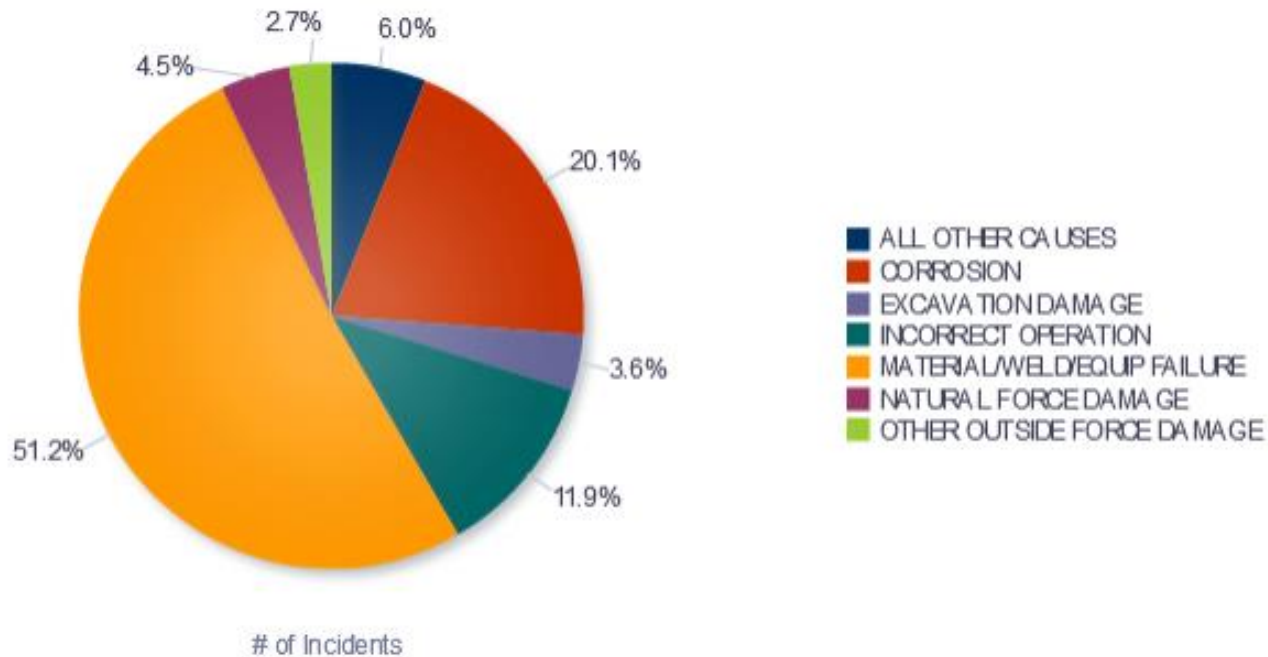
Calendar Year	Number	Fatalities	Injuries	Total Cost As Reported	Barrels Spilled	Net Barrels Lost
1996	194	5	13	\$85,136,315	160,316	100,949
1997	171	0	5	\$55,186,642	195,549	103,129
1998	153	2	6	\$63,308,923	149,500	60,791
1999	167	4	20	\$86,355,560	167,230	104,487
2000	146	1	4	\$150,555,745	108,652	56,953
2001	130	0	10	\$25,346,751	98,348	77,456
2002	458	1	0	\$51,648,517	97,253	77,953
2003	434	0	5	\$67,416,845	81,308	50,882
2004	377	5	16	\$166,021,004	89,311	69,003
2005	369	2	2	\$306,454,691	138,095	46,246
2006	354	0	2	\$75,120,324	137,693	53,905
2007	332	4	10	\$60,443,450	95,600	68,942
2008	375	2	2	\$148,277,329	102,077	69,510
2009	342	4	4	\$74,169,877	55,014	32,308
2010	350	1	3	\$1,075,193,990	100,558	49,452
2011	346	1	2	\$273,532,147	89,111	57,374
2012	366	3	4	\$144,914,963	45,884	29,247
2013	401	1	6	\$278,525,540	117,467	85,696
2014	445	0	0	\$131,607,239	46,973	21,688
2015	447	1	0	\$245,943,998	101,562	82,882
Grand Total	6,357	37	114	\$3,565,159,850	2,177,502	1,298,854

PHMSA Pipeline Incidents: Multi-Year Averages (1996-2015)

Incident Type: All Reported System Type: HAZARDOUS LIQUID State: ALL
Offshore Flag : ALL Commodity: ALL

Causes of Hazardous Liquids Incidents 2015

All Reported Incident Cause Breakdown
Incident Type: System Type: HAZARDOUS LIQUID State: ALL
Offshore Flag : ALL Commodity: ALL



Sunoco's Record 2006-2016 (YTD)

- 258 hazardous liquids incidents reported (over two per month on average)
- 733,362 gallons of hazardous liquids spilled
- \$46,953,131 in direct property damage

Sunoco has had more incidents over this time period than any other operator (1,955 total operators).

Sunoco's Record 2006-2016 (YTD)

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- 733,362 gallons of hazardous liquids spilled
- \$46,953,131 in direct property damage

To put this record in context, out of the 1,955 total operators that report data to PHMSA, 1,866 of them reported 10 or fewer incidents.

Sunoco's Record 2006-2016 (YTD)

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- 733,362 gallons of hazardous liquids spilled
- \$46,953,131 in direct property damage

The *second* worst operator by number of incidents is Enterprise Products with 239. But Enterprise has 28,699 miles of pipeline. Sunoco has 5,371.

Sunoco's Pipeline Safety Systems

- In at least 60 of its 258 incidents, Sunoco had operating leak detection systems that did not detect the leak.
- *At least 25%* of the time, an installed and operating leak detection system did not perform as intended.
- “It couldn’t happen here. Could it?”

Sunoco's Pipeline Safety Systems

John Heinz National Wildlife Refuge

February 2000

- A Sunoco pipeline in the refuge spilled 192,000 gallons of hazardous liquids
- The spill was detected by a visitor to the Refuge, not by the operating safety system
- Causes: defective pipeline joint, inadequate pipeline maintenance, and inadequate leak detection measures

Sunoco's Pipeline Safety Systems

John Heinz National Wildlife Refuge

February 2000

“This spill damaged one of our country's most valued resources—land dedicated to conserving wildlife and wildlife habitat as a national wildlife refuge.”

—Marvin E. Moriarty, U.S. Fish and Wildlife Service

Sunoco's Pipeline Safety Systems

John Heinz National Wildlife Refuge

February 2000

Sunoco paid over \$3.6 million in penalties and remediation costs to settle a lawsuit brought by the federal government over this massive oil spill at the Wildlife Refuge.

John Heinz, United States Senator for Pennsylvania

Pennsylvania Senator John Heinz, for whom the National Wildlife Refuge is named, was killed in 1991 when a Sun Company helicopter collided with an airplane carrying the Senator. (Sun Company is a predecessor of Sunoco). That accident also killed two children in the Merion Elementary School, into which debris from the two aircraft fell after the collision.

The National Transportation Safety Board determined that the probable causes of the accident included poor judgment on the part of the pilot in command of the Sun Company helicopter, and the crew's failure to maintain safe separation from the airplane carrying the Senator.

Sunoco's Pipeline Safety Systems

Edgmont Township

April 2015

- On April 10, 2015 a Sunoco pipeline along the proposed Mariner East route spilled hazardous liquids.
- The location of this spill is only a few miles from here, and it happened less than a year ago.
- The spill, according to Sunoco, contaminated soil and groundwater with a gasoline, requires long-term monitoring and remediation, and has caused (so far) \$491,000 in property damage.
- As in the spill at the Wildlife Refuge, Sunoco's systems did not detect the leak. Just like at the Wildlife Refuge, this hazardous liquids spill was discovered by someone walking in the area.

Sunoco's Pipeline Safety Systems

Edgmont Township

April 2015

- Neither PHMSA nor the NTSB conducted an independent investigation of the Edgmont spill. Nor did the municipality.
- As usual, we are 100% reliant on Sunoco's self-reporting and self-investigation of this incident.
- How hard is an operator likely to be on itself under such circumstances?

Safety and Engineering

- Sunoco Pipeline has been operating NGL pipelines safely for more than 50 years.
- We conduct rigorous testing of all pipes, new and existing, using the most advanced technologies available to analyze a pipeline's condition.
- Pipelines are tested with water at pressures above maximum operating pressure before being placed into service.
- Professional controllers monitor the pipeline's pressure, temperature and flow 24 hours a day, 7 days a week from a control center dedicated exclusively to safe pipeline operation, and operators can shut down the pipeline remotely.
- We patrol the pipeline route, or right-of-way, by ground and by air for any potential hazards.

The safety of Sunoco Logistics' (SXL) employees and the community is our highest priority as an organization, and we believe that no project is worth doing if it cannot be done safely.

Given Sunoco's record of 258 spills in the last 10 years plus the significant incident in Edgmont less than a year ago, does Sunoco have a definition of "safety" that differs from the way most Pennsylvanians use that word?