The petroleum pipeline industry has undertaken a voluntary environmental performance tracking initiative, recording detailed information about spills and releases, their causes and consequences.

The pipeline members of the American Petroleum Institute and the Association of Oil Pipe Lines believe that tracking and learning from spills will improve performance, thus demonstrating the industry's firm commitment to safety and environmental protection by its results.

This is one of a series of fact sheets about the Pipeline Performance Tracking System, "PPTS," its evolution and its lessons.

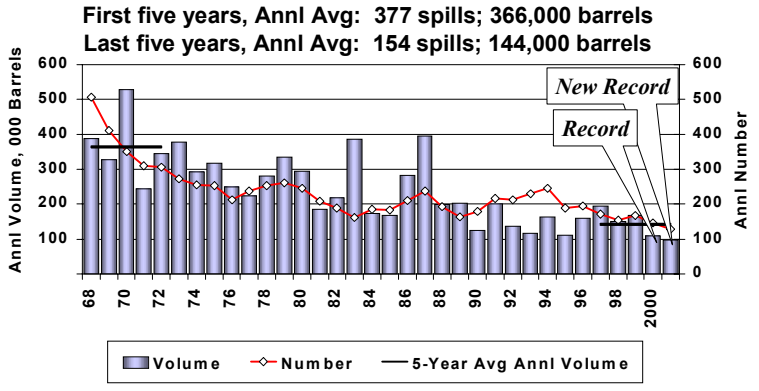
The Pipeline Performance Tracking System: More Detail, More Opportunities to Learn

Oil Pipeline Spill Reporting and the Industry's Record

The oil pipeline industry has historically reported any spill of 50 barrels or more and certain other safety incidents[1,2] to the U.S. Department of Transportation's Office of Pipeline Safety. *The U.S. Oil Pipeline Industry's Safety Performance*[3] describes the long-term safety and environmental record of the industry using the Office of Pipeline Safety's database as a primary source. These data on spills and safety incidents demonstrate a significant improvement in the oil pipeline industry's record over the 30-some years of Office of Pipeline Safety statistics, with both the annual number of spills and the annual volume of oil spilled falling by approximately 60%. The number of incidents and the volume spilled were at record lows in 2000 and again in 2001.

Allegro Energy Consulting

The History: Improving Record, 1968-2001



Source: RSPA 7000-1.

[1] Oil pipeline regulations (49 CFR Part 195) also required reporting of any spills of 5 barrels per day or more of highly volatile liquids, and any incident that involved a death, injury, or property damage of $50,000 or more.

[2] OPS changed its reporting threshold to 5 gallons in January 2002.

[3] Available at http://www.aopl.org/news/2002/Safety 2002 New.pdf

The data collected by the Office of Pipeline Safety reflected only seven incident causes until the 2002 revisions to the reporting form. The oil pipeline industry, in conjunction with the American Society of Mechanical Engineers' (ASME) oil pipeline committee, annually audited the submittals to re-classify the incidents into cause categories that better reflected the implications of the incidents for operations, thus allowing the industry to learn more effectively from its mistakes.

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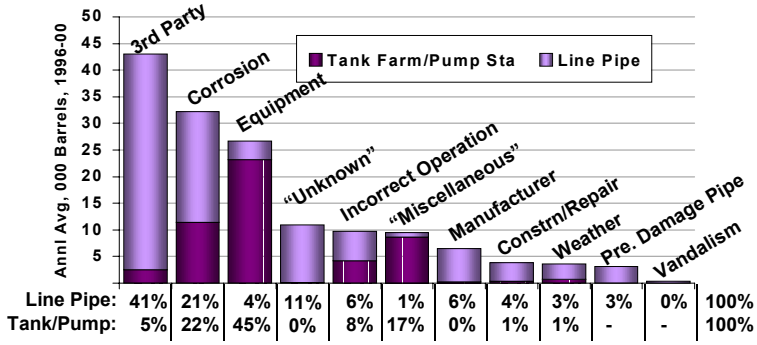
ASME Causes: Volumes Spilled, 1996-2000



	3rd Party	Corrosion	Equipment	"Unknown"	Incorrect Operation	"Miscellaneous"	Manufacturer	Constrn/Repair	Weather	Pre. Damage Pipe	Vandalism	
Line Pipe:	41%	21%	4%	11%	6%	1%	6%	4%	3%	3%	0%	100%
Tank/Pump:	5%	22%	45%	0%	8%	17%	0%	1%	1%	-	-	100%

Based on re-examination of OPS data by B31.4 Committee of the American Society of Mechanical Engineers. "Tank/Pump": tank farms, pumping stations, all other system parts

The Committee's findings for the 1996-2000 period (the latest year available) are an important confirmation that the largest cause of pipeline losses is third-party damage – incidents caused by excavation, farming or other activities that damage the pipeline – which accounts for 29% of the total volume. Because line pipe tends to be in the public domain, it is more important that third-party damage accounts for 41% of the line pipe volume lost. Third-party incidents tend to be larger than other incidents, as indicated by the fact that they represent only 32% of the number of line pipe incidents. In contrast, incidents caused by corrosion account for 32% of the number of line pipe incidents, but 21% of the volume lost from line pipe. In tank farms and pump stations, equipment failures are the largest cause of lost volume, accounting for 45%. (Two incidents account for almost half of this equipment failure total.)

In spite of the important new insights available from the ASME review of Office of Pipeline Safety submittals, the data gap was still large. Information on smaller spills and more detailed data on the causes and consequence of any release were necessary to track and improve performance.

PPTS Provides More Opportunities to Learn

The Pipeline Performance Tracking System, PPTS, is a key component of the oil pipeline industry's Environmental and Safety Initiative, a multi-discipline approach to understanding and improving industry performance. The availability of more detailed data is crucial to that objective. Although many individual operators had developed stringent internal reporting criteria, there were no industry-wide aggregations to enable industry to identify lead indicators and learn from them to prevent spills.

An invitation to participate in the voluntary PPTS was distributed widely in the oil pipeline industry at the program's inception in 1999, without regard to whether an operator was or is a member of API or the Association of Oil Pipe Lines. There are currently more than 50 operators participating, representing about three-quarters of the oil pipeline mileage in the United States. Participants report on all operated facilities, whether under the regulatory oversight of the U.S. Department of Transportation's Office of Pipeline Safety or not.

Participants in PPTS report spills of 5 gallons or more plus any smaller spills to water. The spills of 50 barrels and more account for 96% of the volume. Thus, the lower threshold in PPTS results

in many more spills being reported – providing a corresponding increase in the opportunities to learn from them – but the old reporting system was already capturing almost all of the *volume* spilled. On spills of 5 barrels or more, or incidents involving a death, injury, fire or explosion, PPTS collects data on the conditions at the time of the release, a detailed set of causes and causative factors, public safety impacts, and environmental impacts and remediation. Thus, the comprehensive new data on smaller spills will provide new insight on how to prevent larger incidents. Future fact sheets will discuss new lessons learned as they are developed.

Infrastructure Information

PPTS also collects information on the pipeline network, including system mileage onshore and offshore, by decade of construction, and by diameter, total volumes moved and other components of the systems such as tanks and metering stations. This infrastructure profile provides new data to characterize the system and to analyze accidents and accident trends. PPTS will also be collecting data to assess the effectiveness of new rules requiring operators to conduct risk assessments, undertake additional integrity testing and renovate pipeline segments that could affect high consequence areas such as those with a high population density, a commercially navigable waterway, or an unusually environmentally sensitive area.

Analytical Reports

The first of a series of reports utilizing PPTS' groundbreaking data is available. *Oil Pipeline Characteristics and Risk Factors: Illustrations from the Decade of Construction* describes the technologies, materials and pipeline construction practices and their evolution over time, and analyzes the safety performance of the oil pipeline system by decade of original construction. Pipeline operators can use the report's Findings and Recommendations to assess their own pipeline's characteristics and develop strategies to reduce risk over time. The report's authors are John F. Kiefner of Kiefner & Associates and Cheryl J. Trench of Allegro Energy Consulting.

PPTS in Brief

Number of Participants, 2001	**53 pipeline systems**
Their Mileage, 2001	**141 thousand miles**
Their Volume Moved, 2001	**3.8 trillion barrel-miles**

Their Incidents (Annual Average, 1999-2001)	**Spill Size**			
	Less than 5 barrels	5-49 barrels	50 barrels or larger	All
Number	418	122	90	630
Share of Total	66%	19%	14%	100%
Volume (000 Barrels)	<2.0*	2.3	103.6	107.9*
Share of Total	2%	2%	96%	100%

*Actual volumes not recorded for spills less than 5 barrels, so value shown is the maximum possible. Include only those incidents that would have met Office of Pipeline Safety 2002 reporting criteria.