



## Pipelines and Safety

### Pipelines Invest in Safety

Liquid pipelines deliver crude oil, refined petroleum products, and other energy liquids over long distances. Pipelines have every incentive to invest in pipeline safety to protect against potential injury to members of the public or employees; to protect against incurring potentially costly repairs, cleanup, litigation and fines; and to ensure that customer needs are accommodated in a timely manner.

Pipelines are built to have long lives. Operators of liquid pipelines invest millions of dollars annually to maintain their pipelines and comply with federal pipeline safety laws and regulations. Pipeline operators are required under federal statute to develop an Integrity Management Plan (IMP) for pipelines that could affect high consequence areas (HCAs) such as population centers, commercially navigable waters and environmentally sensitive areas. Liquid pipeline operators are required to conduct baseline assessments and perform continual integrity evaluation and assessments on segments that could affect HCAs at intervals not to exceed five years to fulfill pipeline integrity management requirements. A risk-based approach establishes the appropriate assessment interval within the five-year period. These baseline assessments also set a point of comparison for subsequent assessments so that operators may gauge the impact of time-dependent threats, like corrosion. Liquid pipeline baseline assessments for pipelines that could affect HCAs were completed for existing pipelines by March 2008.

Liquid pipelines are monitored through regular in-line inspections and use of "smart pigs," which detect anomalies in the pipe that need to be addressed, such as corrosion, pipeline deformation, cracking and other abnormal features. This technology includes sensitive internal detection devices such as magnetic flux leakage tools (MFL) and ultrasonic testing to examine pipeline wall thickness and detect features. Pipeline companies also perform visual inspections along rights-of-ways, including from the air, for signs of damage, leakage, and encroachment. In addition, some pipeline operators use fiber optic and electrical

cable sensors for external leak and excavation damage detection. Pipeline operators in control rooms are also trained to identify signs of leaks and respond quickly to shut off pipeline flow, contact first responders (company and local government emergency response), and government officials.

Pipe manufacturers and construction crews apply protective coatings to safeguard the outside surface of the pipe and pipeline welds from corrosion. Companies also employ a cathodic protection system to control the corrosion of steel by applying a small electrical current on the pipeline, which inhibits corrosion.

### Damage Prevention

Excavation damage is less frequent today, but can have extremely high consequences. Incidents from excavation damage by third parties, other underground facility operators and pipeline operators or their contractors tend to be large incidents and occur in the public right-of-way, although they accounted for only seven percent of release incidents from 1999 to 2008.

Pipeline operators, associations, state regulators and federal and state agencies take part in the Common Ground Alliance (CGA), an association that promotes effective damage prevention practices for all underground utility industry stakeholders to ensure public safety, environmental protection, public awareness and education for damage prevention. Membership in CGA spans 1,400 members and sponsors, demonstrating that damage prevention is everyone's responsibility.

Industry has worked closely with CGA to develop best practices and participates fully in its damage prevention programs, including the establishment of 811. Established by federal law in 2007, 811 is the national "call-before-you-dig" number which puts operators, homeowners, and professional excavators in contact with underground utilities prior to digging to prevent unintentional damage to underground infrastructure, including pipelines.

When calling 811 from anywhere in the country, a call is routed to the local One Call Center. Local One Call Center operators discern the location of the digging job and route the call to affected infrastructure companies. Utility companies send a professional locator to the location to mark lines within a few days. Once the underground lines have been marked, excavators are clear to begin digging.

## Commitment to Safety

Liquid pipeline spills along rights-of-ways have fallen over this decade, in terms of both the number of spills and the barrels of product spilled per 1,000 miles travelled. The frequency of releases decreased from 2 incidents per thousand miles in 1999-2001 to 0.7 incidents per thousand miles in 2006-2008, a decline of 63 percent. Similarly, the amount of barrels released per 1,000 miles decreased from 629 in 1999-2001 to 330 in 2006-2008. In 1998, the U.S. oil pipeline industry launched an Environmental and Safety Initiative (ESI) to make further improvements in spill and accident prevention.

A key element of the ESI is the Performance Excellence Team (PET), which seeks to promote inter-company learning to improve pipeline operations and integrity, and provides methods and opportunities for information sharing. PET also provides detailed, constructive responses on regulatory proposals and operations issues.

## Safety Regulation

The primary regulator of pipeline safety is the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). PHMSA's Office of Pipeline Safety

Public awareness of pipeline activity is also a vital element of pipeline safety. Operators ensure that emergency responders, local officials, and residents along pipeline routes are provided useful information regarding pipeline activities and safety procedures.

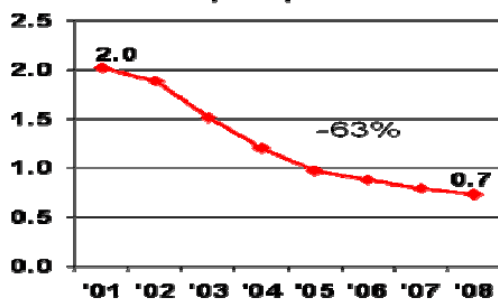
(OPS) oversees the administration and enforcement of the pipeline safety regulations (Title 49 CFR Parts 190-199). OPS also requires extensive data reporting as part of its incident reporting system, to track the type of incident, location of the incident, and number of barrels released. Additionally, OPS collects information about each operator's pipeline infrastructure annually.

Safety initiatives and programs administered by OPS include:

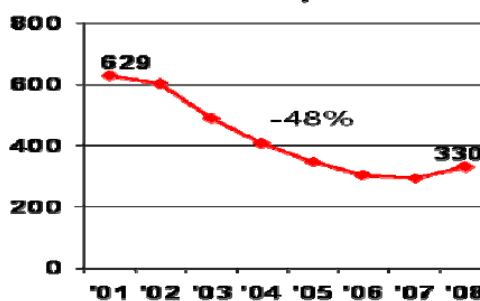
- Integrity Management Program
- Drug and Alcohol Testing Program
- Oil Pollution Act monitoring
- Data Analysis
- Risk Management
- Technical Pipeline Safety Advisory Committees
- Training and Qualifications
- Unusually Sensitive Areas
- Pipeline-related Research & Development

OPS also acts in partnership with the states on pipeline safety programs. States may assume enforcement responsibilities for safety on intrastate pipelines under an annual certification from OPS. OPS may authorize a state to act as its agent to inspect interstate pipelines, but retains responsibility for enforcement of the regulations.

**Number of Spills per 1,000 Miles**



**Barrels Released per 1,000 Miles**



Source: Pipeline Performance Tracking System, a voluntary spill reporting system involving 85% of the U.S. liquids pipeline mileage. Percentage decline from 1999-2001 average to 2006-2008 average.