Use of Data to Advance Pipeline Safety

Pipeline Safety Trust Conference

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Data fuels transformation.
BENEFITS of DATA SHARING

- Collection of complete and accurate data enables deeper analysis.
- Proper analysis can covert data to actionable information.
- Result in safety enhancements that benefit both the industry and the public.
Available Data

• PHMSA's goal is to help improve industry performance and to prevent accidents, injuries, fatalities and environmental impacts.

ZERO INCIDENTS

“To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives.”
PHMSA
Pipeline Data Collection Since 1999

• 2002  Expanded GT/GG incident and HL accident reports (more cause categories).
HL accident reporting spill volume threshold dropped from 5 barrels to 5 gallons.

• 2004  Expanded GD incident report (more cause categories)

• 2005  HL annual reports to PHMSA

• 2010  Expanded GT/GG incident, GD incident, and HL accident reports
Expanded GT/GG and HL annual reports, including by-State reporting
Expanded GD annual reports by adding integrity management performance data
PHMSA Pipeline Data Collection Since 1999

- 2011: LNG incident report
- 2012: Expanded GT annual reports to include MAOP determination methods, pressure test levels, and ability to pass ILI
- 2017: UNGS annual reports
  UNGS incident reports collected on the GT/GG report
- 2019: Expanded GT/GG/UNGS, GD, and LNG incident reports to include more consequence data
PHMSA
Pipeline and Hazardous Materials Safety Administration

Home » Data and Statistics » Pipeline

Data and Information

PHMSA's Pipeline and Hazardous Materials Safety Administration (PHMSA) collects, analyzes, and reports data on pipeline incidents, accidents, and other information from pipeline operators.

DATA AND INFORMATION

Data and Statistics
- Incident Reporting
- National Pipeline Mapping System (NPMS)
- PHMSA Portal
- Planning and Analytics

RESOURCE LIBRARY
- Emergency Response Guidebook
- Forms
- Hazardous Materials Information Center
- Operator Resources
- PHMSA oCIFR
- Technical Resources
- Technical Reports
- Safe Travel
- Transporting Infectious Substances

Updated: Monday, November 6, 2017
System Type Performance Measures

- Performance measures were created by PHMSA in conjunction with our stakeholders.
- A specific set of performance measures were developed for hazardous liquids, gas transmission and gas distribution.
- The National Pipeline Performance Measures page provides links to reports displaying the selected measures for each system type.

Gas Pipeline Performance Measures

OPS worked with the Pipeline Safety Trust®, the National Association of Pipeline Safety Representatives®, the American Gas Association®, the American Public Gas Association®, and the Interstate Natural Gas Association of America® to develop performance measures for gas distribution and gas transmission. Incidents, leaks, immediate repairs, excavation damages, and miles of higher risk material are used in the measures. You can view the measures by individual operator and by safety program. If the measure uses incident data, you can view details about the incident reports.

- GAS DISTRIBUTION (GD) PERFORMANCE MEASURES
  - Serious Incident Rate and Cause
  - Significant Incident Rate and Cause
  - Leaks
  - Excavation Damage
  - High Risk Materials

- GAS TRANSMISSION (GT) PERFORMANCE MEASURES
  - Serious Incident Rate and Cause
  - Onshore Significant Incident Rate and Cause
  - Onshore Significant Incident HCA
  - HCA Immediate Repairs
  - HCA Leaks
  - High Risk Materials
  - Onshore Significant Incident Rate by Decade
Integrity Management Performance Measures

- Integrity Management Performance Measures are used to measure the industry’s progress in meeting IM requirements.
- The performance measures are specific to each system type, so hazardous liquids, gas transmission and gas distribution have their own IM pages.

- **Hazardous Liquid IM Performance** tracks pipeline mileage, large spills, incident trends, numbers of miles inspected/assessed, and repairs in High Consequence Areas (HCAs).
- **Gas Transmission IM Performance** tracks pipeline mileage, significant incidents, failures, numbers of miles inspected/assessed (both baseline and reassessment), repairs, and leaks in HCAs versus in non-HCAs.
- **Gas Distribution IM Performance (DIMP)** shows total leaks eliminated and repaired, data on the causes of gas distribution incidents (e.g., excavation damage), and information emergency flow valves (EFV's).
Excavation Damage Data

- Excavation damage represents the leading cause of serious incidents, which merits particular focus.
- The Excavation Damages page can be filtered by state or incident severity.
- A wide variety of information on excavation damages is displayed, including root causes, excavator types, leak causes and excavation damage by system type.
State Pipeline Performance Metrics

- PHMSA is required to evaluate each state pipeline safety program.
- To support this evaluation, PHMSA and NAPSR have developed six key metrics displayed in bar graphs on this page:
  - Damage Prevention Program
  - Inspection Activity
  - Inspector Qualifications
  - Leak Management
  - Enforcement Activities
  - Incident Investigation
**Serious Incidents**

**CY 2018**

- 90% Gas Distribution
- 2.5% Hazardous Liquid
- 7.5% Gas Transmission
- 0% Liquefied Natural Gas (LNG), Gas Gathering, or Underground Natural Gas Storage

Data accurate as of February, 2019

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CY 2018 Leading Causes
- Other outside force damage (vehicular damage)
- Excavation damage
- All other causes (under investigation)
GIS mapping data shows location and certain attributes for gas transmission and hazardous liquid pipelines, LNG plants and breakout tanks.

- Annually GIS data is collected from over 1,500 pipeline operators.
- NPMS covers nearly 1 million pipeline segments (over 520,000 miles).

Since 2001
Accessing NPMS?

- Public Map Viewer
- Public Map Viewer iPhone App
- Search Operator directory by state, county or ZIP where they operate pipelines
- Download national pipeline map or pipeline information spreadsheets

- Pipeline Information Management Mapping Application (PIMMA)
- PIMMA iPhone App
- GIS Data Request

www.npms.phmsa.dot.gov

“To protect people and the environment by advancing the safe transportation of energy and other hazardous materials that are essential to our daily lives.”
Explore NPMS pipeline maps

- Who operates each pipeline,
- Operator’s contact information,
- The system name, and
- What the pipeline carries

Averages 38,000 users a month

Use query tools to make custom maps

- Search for your address
- View incidents and accidents since 2002
- View Population, Commercially Navigable Waterways and Great Lakes HCA data

Limitations:

- One county/parish at a time
- Cannot see pipelines if zoom-in scale is larger than 1:24,000
Improving emergency response and planning

- PIMMA mapping application supports emergency response for local, state, federal and tribal governments.
  - Over 12,000 registered users, nearly 5,000 emergency responders

- Added emergency contact information to each pipeline in PIMMA

- Created iPhone app – pipeline information at their finger tips in the field

- Leverage NPMS to identify operators in the path of disasters to ensure proper preparation, response and remediation.
Improving risk identification, policy analysis and resource prioritization at PHMSA

- Prioritize resources and target inspection activities
- Support policy analysis
- Support new rules
- Support R&D
Damage Cause Analysis 2017

- Excavation Practices Not Sufficient
- Notification NOT Made
- Notification Practices Not Sufficient
- Locating Practices Not Sufficient
- Miscellaneous Root Cause

Source: CGA DIRT report

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Complimenting the 811 Message

Wait the Required Time for Locates/Marks

Respect and Protect the Marks

Excavate Carefully!
Office of Pipeline Safety Priorities

1. Continuous Pipeline Safety
2. Safety Accountability
3. People
4. Effective Use of Data and Information
Thank You!

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NPMS Questions?

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