

Pipeline and Hazardous Materials Safety Administration

Safety Management Systems

The Next Step in Improving Safety

July 15, 2018



Know what's below.
Call before you dig.



U.S. Department of Transportation
Pipeline and Hazardous Materials
Safety Administration

"To protect people and the environment by advancing the safe transportation of energy
and other hazardous materials that are essential to our daily lives."



Safety Management Systems Are About **Getting to Zero incidents and **Improving** **Performance****

(The effort transcends Compliance)

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Categories of Incident Reports

Serious – fatality or injury requiring in-patient hospitalization - ***Fire First*** excluded

Fire First are gas distribution incidents with a cause of “Other Outside Force Damage” and sub-cause of “Nearby Industrial, Man-made, or Other Fire/Explosion”

Significant include any of following - ***Fire First*** excluded

1. Fatality or injury requiring in-patient hospitalization
2. \$50,000 or more in total costs, measured in 1984 dollars
3. Highly volatile liquid (HVL) releases of 5 barrels or more
4. Non-HVL liquid releases of 50 barrels or more
5. Liquid releases resulting in an unintentional fire or explosion



All Reported

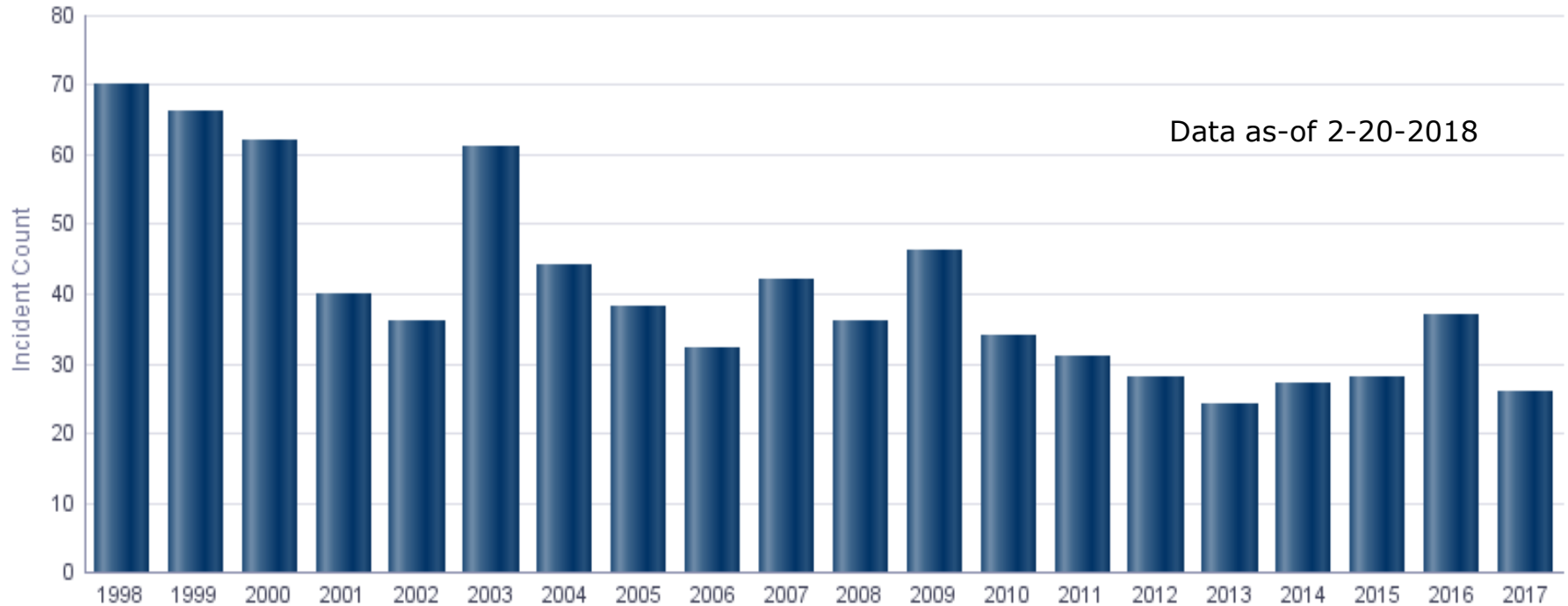
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– everything operators report – “reportable” or not

To Protect People and the Environment From the Risks of
Hazardous Materials Transportation



Serious Incidents



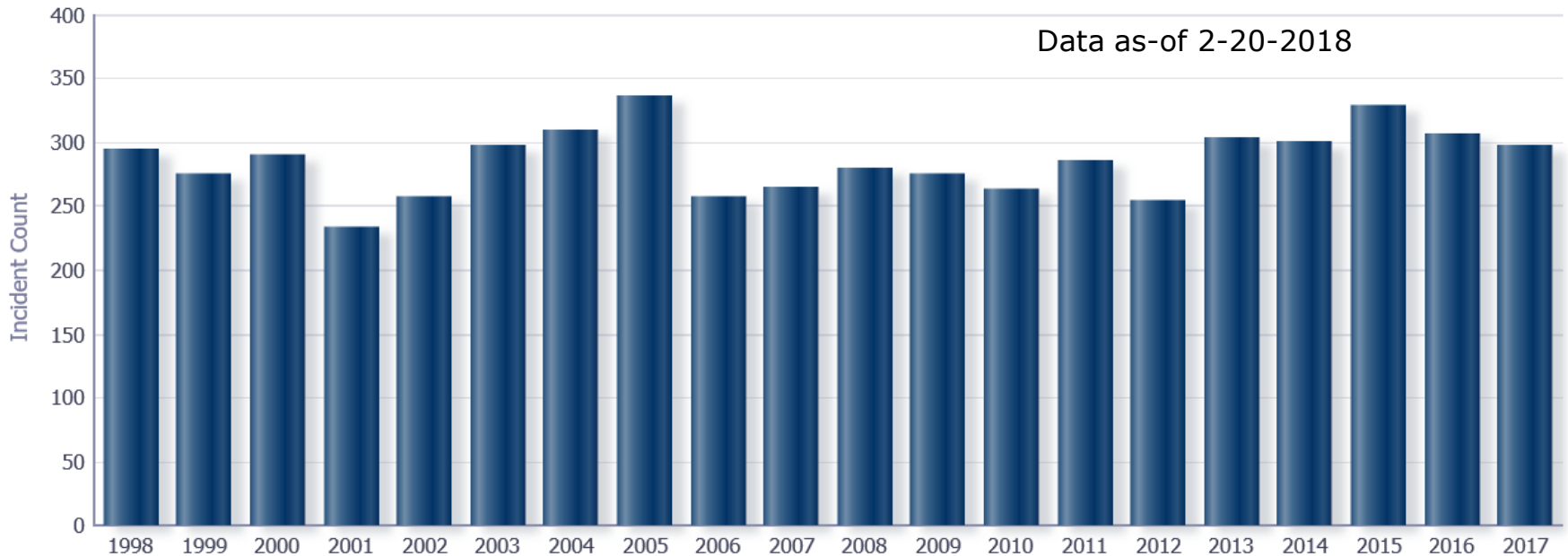
26 in CY 2017

85%	Gas Distribution	12%	Gas Transmission
4%	Hazardous Liquid	0%	LNG, Gas Gathering, Underground Natural Gas Storage

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Significant Incidents



297 in CY 2017

21% Gas Distribution

23% Gas Transmission

0% LNG

2%

Gas Gathering

53%

Hazardous Liquid

1%

Underground NG Storage

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Performance Seems to
Have Hit a Plateau in Some Ways...

What Can Be Done to Take Performance to the Next Level?

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- The National Transportation Safety Board (NTSB) review of past pipeline incidents and safety practices found that adoption of safety management systems would help operators improve their safety performance
- In 2012, NTSB recommended the American Petroleum Institute (API) lead a multi-stakeholder process to develop and adopt a pipeline specific industry-wide safety management system standard.
- In 2015, API RP 1173 was issued.

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Why Safety Management Systems?

Many industries, from aviation, healthcare to refining and nuclear power, have documented success with Safety Management Systems.

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What is a Safety Management System?

SMS is the formal business approach to managing safety risk, which includes:

- a systemic approach to managing safety,
- the necessary management commitment, and
- organizational structures, accountabilities, policies and procedures.

SMS is a better way of doing our traditional business that includes continuous improvement.

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Plan – Do – Check - Act



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Continuous Improvement is the Goal



Essential Safety Management Systems Elements of API 1173

- **Leadership and Management Commitment**
- **Stakeholder Engagement**
- **Risk Management**
- **Operational Controls**
- **Incident Investigation, Evaluation, and Lessons Learned**
- **Safety Assurance**
- **Management Review and Continuous Improvement**
- **Emergency Preparedness and Response**
- **Competence, Awareness, and Training**
- **Documentation and Record Keeping**



Where will SMS take us?

Reactive → **Proactive** → **Predictive**

01 REACTIVE

Develops strategies that respond to past incidents and accidents



PRESENT

02 PROACTIVE

Actively collects data to identify and address current hazardous conditions



03 PREDICTIVE

Systematically analyzes safety risk data and performs forward-looking data analytics to identify potential/future problems



If SMS is So Great, Why Isn't PHMSA Turning it into a Regulation?

Because...

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To achieve any level of effectiveness, a company must embrace the SMS concepts, not just the letter of a law.

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Full adoption of SMS is accomplished by organizational and personal cultural change – a step change in belief and attitude.

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SMS Guiding Principles

SMS asks us to be proactive learning organizations that:

- Promote a **strong safety culture**, from senior leadership to front-line employees, and demonstrates a **commitment to safety as our top priority**.
- Values, maintains and operates risk management processes, activities, and tools to **identify, evaluate and mitigate safety risks**.
- **Continuously assesses** processes and procedures and validates systems **to improve safety performance**.



SMS Guiding Principles

- Establishes, measures and assesses **safety performance indicators and targets**.
- **Leverages relevant information** such as emerging trends, metrics, investigations and inspections to continuously improve safety.
- Fosters a **strong safety culture** through internal and external collaboration and communication.



Safety Culture is the glue that holds SMS together

A STRONG SAFETY CULTURE IS...

- **A reporting culture:** Employees are encouraged to report safety issues without fear of retribution.
- **An informed culture:** Employees are encouraged to take ownership of safety. Identifying, analyzing, and correcting safety problems is valued.
- **A learning culture:** As a result of safety trends or incidents, processes are changed and outstanding safety issues are resolved.
- **A just culture:** Employees are held accountable for reckless or deliberate actions, but they are not overly punished for unintentional errors. The organization makes full use of its employees' potential and actively involves them to develop shared values and a culture of trust, openness and empowerment.



PHMSA believes in the benefits of SMS and is incorporating the principles into our own organization.

(And it isn't an easy process. Real cultural change takes time and effort. We will be a better, more effective and efficient organization in the endgame.)



Thank you!



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