NTSB National Transportation Safety Board

Pipeline Safety: How the Mayor's Council On Pipeline Safety Can Help

Presentation to: Mayor's Council on Pipeline Safety Conference

Name: Christopher A. Hart

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Outline

- **Description of the Problem**
- **Solutions**
- **Role of the Mayor’s Council**

NTSB 101

- **Independent federal agency, investigate transportation mishaps, all modes**
- **Determine probable cause(s) and make recommendations to prevent recurrences**
- **Primary product: Safety recommendations**
  - **Favorable response > 80%**
- ***SINGLE FOCUS IS SAFETY***
- **Independence**
  - **Political: Findings and recommendations based upon evidence rather than politics**
  - **Functional: No "dog in the fight"**

The Problem

- More than 2.1 Million Miles of Gas Distribution Pipelines
- Almost 300K Miles of Gas Transmission Pipelines
- Two Aspects to the Problem
  - Most important: Prevention
  - If that fails: Emergency response

Prevention

- **Essential: Robust Integrity Management Program regarding**
  - **Installation**
  - **Inspection**
  - **Maintenance**
- **Prevention Depends More Heavily on Operators/Utilities**
  - **Regulator resources increasingly limited, hence more risk-based**
  - **Regulators looking more at process than at pipelines**

Additional Prevention Challenge

- **Third-Party Damage**
  - **Major cause of pipeline damage**
  - **Depends on creating robust public awareness**

Emergency Response

- **Ability to Stop the Release**
  - **Automatic or remote shut-off valves**
  - **Excess flow valves**
- **Emergency Responders**
  - **Knowledge re pipeline**
  - **Ability to respond**
  - **Availability of nearby resources**

Example: San Bruno

- Faulty Installation
- Inadequate Inspection
- Inadequate Maintenance
- Shut-Off Valves Manual
- Emergency Responders Unaware
- Good News: Subsequent Progress is Encouraging

Multiple Examples: Allentown, PA

- **Allentown contains many miles of small diameter (8 inches or less) cast-iron gas and water mains installed in the late 1800's and early 1900's that have probably been weakened by corrosion**
- **1925-1976: Two gas pipeline explosions, 10 fatalities, 24 injuries, 2 buildings destroyed**
- **1976-1992: Two explosions, three fatalities, 23 injuries, 6 buildings destroyed**

Allentown, PA (con't)

- **1994: Natural gas distribution pipeline explosion**
  - **Probable cause: Failure to ensure compliance with excavation requirements through project oversight**
  - **Contributing to severity: Absence of excess flow valve; absence of a gas detector**
- **2012: Explosion of 12-inch cast iron gas main with a circumferential crack**
  - **Five fatalities, 8 homes destroyed**
- **2015: Leak 3 blocks from the 2011 explosion**
  - **People smelled gas and called in the leak**
  - **25-30 residents were evacuated**

Progress

Kudos to Mayor Pawlowski -- and others -- for keeping the pressure on

Accidents: A mix of causes, including but not limited to older infrastructure

Before 2011: Utility replaced 9.3 mi. of cast iron pipe per year

2013: Utility replaced 63 miles

But utility replacement schedule is 2027 for all cast iron pipes, 2043 for bare steel

Other Examples

- **Palm City, FL, 2009**
  - **Probable cause: Cracking under a disbonded polyethylene coating that remained undetected by the integrity management program**
- **Sissonville, WV, 2012**
  - **Probable cause: External corrosion due to deteriorated coating and ineffective cathodic protection, and the failure to detect the corrosion because the pipeline was not inspected after 1988**
- **Explosion and Fire in New York City, 2014**
  - **Currently under investigation**
  - **Public docket now open**
  - **Probable cause meeting, June 2015**

Integrity Management Programs

- **2004: PHMSA required Integrity Management Programs to manage risk in gas transmission pipelines in High Consequence Areas (HCAs)**
- **Implementing Integrity Management Programs, however, is not trivial**
- **2015 NTSB Safety Study: No evidence that IM programs reduced incidence of events; Recommendations included:**
  - **Increased coordination among state inspectors, and between state inspectors and PHMSA**
  - **Improved training and guidance**
  - **Increased use of in-line inspection**
  - **More and better data collection/integration**

How the Mayor's Council Can Help

- **Keep the pressure on**
- **Public awareness**
  - **Call before digging**
  - **Report leaks**
- **Know what pipelines run through your city**
- **Emergency responder relationship with operator/utility**
- **Advocacy**

Conclusions

- **Efforts to identify and mitigate risks must be**
  - **More systematic**
  - **More effective at every level**
- **Needed:**
  - **Better inline assessment tools**
  - **Better federal/state coordination**
  - **Better federal oversight**
  - **BETTER DATA!**

Thank You!!!

Questions?