Reconsideration of Maximum Allowable Operating Pressure for Natural Gas Pipelines

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Pipeline & Hazardous Materials Safety Administration

Agenda Overview

- Economics
- Brief History
- Threats
- International Applications
- States' Views

Economics

- PHMSA's Mission – SAFE, RELIABLE, and Environmentally Sound …
- Natural gas market segments
  - Electric Sector
- Build Capacity
- Increasing material and construction costs
    - Steel prices ↑ 200% in the last 3 years
    - Increasing labor costs
  - Increasing pipeline project permit and construction requirements
  - Increasing time and costs to obtain land and right-of-way agreements

Issues Influencing Pipeline Infrastructure Alternatives

- Producers, shippers, and end users require additional, dependable pipeline transportation capacity.
  - Producers are making significant investments to replenish and increase upstream energy resources. (supply)
  - End users are paying for the all aspects of the delivered energy commodity. (demand)
- Pipeline companies require levels of firm transportation contracts in order to assure the viability of their financial investments.
  - FERC regulates interstate pipelines economic returns.
  - Mature pipeline systems usually require higher operating and maintenance costs which result in the need to increase revenues to maintain returns.

Issues Influencing Pipeline Infrastructure Alternatives

- Benefits of Design Factor adjustments
  - EXISTING pipelines
    - ΔMAOP = 11.1% => 5-10% throughput increase
    - > throughput => timely, cost effective opportunities
  - NEW pipelines
    - Cost savings would roll through the value stream
    - Projects become more economically viable

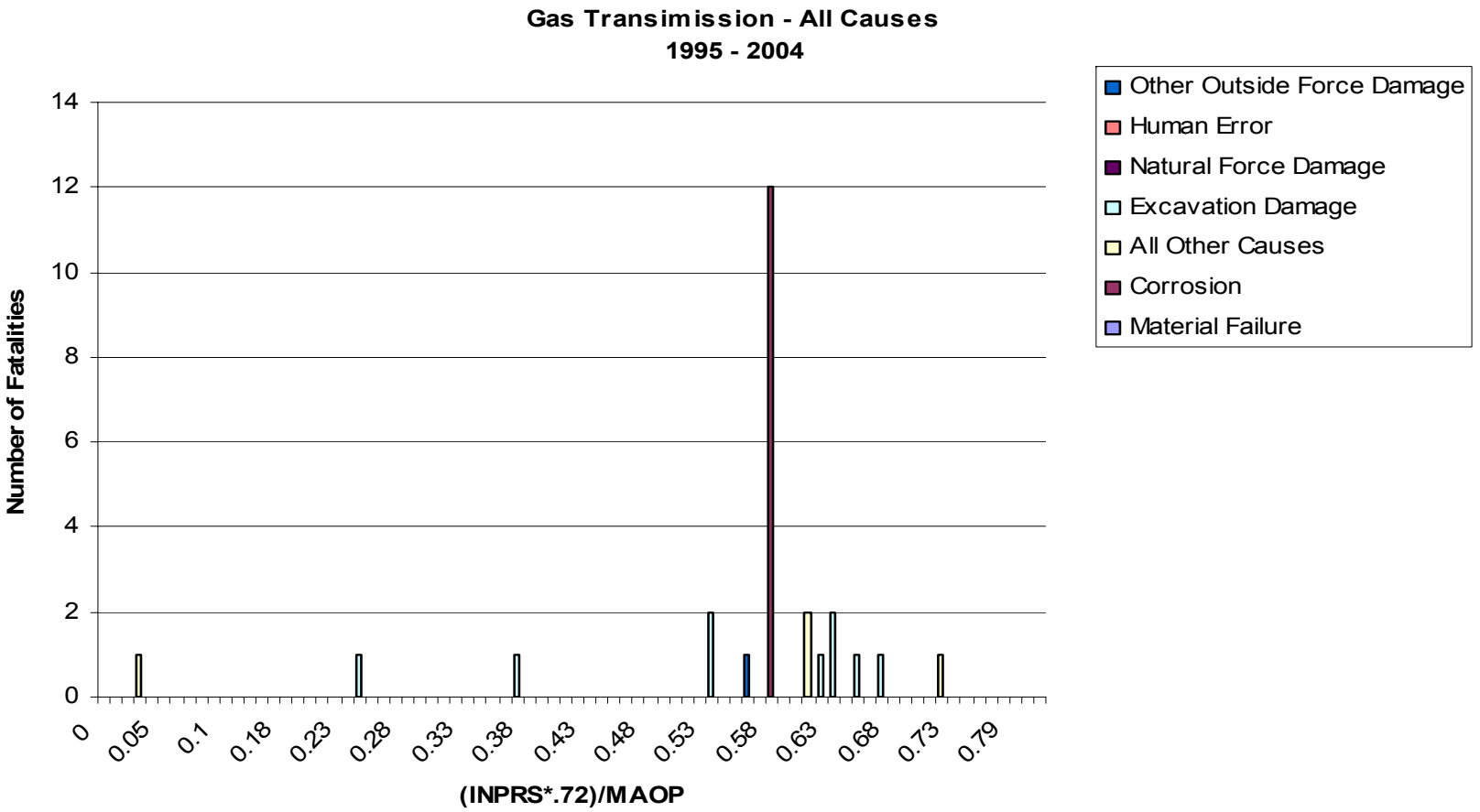
Background: 72% & 80% SMYS

- Wherefrom 72% SMYS delimiter?
- Why 72% SMYS instead of 80% SMYS?
  - Rapid expansion of infrastructure in 1950s required conservative safety margins
  - Manufacturing processes limited material properties; therefore, more conservative safety margins
- 80% SMYS in the US
- 80% SMYS in Canada

Threats to Pipelines

- Is operating stress really a driver of incidents?
  - Most incidents have occurred at lower that 72% SMYS
  - Excavation damage and corrosion continue to remain primary causes of incidents
- So what?
  - Prevention and inspection at appropriate intervals must be emphasized

Fatalities as a Function of MAOP



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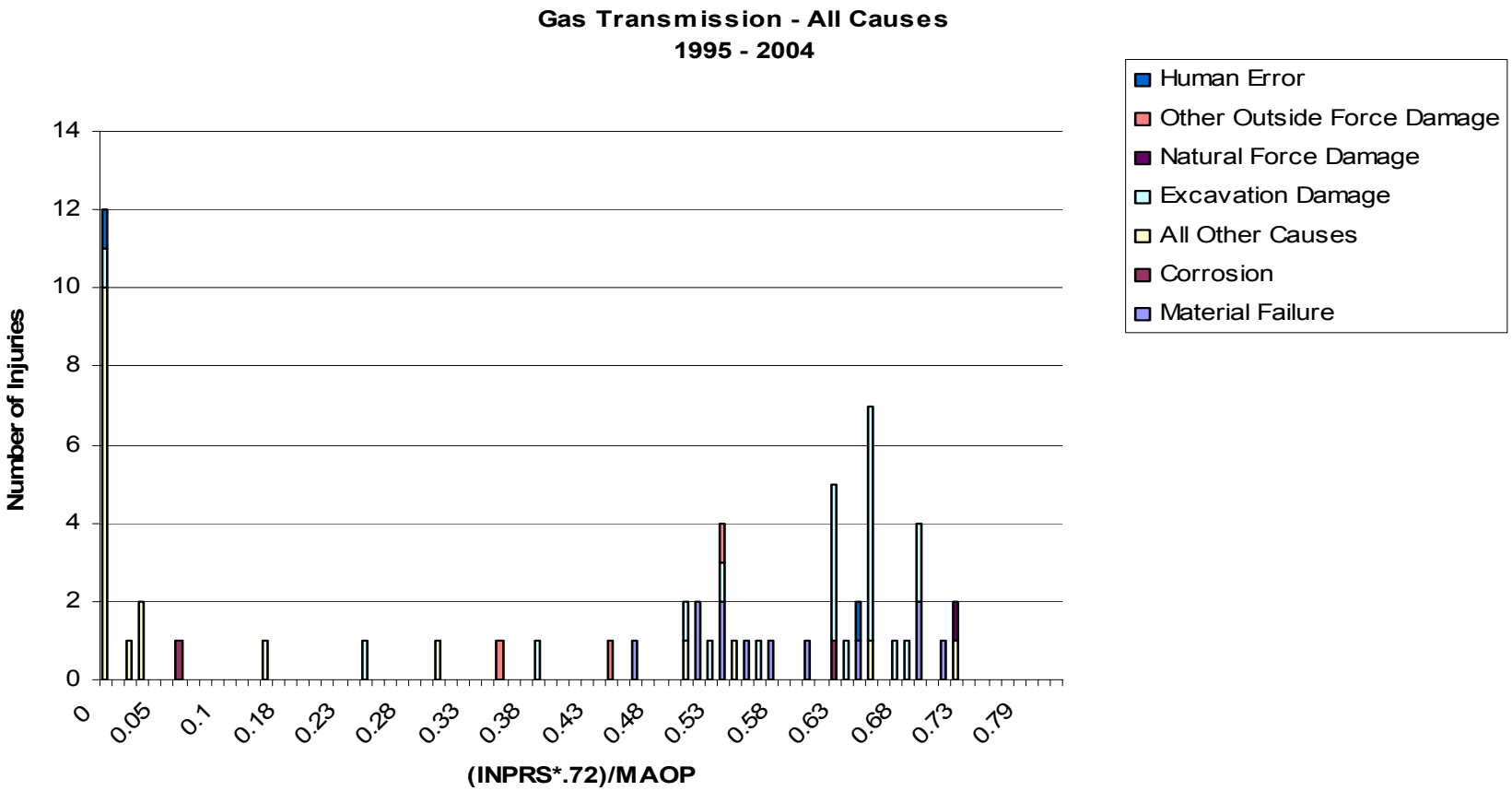
Injuries as a Function of MAOP



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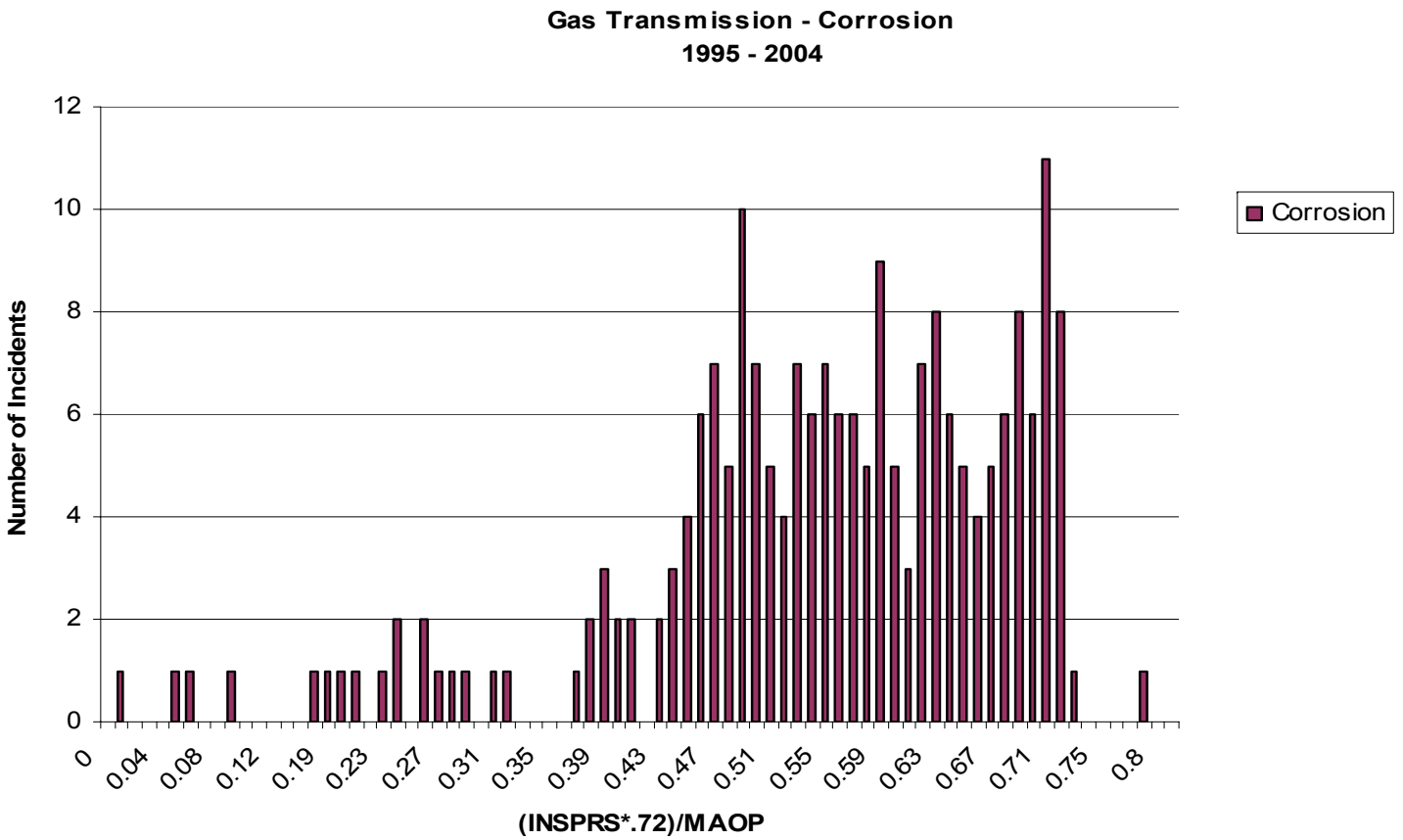
Corrosion Incidents as a Function of MAOP



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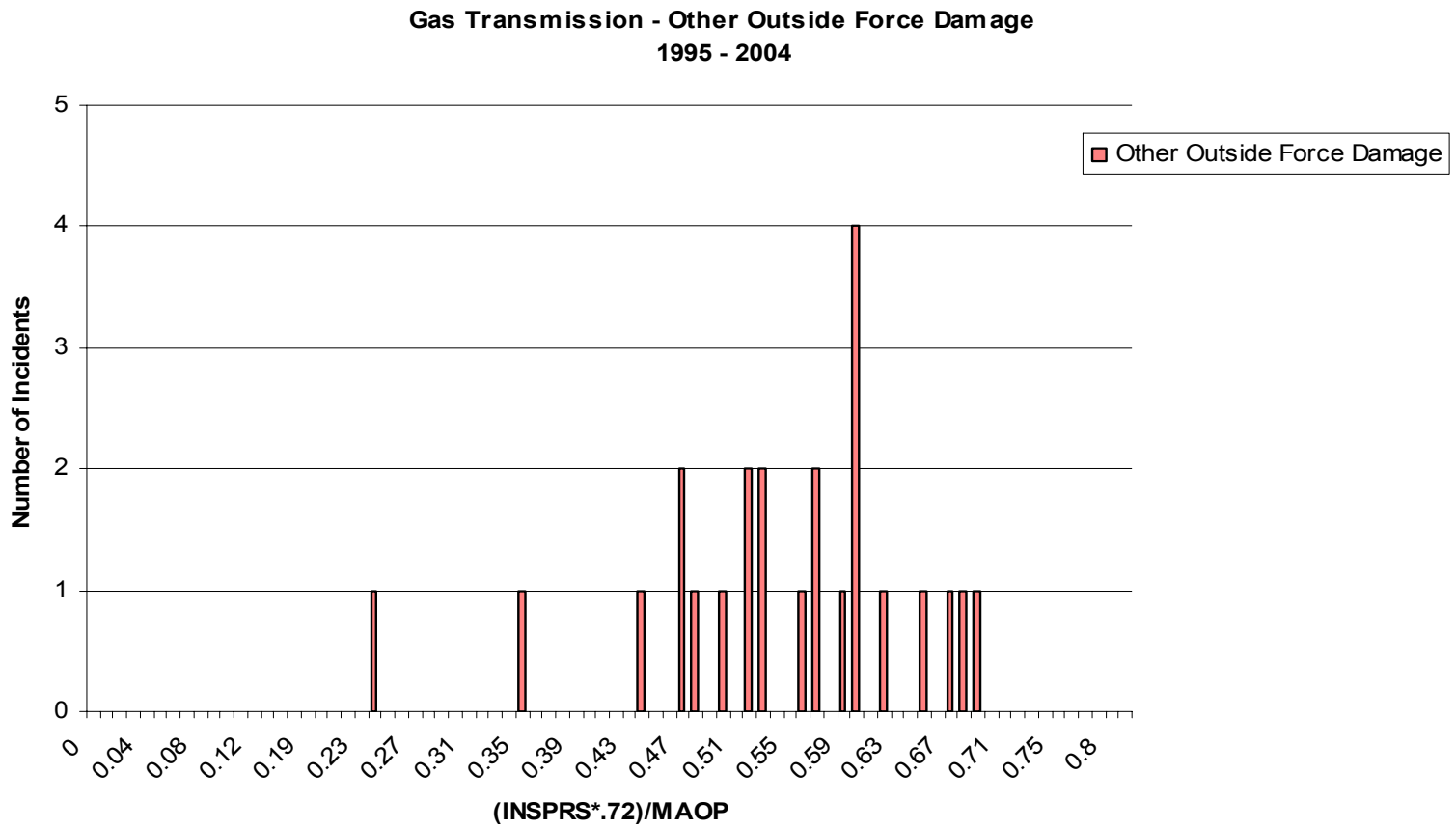
Outside Force Damage Incidents as a Function of MAOP



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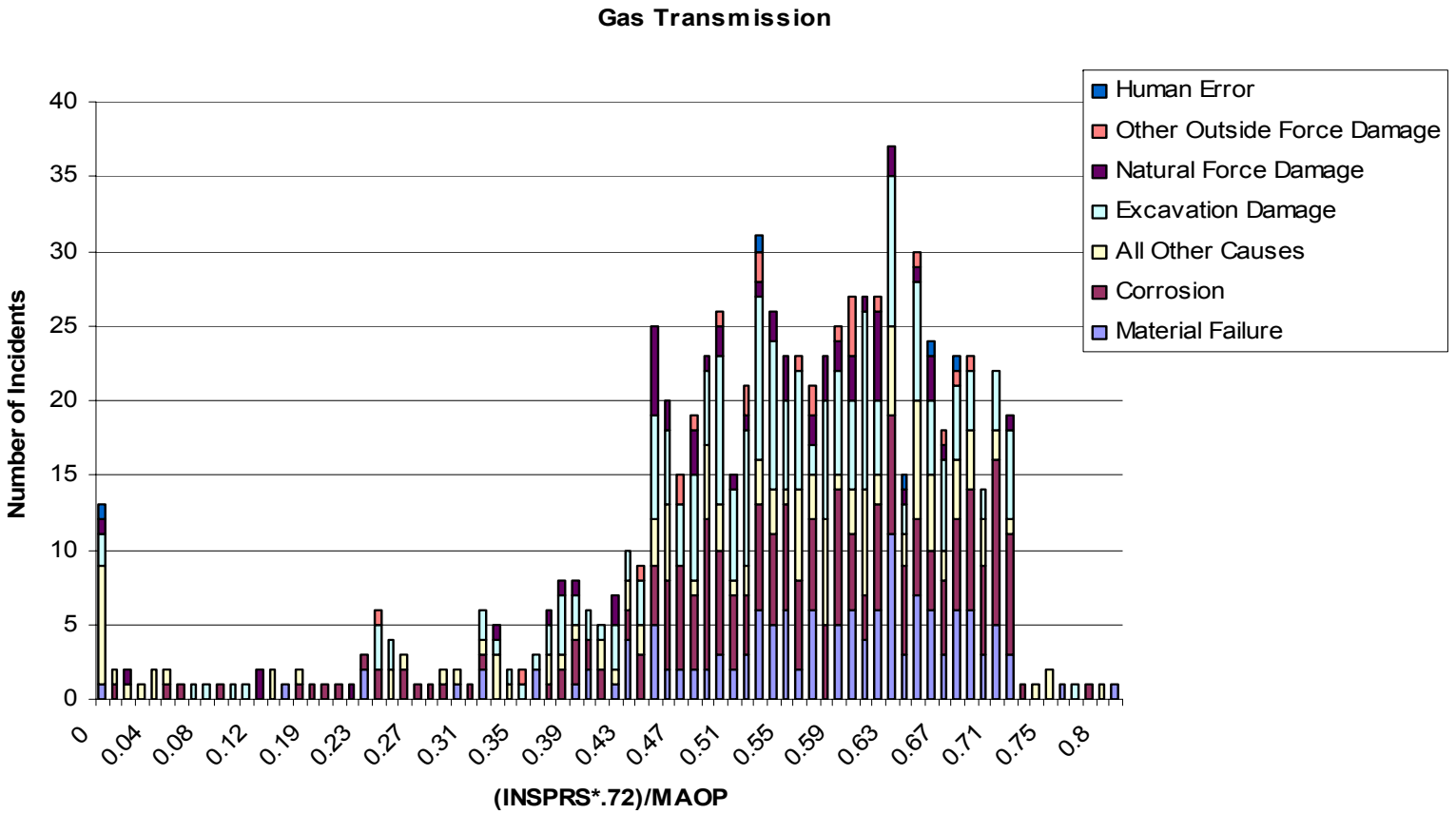
TOTAL Incidents as a Function of MAOP



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Class Location Waiver Program

- Remember this?
  - When initiated?
  - Progenitor?
- Threat Matrix
- Public Meeting
- How many applications?
- How many accidents at these sites?

Pipelines Operating >72 % SMYS

- U.S. ≃ 5,000 miles
- Canada
  - Total EUB pipelines 234,000 km
  - Total EUB pipelines > 72% SMYS = 11,340 km
  - Total NEB pipelines 26,577km
  - Total NEB pipelines > 72% SMYS = 11,464km
- UK ≃ 1000 km

Source: Washington Post, Tuesday, March 14, 2006