Hazardous Liquids Pipeline Industry Perspective on Excavation Damage Prevention

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Low frequency; High consequence

• Excavation damage NOT the leading cause of reportable hazardous liquids pipeline accidents
  – About 7% of all HL pipeline accidents from 1999 to 2008
  – It is improving over time
• It IS the leading cause of injuries and deaths
  – 61% of fatalities
  – 40% of injuries
• That’s why the industry is so focused on reducing excavation damage
66% Decline in Third Party Hits Causing Immediate Failure

* Includes onshore HL pipeline incidents >=5 barrels or death, injury, fire or explosion
Who are these various parties?

Third Parties
• Landowners (farmers, homeowners, tenants)
• Road construction crews
• Residential/commercial development, etc.
• "One-call Partners" (pipelines and other underground utilities that pay for "call before you dig" systems)

First Parties
• Pipeline Operator’s Personnel

Second Parties
• Pipeline Operator’s Contractors
Diverse Sources of Excavation Damage; Diverse Strategies for Improvement

Landowner/Tenant is Farming Activities + Homeowners
One-Call Partners are other pipelines and underground facilities operators
All Other Activities include residential/commercial development, railroad, waterway, "other"

3-Yr Average
- '99-'01
- '06-'08

Number per year
- Landowner/Tenant
- One-Call Partners
- All Other Activities
- Road Constr.
- Oper./Contr. Excav
So what have we done to reduce excavation damage?

- **Public Awareness Programs** – we really do want people along the right-of-way to know about pipelines
  - Respect for the hazards of pipelines, but not fear of them
  - Pipelines are the safest and most reliable way to move energy products
  - The public can be our eyes and ears
- **Common Ground Alliance and 811**
  - Supported the creation of CGA and the rollout of the 811 Call Before You Dig Campaign
And also . . .

- **Industry advisories**: statistics and subject matter experts' considerations for operator improvement.
- **Industry workshops**: first, second and third parties, aerial patrol safety and effectiveness, directional drilling, locating and marking practices.
- Supported the **nine elements for effective state damage prevention programs**
- Advocating for stronger state programs with **fewer exemptions from one-call**
- **Participation in PIPA**: better planning practices, collaboratively developed
What else are we tackling?

- **Corrosion** – better assessment tools and practices (NACE corrosion standards; PPTS corrosion advisories)
- **Operator error** – addressing human factors (better data; advisories)
- **Control Room** – annual Control Room Forums, RP 1168 on Control Room Management, Gas Control Guideline and RP 1167 on Alarm Management, Control Room Rule
- **Construction and Materials Standards** – higher strength pipe (API 5L), improved welding practices (API 1104), construction standards (ASME B31.4 & B31.8), INGAA Foundation work groups
- **Emphasis of Quality Standards** (ISO 29001/API Q1 for the Oil and Gas Industry; INGAA QMS White Paper; Services Quality Std.)
- **Pipeline Research Council International** -- $36.3MM of **Pipeline Research and Development** in just the last 5 years
EXCAVATION DAMAGE PREVENTION IS A SHARED RESPONSIBILITY