



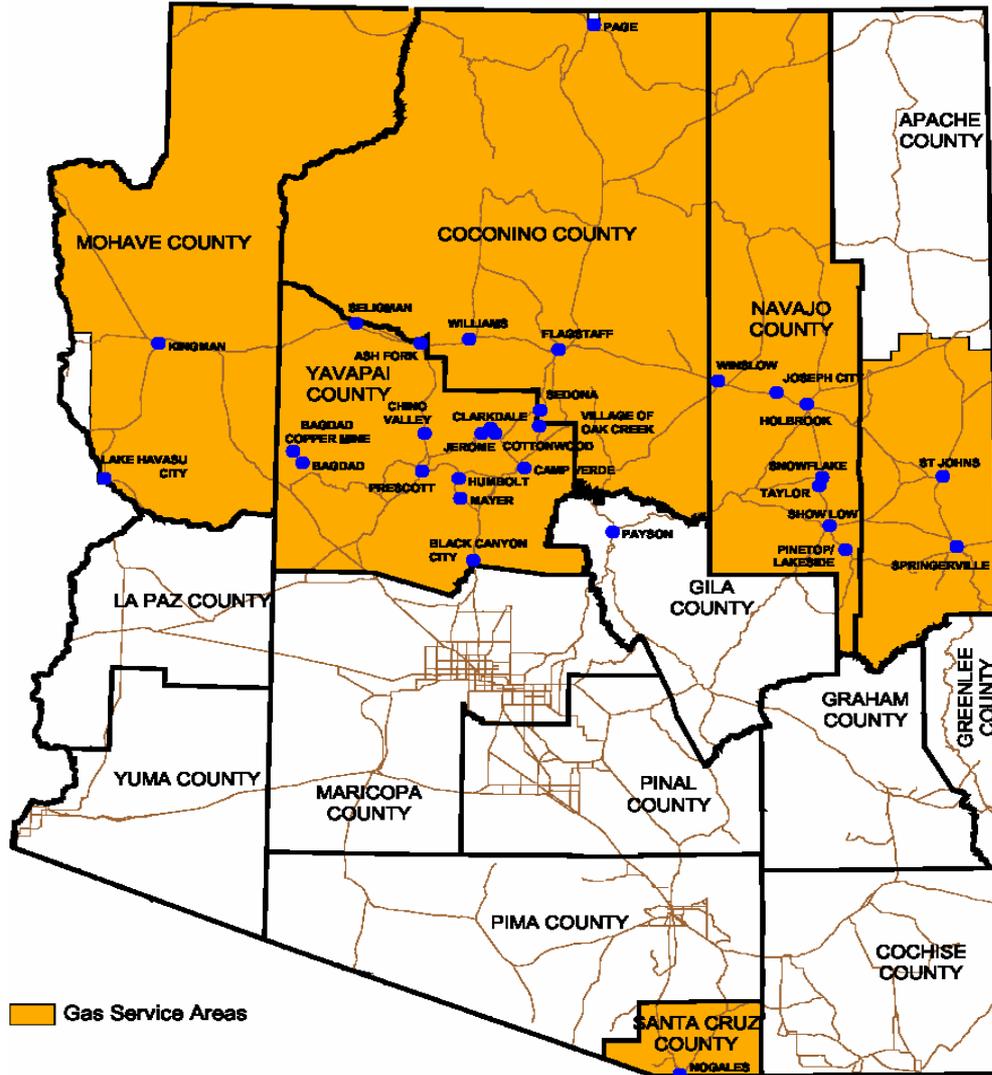
# Arizona Corporation Commission Pipeline Safety

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# UNS Gas System Overview



## •MILES

•Distribution Main	2,994
•Transmission Main	31
•Service Line	1,188
•Total	4,213

•SERVICE LINES 136,439

## •SYSTEM HIGHLIGHTS

- 54% < 20 years old
- No bare steel
- 92% 4" diameter or less
- Lines mapped into GPS

# Identify Threats

- **Types of threats**
  - **Time Dependent** – internal / external corrosion, stress corrosion cracking
  - **Static Dependent** – fabrication or construction defects
  - **Time Independent** - 3<sup>rd</sup> party, outside forces
  - **Complex Systems**



# Evaluate Threats and Measure Risk

- Incident history
- Cathodic Protection (CP) surveys and assessments
- Leak Survey records
- Patrolling and Surveillance records
- Dig-ins and inspection records
- Construction and inspection records
- Excavation / Damage experience (locate, dig-ins, damage records)
- O&M history
- Knowledge of UNS Gas employees



# Steps Taken to Mitigate Identified Risk

<b>Threat</b>	<b>Mitigation</b>
3 <sup>rd</sup> Party Damage	<ul style="list-style-type: none"><li>• 811 One Call System</li><li>• Meeting with stakeholders</li><li>• On site contractor meetings<ul style="list-style-type: none"><li>• Additional liaison &amp; training</li><li>• Utilize ACC resources</li></ul></li><li>• Provide additional Company resources<ul style="list-style-type: none"><li>• Use warning tape where feasible<ul style="list-style-type: none"><li>• Pipe replacement</li></ul></li><li>• Conduct additional leak surveys</li></ul></li></ul>
Blasting around pipeline	<ul style="list-style-type: none"><li>• 811 One Call System</li><li>• On site contractor meetings</li><li>• Perform leak surveys after blasting (required)</li></ul>

# San Bruno, CA

- **NTSB Cause:**

- Substandard work and visibly flawed pipe section
- Inadequate IM program
- Flawed emergency response procedure

- **UNSG – Actions:**

- PHMSA Advisory Bulletin
- Increased damage prevention awareness
- Additional training for local emergency responders
- Additional employee training
- Continued on-going transmission assessment
- Continued Integrity Management activities
- Reducing miles & number of transmission facilities



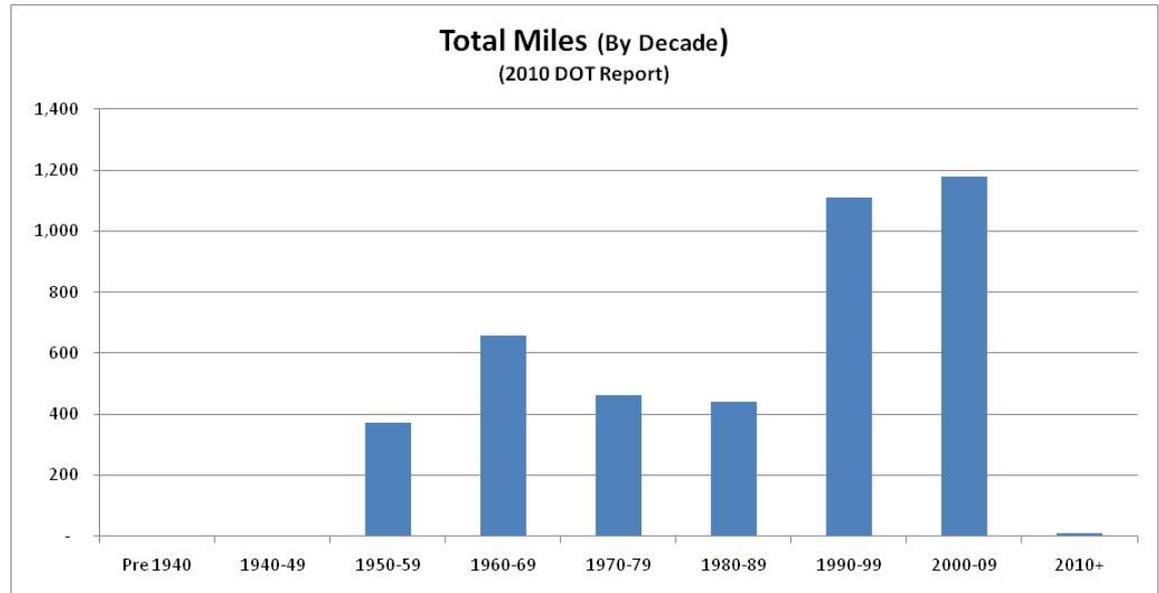
# Allentown, PA

- **Allentown, Facts:**

- 83 year old pipe (1928)
- Cast iron – excessive cold causing ground heaving
- Low pressure

- **UNSG, Facts:**

- Relatively new system
- No cast iron
- No low pressure



# Benefits of Integrity Management

- Knowledge - comprehensive evaluation of system
- Identify threats
- Rank risks
- Implement measures to help mitigate risk
- Measure performance
- Monitor results
- Evaluate effectiveness
- Improvement in safety and reliability

# Questions