Understanding Natural Gas Pipeline Infrastructure and Impacts

DAVE MESSERSMITH
MARCELLUS EDUCATION TEAM

Penn State **Extension**

Pipeline Infrastructure & Impacts

- Pipeline Construction
- Pipeline-Related Infrastructure
- Impacts in the Landscape
- Pipeline Safety
- Landowner Role and Needs

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Negotiating Pipeline Rights-of-Way in Pennsylvania

What Is a Pipeline Right-of-Way?

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Types of Gas Pipelines

Essentially, three major types of pipelines occur along the transportation route: gathering lines, the interstate pipeline, and the distribution system. Gathering lines are small-diameter pipelines (6–20 inches) that move natural gas from the wellhead to a natural gas processing facility or an interconnection with a larger mainline pipeline.

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The type of pipeline—whether it's a gathering line or interstate transmission line—placed on a landowner's property influences the amount of surface disturbance [i.e., larger areas are disturbed when installing larger diameter pipelines] and determines whether eminent domain is possible and who provides regulatory oversight.

Right of Condemnation or Eminent Domain

In Pennsylvania, eminent domain or right of condemnation generally only applies to interstate transmission lines, or lines moving gas into-

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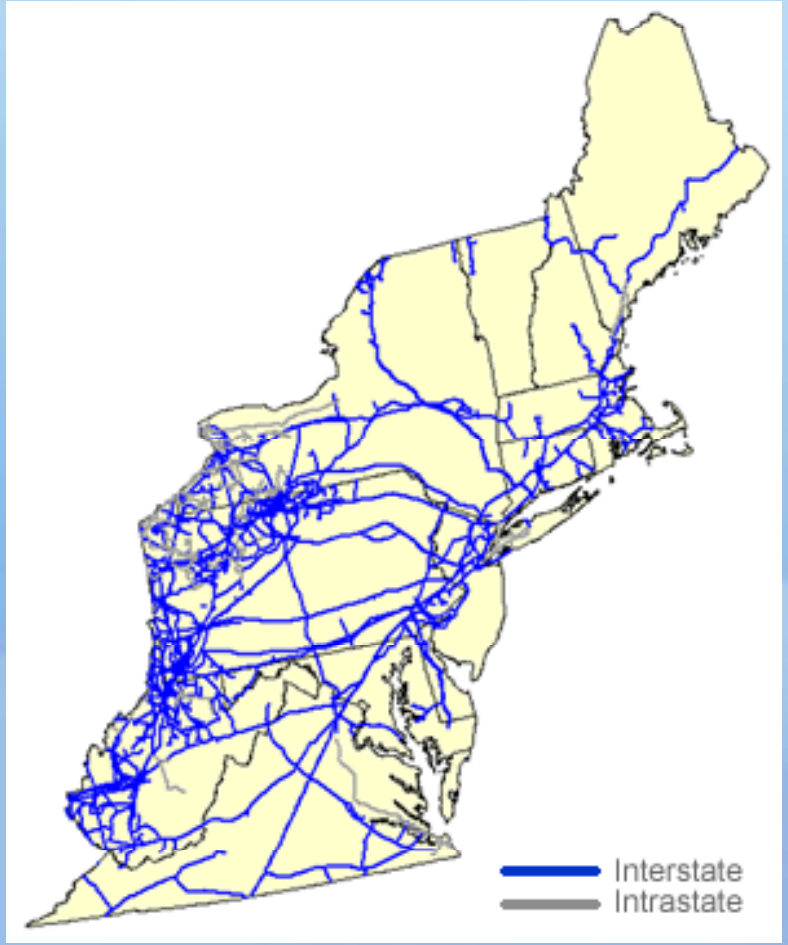
Pipeline Infrastructure Background

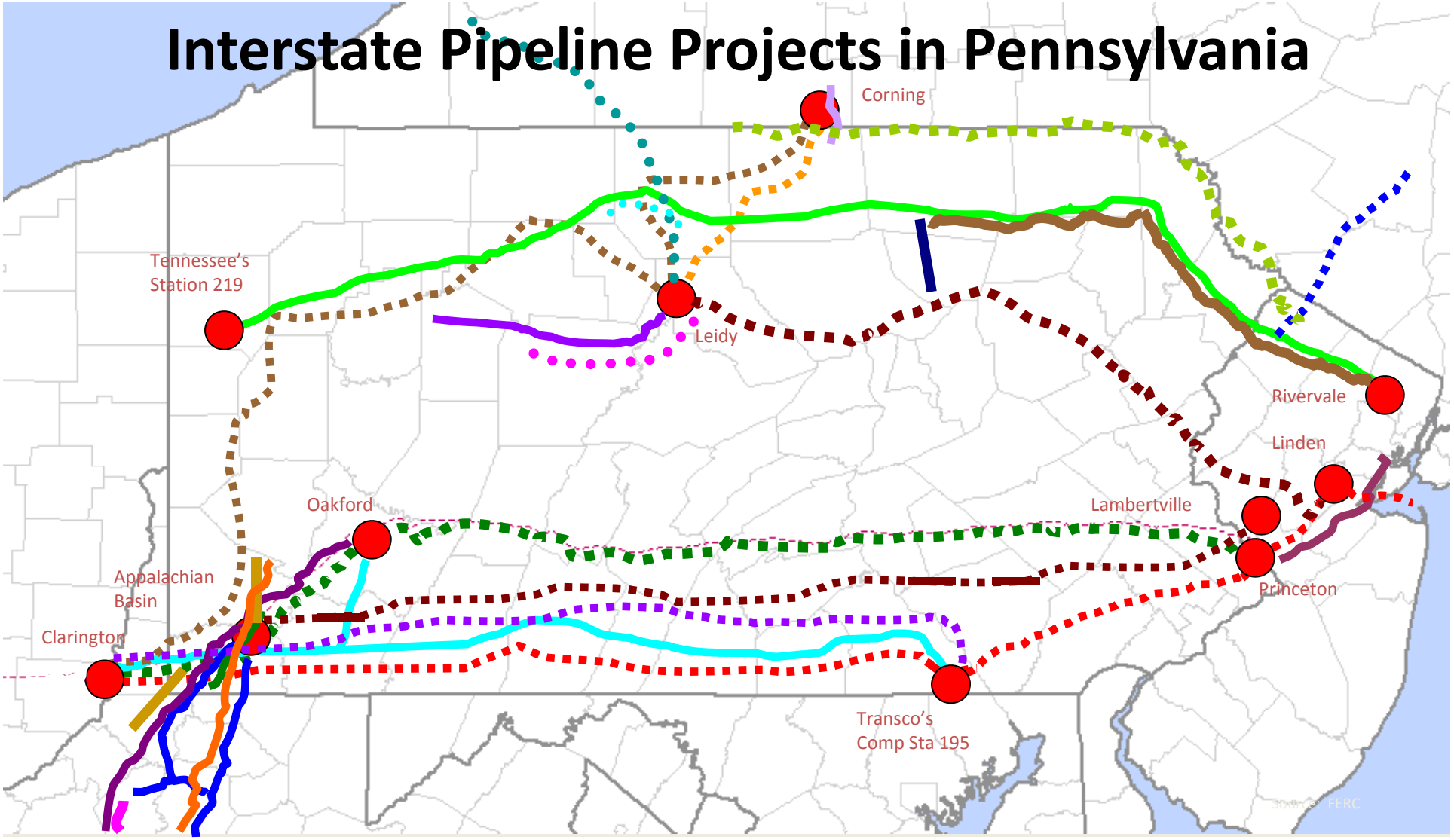
- Traditionally PA has been a net consumer of natural gas with gas flowing into and through the state from Gulf and mid-continent.
- Very little pipeline infrastructure in Marcellus fairway, especially in central and NE PA.
- Marcellus shale will bring significant levels of new pipeline construction to the region.

Types of Natural Gas Pipelines

- Gathering System
  - PA DEP – E&S regulation
- Interstate Pipeline System
  - FERC – sighting and E&S
  - US DOT (PHMSA) – safety
- Distribution System
  - PA PUC - safety



Interstate Pipeline Projects in Pennsylvania



Approved or Pending Projects

- Appalachian Expansion (NiSource)
- Line 300 Exp (Tennessee)
- NiSource/MarkWest & NiSource
- N Bridge, TIME 3, TEMAX (TETCO)
- Appalachian Gateway (Dominion)
- Line N, R & I Project (NFG)
- Tioga County Extension (Empire)
- Low Pressure East-West (Equitrans)
- East-West – Overbeck to Leidy (NFG)
- Spectra Energy Project (Spectra)
- Sunrise Project (Equitrans)
- TEAM 2012 Project (TETCO)
- Northeast Upgrade (Tennessee)
- Marc I (Central NY)

Potential Projects

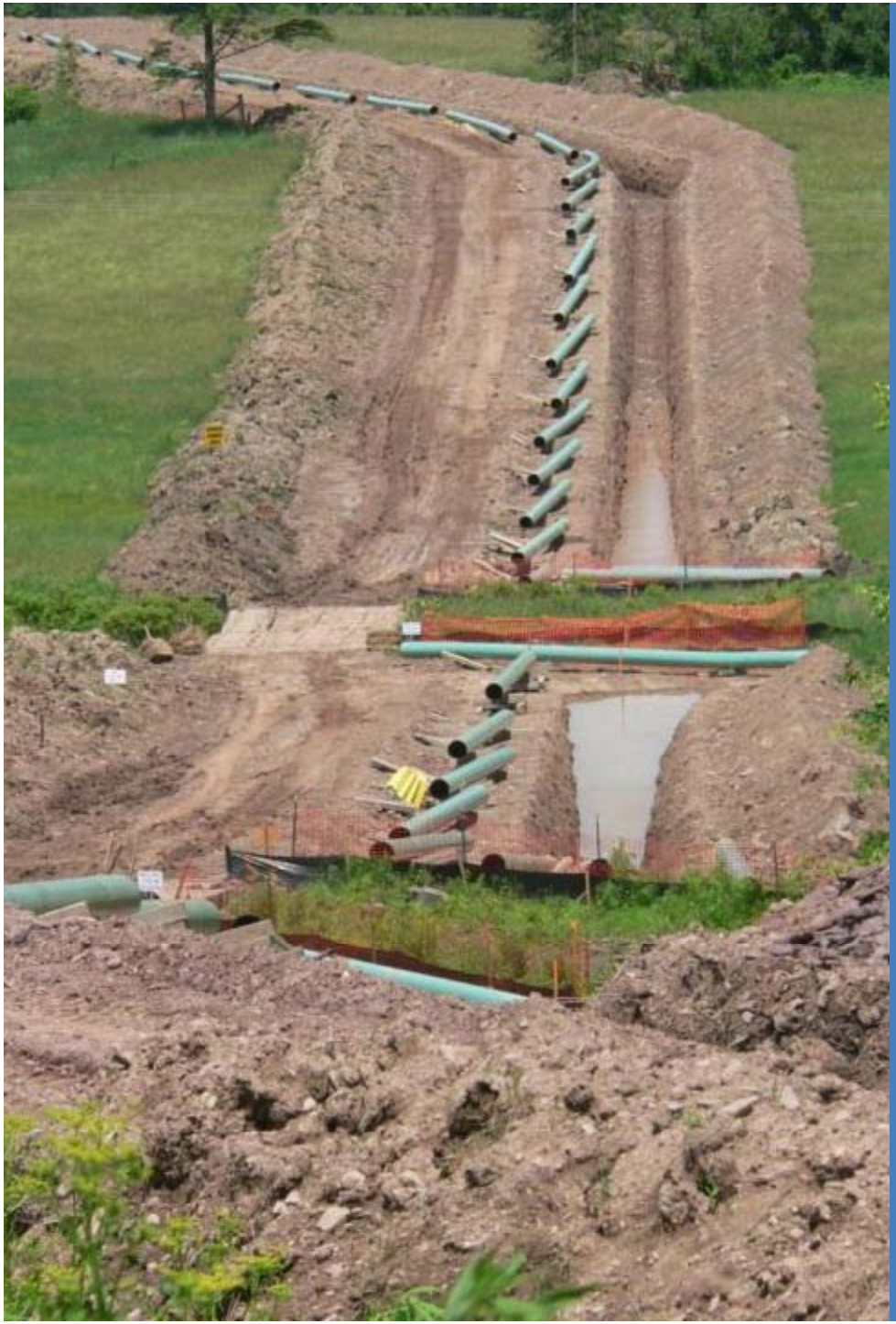
- NiSource & UGI
- NYMarc (Iroquois)
- New Penn (NiSource)
- REX Northeast Express (KM)
- Northern Access (NFG)
- NSD Project (Tennessee)
- Appalachia to Market & TEAM 2013 (TETCO)
- Northeast Supply (Williams)*
- Marcellus to Manhattan (Millennium)
- Keystone (Dominion/Williams)
- Northeast Supply Link (Transco)
- West to East Connector (NFG)

* Combined Transco's Rockaway Lateral and Northeast Connector Projects

Pipeline Construction Process

- Acquiring the right of way (ROW).
- Planning route, surveying.
- Permitting.
- ROW is cleared.
- Topsoil removed, trench dug.
- ‘Stringing Pipe’
- Pipe is welded and contoured.
- Pipe Lowered into trench.
- Pipe buried & site restored.


STREAM BUFFER
ZONE



Pipeline Related Infrastructure

- Valves
- Pigging Launchers & Catchers
- Drying and Metering Facilities
- Compressor Stations
- Pipe Yards
- Temporary Water Lines

Pig Launcher

Source: Wikipedia.org

Valve

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Disguised Compressor Site

Source: Patrick O'Dell, National Park Service

Painting to hide structures?

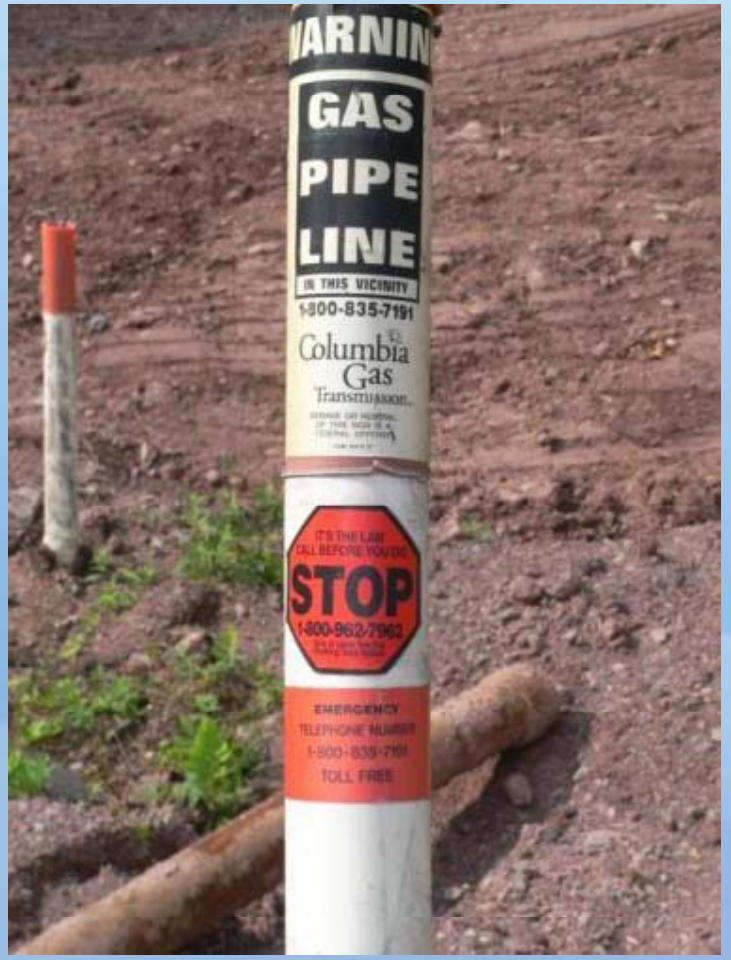
Source: Patrick O'Dell, National Park Service

Temporary Water Line in ROW


CAT
PIPE
YARD

Pipeline Marker

- Lists contents of pipeline.
- Lists Operator.
- Emergency contact info.
- Indicate general location of line.
- PA One Call - 811



Pipeline Impacts

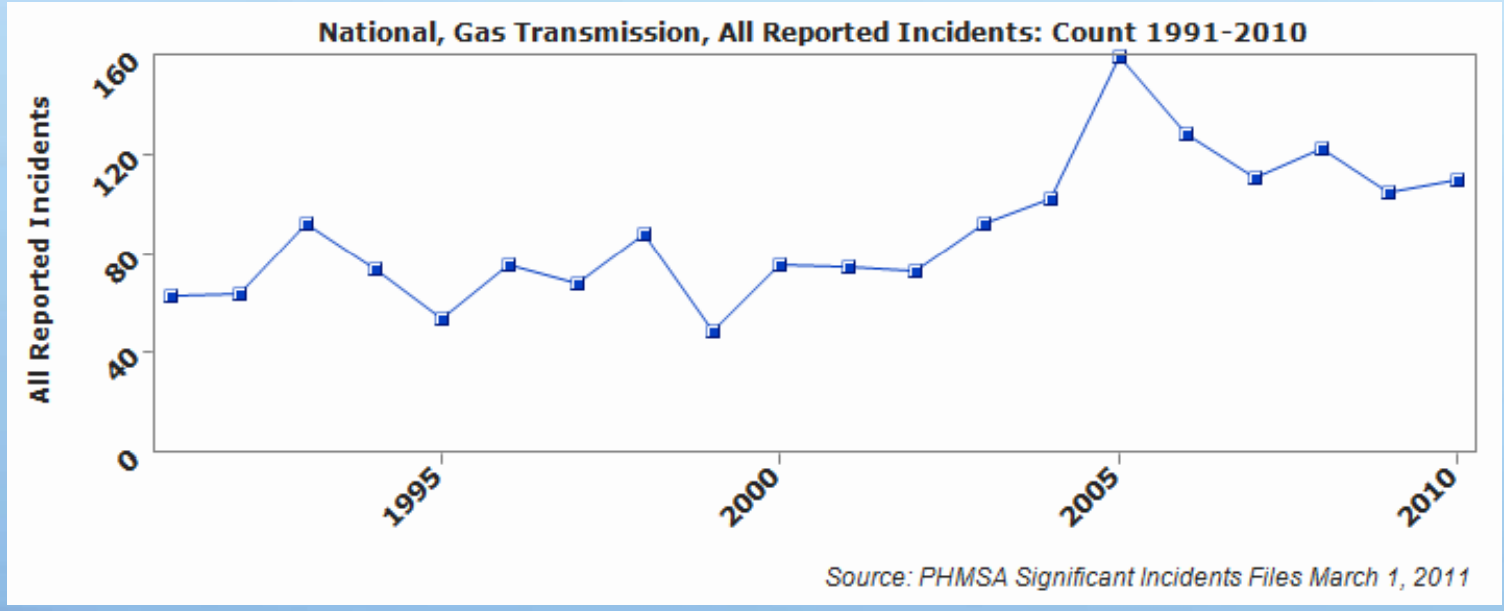
- Habitat Fragmentation.
- Invasive Weeds.
- Impact on View-Sheds.
- Affect on Property Values?
- Air Quality.
- Noise.
- Safety Concerns.

Reducing Pipeline Impacts

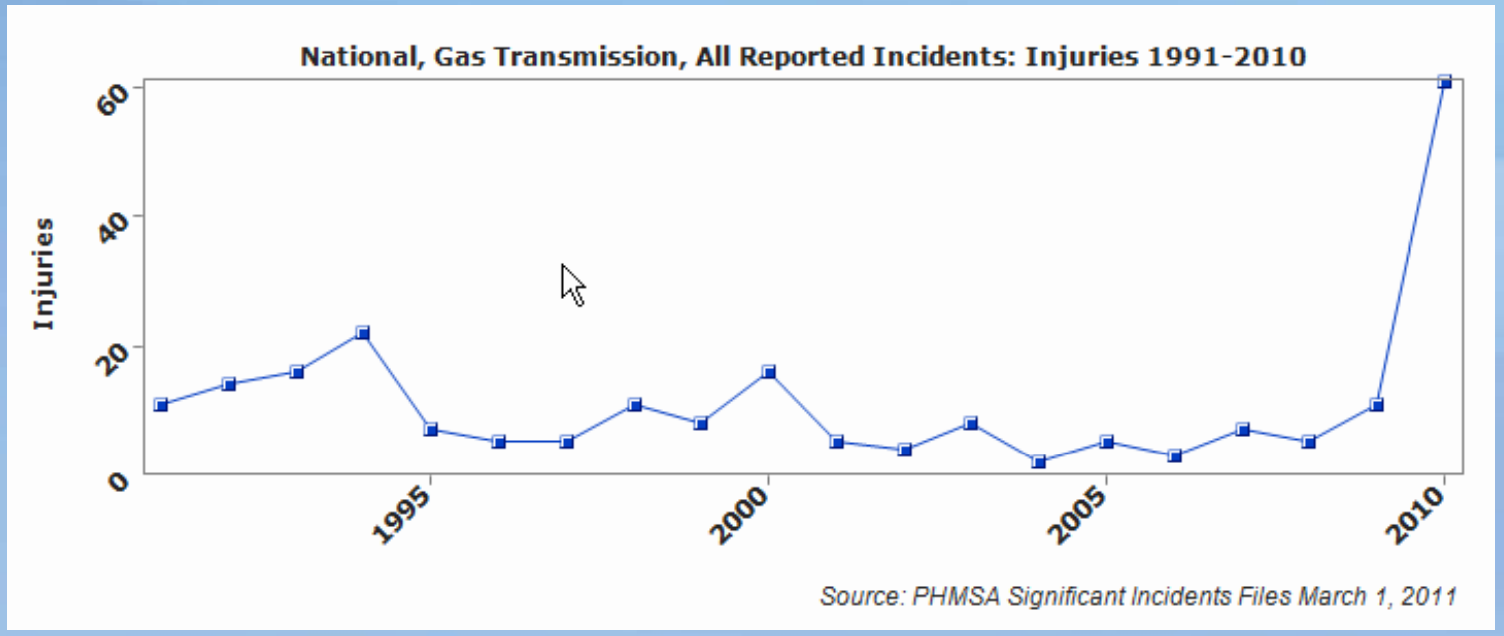
- Locate new pipelines in or along existing rights of way.
- Use existing boundary areas (roads, fence rows, property lines, forest edges).
- Consider ways to integrate above ground infrastructure into the landscape.
- Can communities and operators work together to better plan pipeline development?

Pipeline Safety Background

- Gas pipeline incidents in San Bruno, CA, Allentown and Philadelphia bringing attention to importance of pipeline safety.
- Aging infrastructure and increasing residential development nation wide.
- In PA, 'line hits' and old (cast iron and unprotected steel) pipe account for majority of incidents.



Source: PHMSA Significant Incidents Files March 1, 2011



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Development Near Existing Pipelines

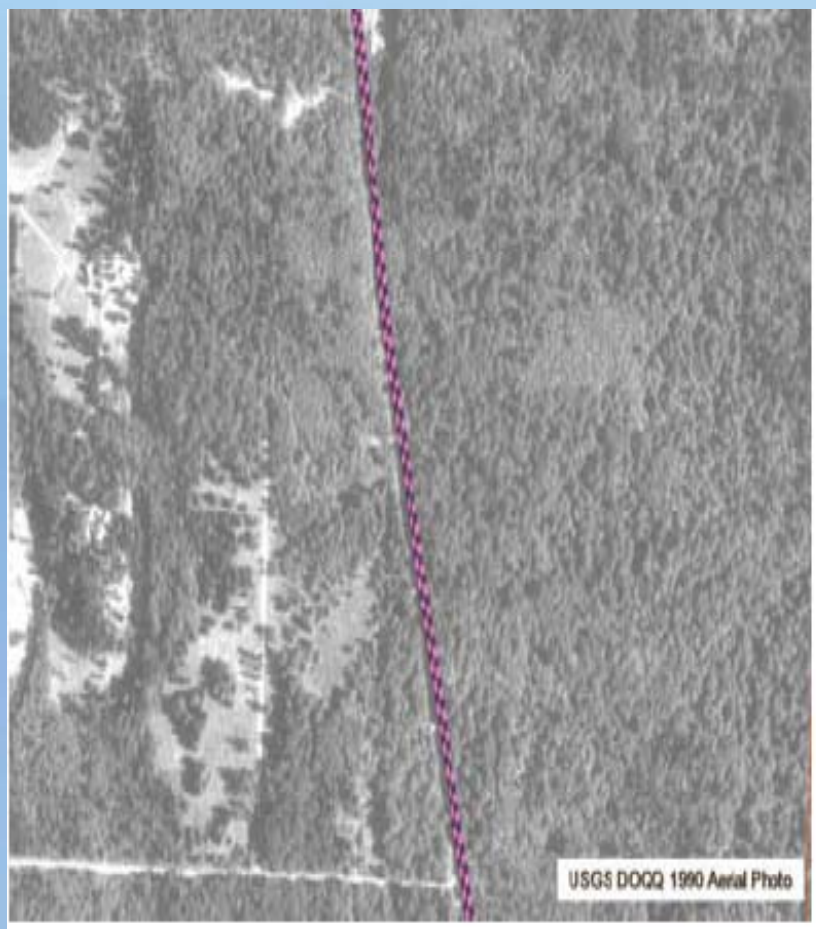


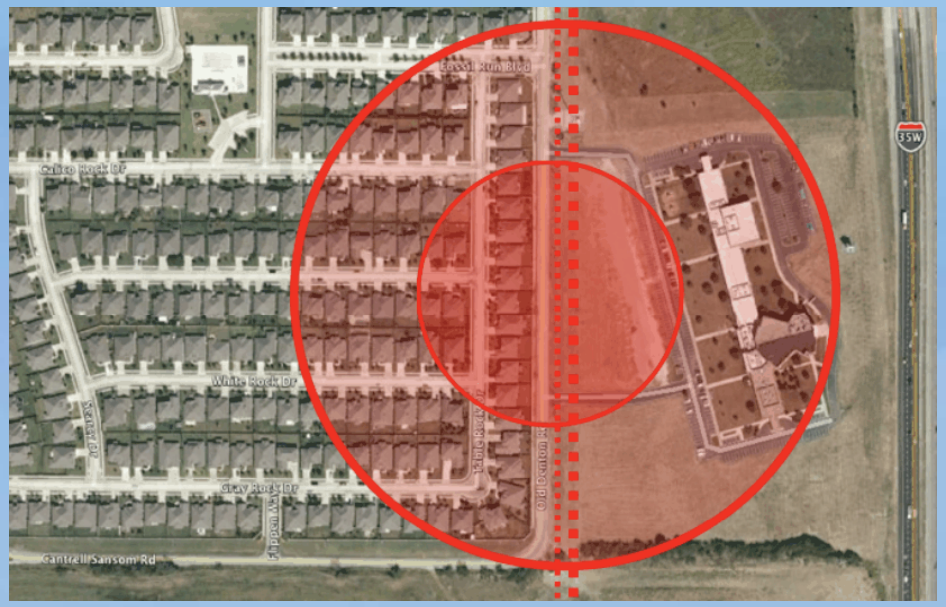
Figure 1 - 1990

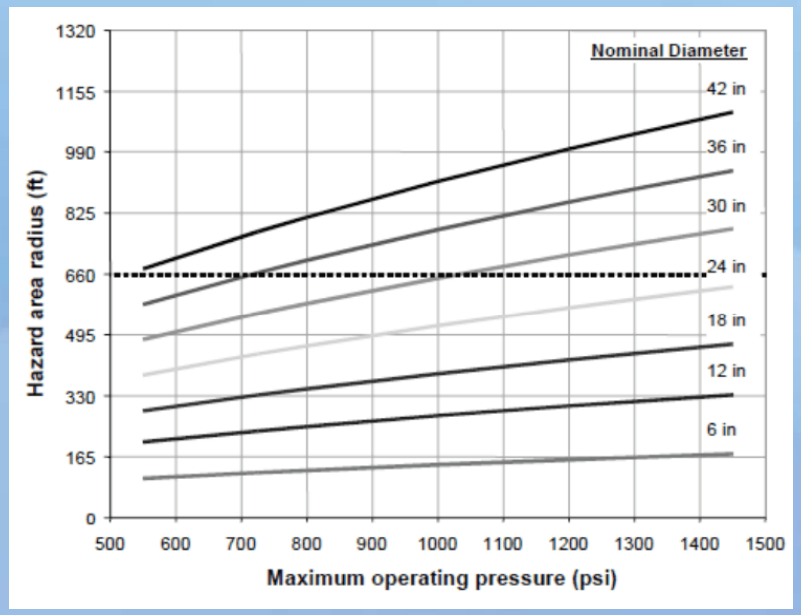
Figure 2 - 2002

Washington State

Potential Impact Radius

- Potential impact radius can be determined by knowing diameter and pressure of pipeline.





Class Locations

- Determined by number of buildings within 220 yards on each side of pipeline per sliding mile.
- Class 1 location - 10 or fewer buildings.
- Class 2 location - more than 10 less than 46.
- Class 3 & 4 locations – more than 46 buildings and buildings with high occupancy (churches, schools, etc).
- Class determines pipeline standards and frequency of inspections.

Landowner Role and Needs

- Right-of-way and surface use agreements are perhaps best place to protect the look, feel and safety of the community.
- Range of knowledge and negotiating skills.
- Host of pipeline easement considerations.
- Financial considerations.
- Landowners should always seek legal council.
- Right-of-way do’s and don’ts.

Example Easement Considerations

- Limit the easement to one pipeline of a stated diameter, no additional pipelines and no right to increase the diameter of the pipeline.
- Definition of substances that can be transported in the pipeline.
- How will disputes with the pipeline operator be resolved?
- What surface uses by the landowner will be prohibited in the easement?

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Dave Messersmith

Penn State Cooperative Extension
648 Park Street
Honesdale, PA 18431
570-253-5970 x 4110
dtm101@psu.edu

On Twitter: @PSUmarcellus

http://extension.psu.edu/naturalgas

Website & e-newsletter

www.extension.psu.edu/naturalgas

- Primers
  - Marcellus Shale: What Local Government Officials need to Know
  - Natural Gas Exploration: A Landowner's Guide to Leasing Land in Pennsylvania
  - Natural Gas Exploration: A Landowners Guide to Financial Management
- Short Fact Sheets