

Emerging and Complex Storm Water, Erosion and Sedimentation Control Issues

OVERVIEW OF ENVIRONMENTAL IMPACT ANALYSIS,
PERMITTING CHALLENGES AND SOLUTIONS

Emerging & Complex Stormwater Issues

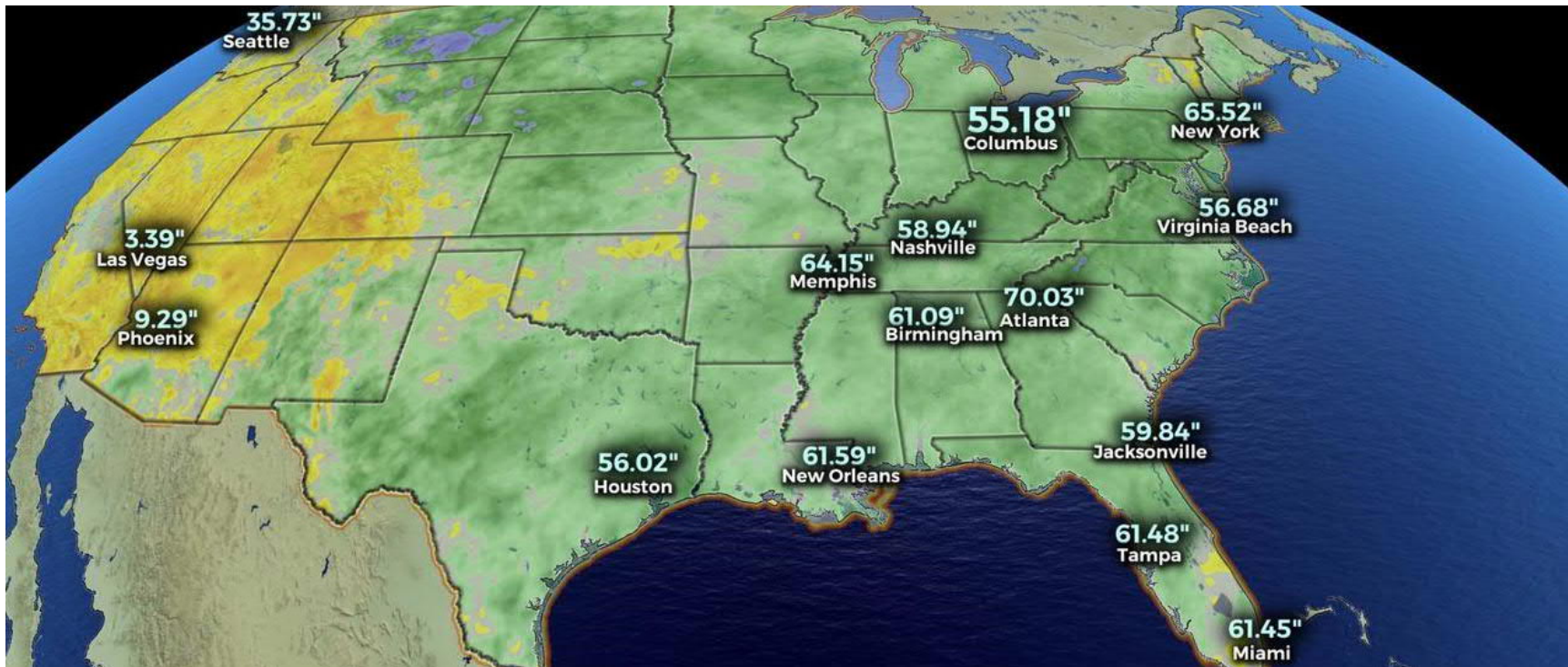
- Focus of recent **Southern Gas Association** and **INGAA** Workshops
- Climate Change and Addressing 100- to 500-Year Storm Events
- Inadvertent Returns and Sink Holes
- Access for Geotechnical Studies and Engineering Design
- Adequate Area for Staging, Temporary Construction Workspace and Permanent Right-of-Way



Climate Change

ADDRESSING 100- TO 500-YEAR STORM EVENTS

- Five extreme Rainfall Events (*defined by the 1,000-year Rainfall Metric*) occurred East of the Rockies in the First Nine Months of 2018
- Much of Pennsylvania had 50-75% More Rainfall than Average



Inadvertent Returns & Sinkholes

- Two of the Most Common ESCP Issues for 2018



Looking through news coverage of pipeline infrastructure, there is definite misunderstanding of what inadvertent returns are...

The simple and necessary point to start with here is:

Inadvertent returns are not spills.

(PPR PA Pipeline Review)

Study & Evaluate

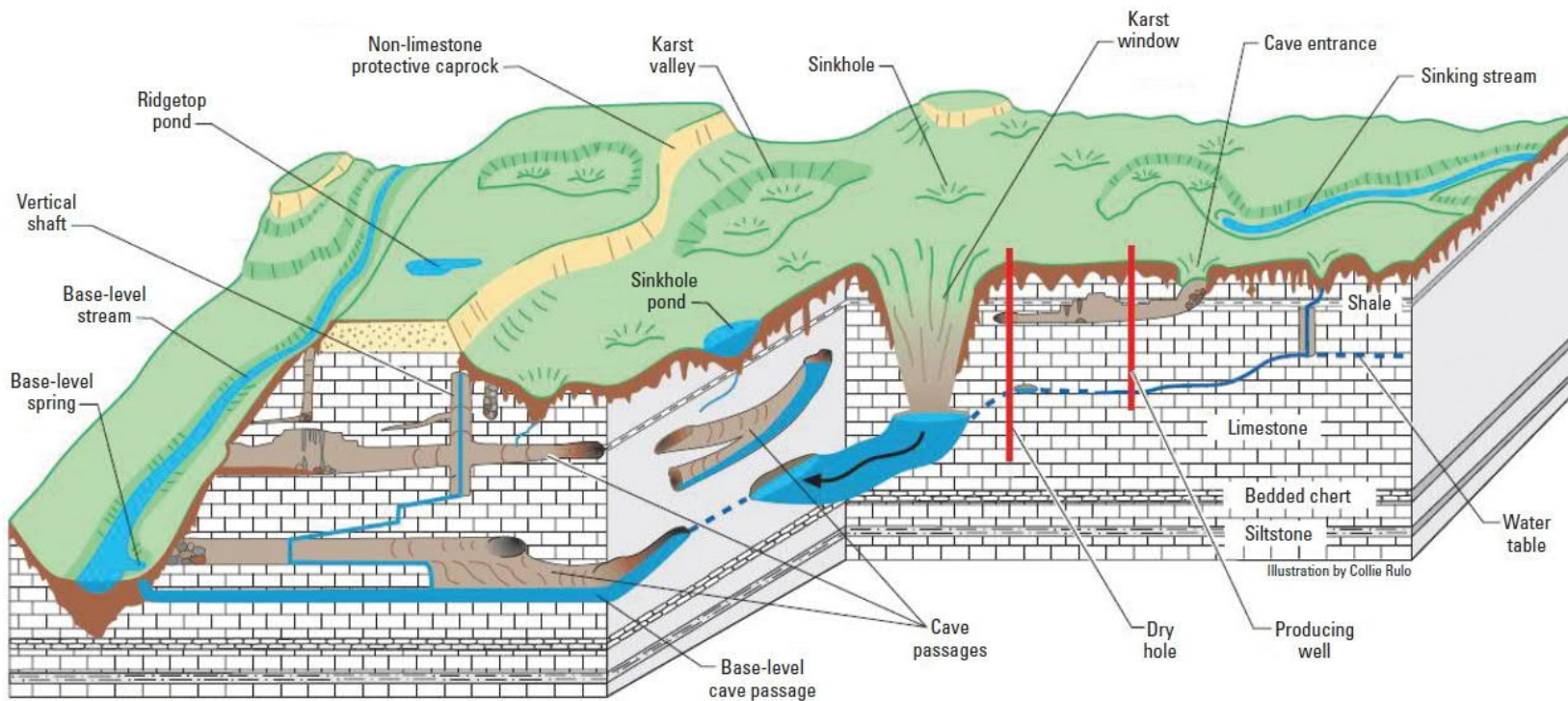
- Conduct Studies to Evaluate and Identify Indicators of Potential Failure Locations
- Monitor the Equipment and Surrounding Area during Drilling Operations
- Verify Pollution Control Equipment (frac tanks) and Personnel are On-site to Contain any Inadvertent Returns
- Communicate Immediately with Regulatory Agencies and Emergency Personnel



Sinkholes

The USGS defines a **Sinkhole** as:

a depression in the ground that has no natural external surface drainage and are most common in what geologists call, “karst terrain.”



These are Regions where the Types of Rock Below the Land Surface can Naturally be Dissolved by Groundwater Circulating through them (e.g., salt beds, gypsum, limestone and other carbonate rock).

Access for Geotechnical Studies & Engineering Design

Restricting Access until After the FERC-review Process, and Certification can:

- Restrict Adequate Study of Site-specific Conditions
- Require Companies to Rely on Existing Published Information



Environmental Impact Assessment & Permitting

- Environment / Ecological Survey, Planning and Permitting
- Archaeology / Cultural Resources
- Indigenous Consultation / Involvement
- Environment Monitoring
- Contaminated Site Assessment and Remediation
- Reclamation
- Environmental Inspection / Compliance
- Emergency Response
- Air Quality, GHG, Climate Adaption, Noise Modeling and Assessment
- Environmental Review
- FERC / NEB
- Renewable Power Generation, Distribution and Transmission



Key Issues That Continue to be Raised

- Project Need
- Alternatives
- Segmentation
- Cumulative Impacts
- NEPA
- GHG Emissions
- Eminent Domain
- Expanded Public Process (hearings, information dissemination)
- Project Timing
- Sequential Agency Review
- Construction Windows / Species Protection



What's New & Different

Project Need Used to be Straightforward Documentation of Contractual Agreement between Interstate Gas Company and its Customer

- Evolving to include Wide Range of Participants
- Challenges between those Directly Impacted and those Receiving Gas

What is the Impact of the Project?

- Climate Change, Green House Gas now being looked at on a Regional and National Basis
- Impacts now being Expanded to Include the Recipients of the Natural Gas



Recognizing the Impact of Social Media

and Need for Expanding Use of Effective Communications

Recent Challenges and Complaints from Public Agencies:

- “False” Police Reports
- “Frivolous” Law Suits with Courts
- Hijacking Meetings from Land Owners and Abutters
- “Drowning” in Form Letters and Paperwork

How the Industry, Regulatory Agencies and Consultants Can Help:

- Documentation
- Track ALL Communications from Project’s Start
- Copy Agencies on All Call and Meeting Minutes, and Obtain Agency’s Concurrence
- Have Documentation that All Issues / Concerns have been Discussed / Addressed



Solutions and Technologies

- *Areas Evolving Between Regulators, Gas and Construction Companies*

- CONSTRUCTION TIMING AND SEQUENCING
- EVOLUTION OF HORIZONTAL DIRECTIONAL DRILLING
- PLANNING FOR STORM EVENTS
- ADEQUATE PERMANENT RIGHT-OF-WAY AND TEMPORARY CONSTRUCTION WORKSPACE TO ALLOW FOR CONTROLS