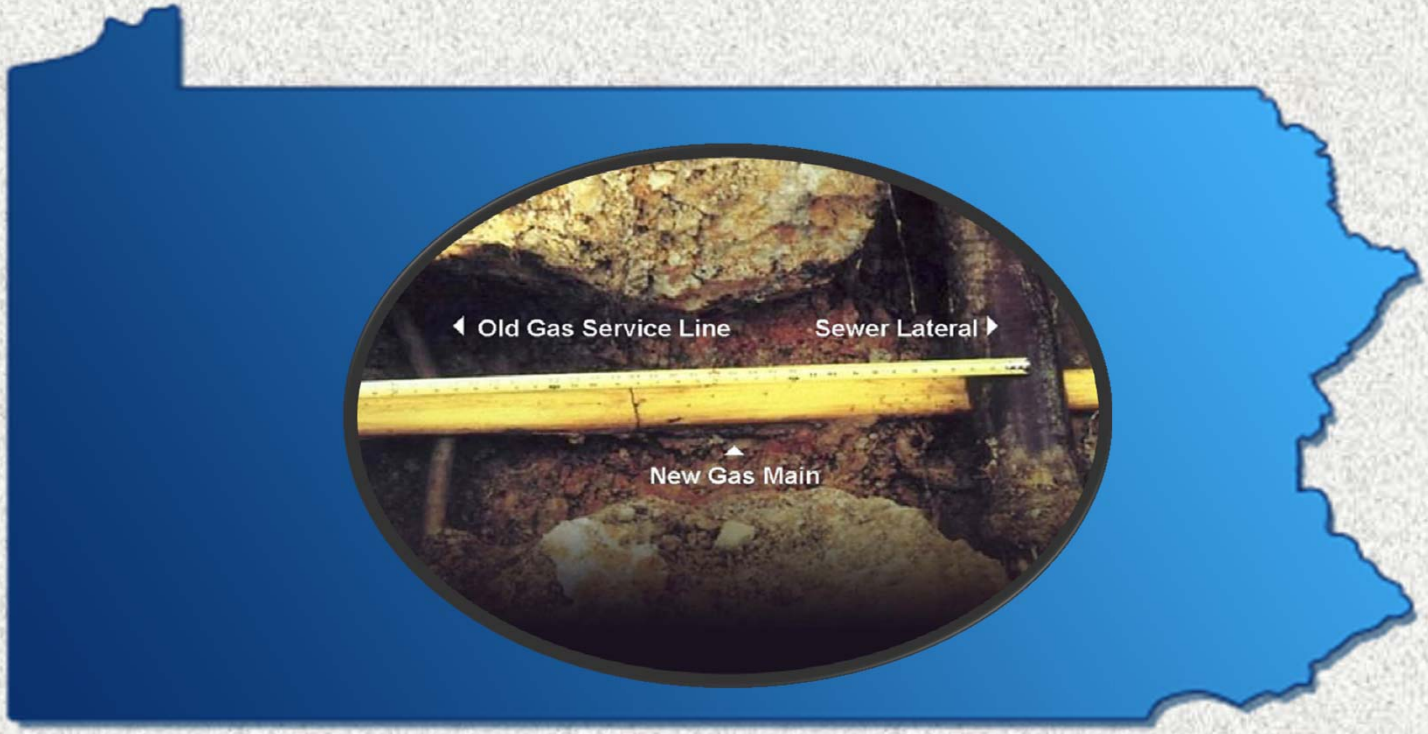
Pennsylvania Cross Bores:



"Leaving a Legacy of Safety"

PUC Gas Safety Conference
State College, PA
September 7, 2016

Jerry Contino – Columbia Gas

- Pipeline Safety &Compliance Project Specialist
- 29 years in Gas Distribution
- Manages the Pennsylvania Cross Bore Program
- Supported establishing CB programs throughout the NiSource Company in Ohio, Virginia & coming soon Maryland
- Member of the PA One Call Cross Bore Task Force

Eric Swartley – UGI Utilities, Inc.

- Manager Damage Prevention, Claims & Public Awareness
- 37 Years in Gas Distribution
- PA One Call Board/Committees Member
- Northeast Gas Distribution Council Board of Directors
- Common Ground Alliance Best Practice Committee
- AGA Peer to Peer Review Group

Agenda

- What’s a Cross Bore & where are they?
- Cross Bores in Pennsylvania
- Preventing New Cross Bores
- Status in Pennsylvania
- Questions

We are all Homeowners

Cross Bore Awareness – some things you should know

- A Cross Bore may have been inadvertently installed years prior.
- Over time, the compromised non-pressurized line, such as a sewer line, can fail resulting in a blockage.
- Tree roots can grow around an installed Cross Bore, so running a camera down the sewer line may not always be able to detect it.
- A plumber or homeowner attempting to clear the blocked line might use high-pressure water or an aggressive cutting tool without verifying the existence of a foreign facility.
- It has been stated that a plastic gas line or electric cable feels much like a tree root when using a clearing tool.
- These tools may damage the facility that is cross bored leading to potentially devastating outcomes.
- Due to the element of surprise, Cross Bores may be considered "ticking time bombs".

So where are the Cross Bores & how do we find them?

- Factors that may contribute to having a Cross Bore:
  - Method of Installation, was trenchless excavation used?
  - Sewer System or Septic System Depth
  - Gas Main & Service Depth
  - Main & Service Material Type
  - Basement Floor Depth Below Surrounding Grade
  - Buildings on Slabs or with Crawl Spaces
  - Mobile Home Parks
  - Sloped Building Lot
  - Water Table Elevation
- How are they found:
  - Legacy inspection programs
  - Notification by Other Parties (Plumbers, Sewer System Operators)
- Key Lesson Learned:

Cross Bores aren't just a gas issue, a number of utility types have been discovered in a cross bored position.

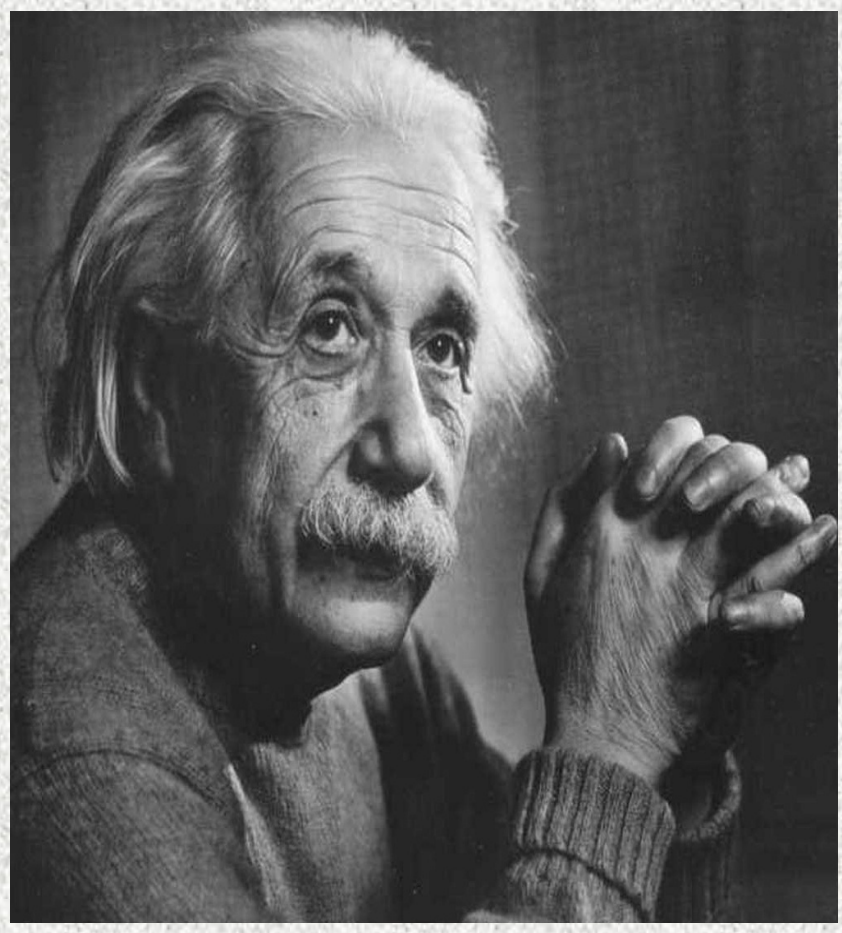
PA Cross Bore Journey

- **2013 Cross Bore issue arrives in PA**
  - Columbia Gas self reports
  - Harrisburg Plumber inquires
  - PUC sends FL 3-13 to PA Gas operators
  - Pennsylvania One Call System forms Cross Bore Task Force
- **Cross Bore Task Force (CBTF) is tasked with making recommendations and defined Cross Bores as a two-tiered issue; Legacy & Prevention.**
- **PA Gas Utilities access risk & gain a better understanding of Cross Bores**
- **Common Ground Alliance 2014 Cross Bore Best Practice TR**
- **Recent partnership with PA PHCC**

Cross Bore Task Force Members

- Greg Dunlap – CPDD
- *Mike Kyle – LASA*
- Jerry Contino – Columbia Gas
- Robb Kalbach – USG
- *Ray Geesey – Columbia Gas*
- Brandon Bogdon* - PAWC
- Sunil Patel* - PA PUC
- *Eric Swartley – UGI Utilities*
- *Tim Greenland – NUCA*
- Mike McGraw Sr. – PA PHCC
- Walt Kryzanowski – Local 690
- Deb Kitner - EAPA
- Chris Schillinger - PPL
- *Dave Haverstick - PECO*
- *Dave Hart – National Fuel Gas*
- Charlie McCadden – BG&E
- *Doug Meeshaw – PA HBA*
- Bob Thomas - People's Gas
- Brian Camfield* – PECO
- David Bonner* - PECO
- Paul Metro – PA PUC
- John Galligan – The PipeShark

Italicized = PA One Call Board Member or Alternate
** Replaced original Task Force Member*



The definition of insanity is repeating the same behaviors and expecting a different outcome.

Albert Einstein

Legacy inspection results and reports of Cross Bores support the need for a more responsible Design & Construction Process as it relates to Cross Bores.

How to Avoid Cross Bores

- Educate & Train
  - Company and Contract Employees, including Call Center and IC
  - Cross Bore Stakeholders (plumbers, sewer operators, rental centers, etc.)
  - Property owners
  - New Monaca Facility committed to training
- Communicate with other facility owners/property owners
- Plan, Plan, Plan
- Follow All Company Gas Standards
  - Over arching philosophy - When you cannot verify the location of a facility, use Open Cut to install the line

Columbia Gas of PA Training Facility Monaca, PA

Cross Bore Awareness

- Prior to Construction
  - Call 8-1-1
  - Perform a site investigation
  - Note that facilities such as sewer lines are not always included as part of a one-call system such as calling 8-1-1

- Use of Trenchless Technology – Should not be used if any known facility location and depth crossing the bore path cannot be determined (No Blind Boring)

- Crossing Facilities – Locate and pothole

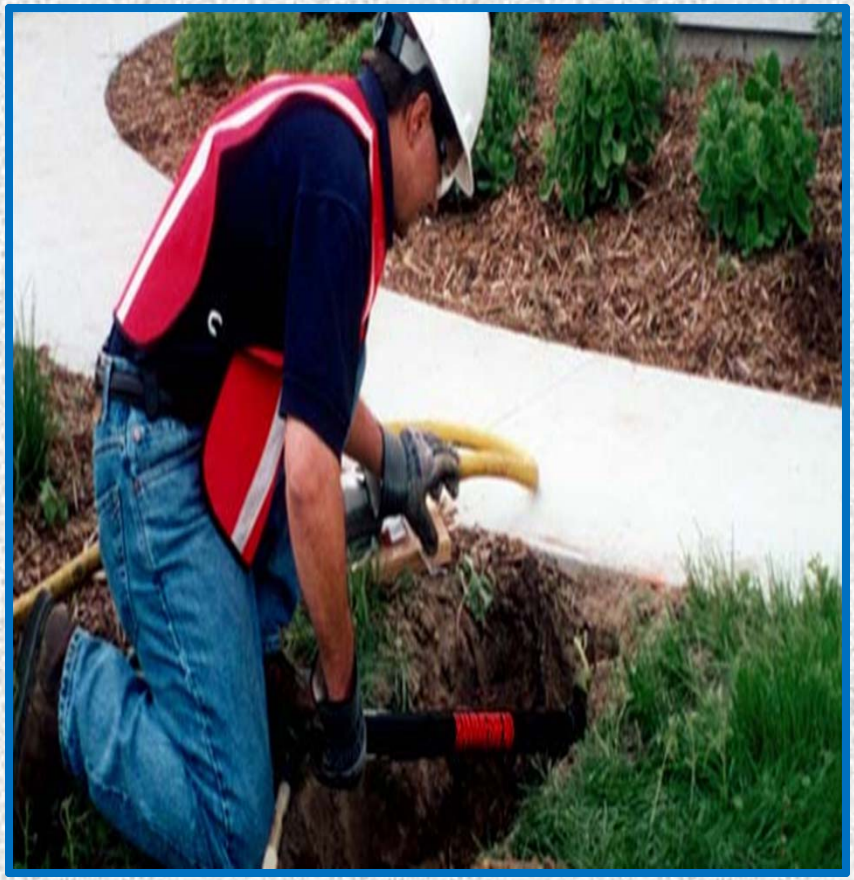
- After Construction – If there's any doubt as to whether sewer facility damage occurred, it is recommended that a video camera be used after construction

Cross Bore Awareness

Trenchless technology techniques include:

- Tunneling
- Horizontal Directional Drilling (HDD)/Directional Boring
- Pipe Ramming, Pipe Jacking, Pipe Driving, Plowing
- Horizontal Auger Boring
- Inserting
- The use of Pneumatic Punch Tools such as Moles, Missiles, Gophers, Hole Hogs and Bullets
- Any other method for the installation of pipe with minimal disruption and minimal excavation from the ground surface.
- Anything other than Open Cut

Cross Bore Awareness – Examples of Trenchless Technology Equipment & Processes

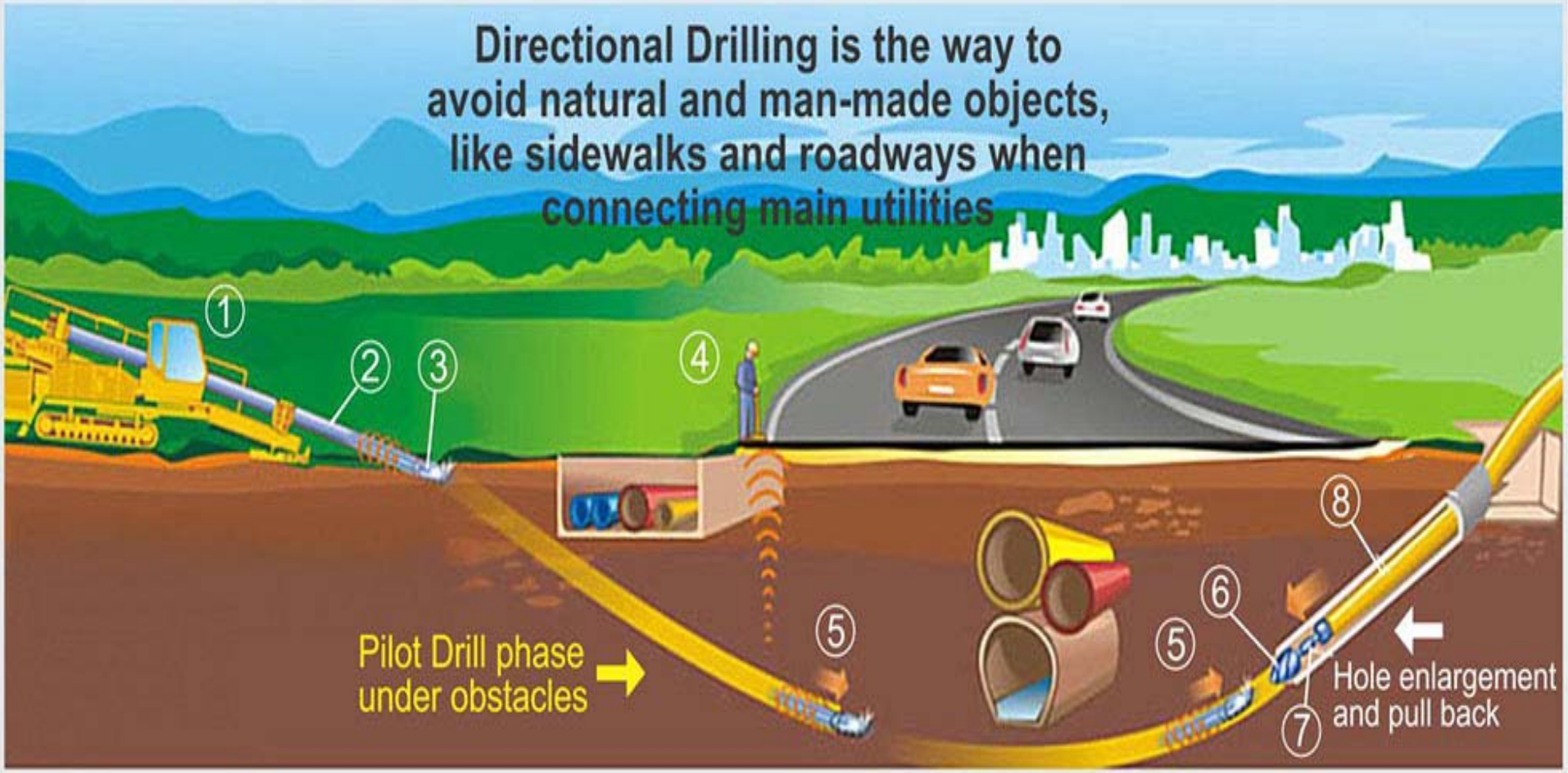


Pneumatic Gopher

Vibratory Plow

Horizontal Directional Drill

Responsible Trenchless Excavation is the key



① Directional Drill machine
② Rotating and pressing pipes
③ Pilot drill begins ground penetration
④ Technician with locator receiver box
⑤ Pilot head drilling and pressing for direction
⑥ Enlargement and pull-back with Reamer
⑦ Swivel attached to Reamer and Pipe
⑧ Utility Pipe being Pulled Back

Trenchless Technology Sewer Locate Process

Engineering Design Phase

In this phase, engineering begins the sewer locate process by gathering and reviewing existing sewer information. They use this information to design the project and hold the constructability review.

Pre-Construction Phase

In the pre-construction phase we will hold a pre-construction meeting with the video contractors to determine where sewer locating and staking/marking is needed. The video crews perform the work and review the resulting sewer locate cards for the job with the NiSource Rep.

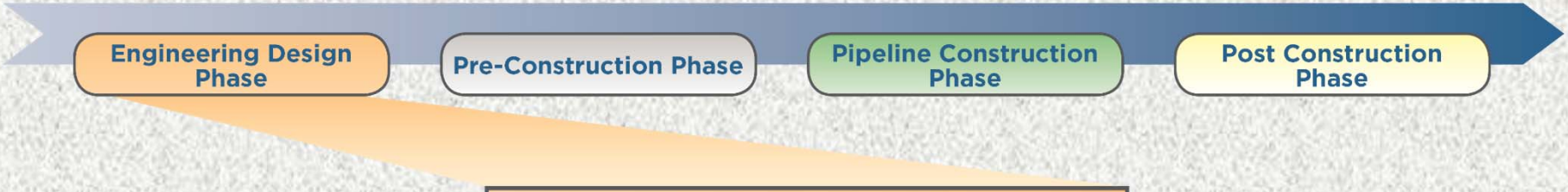
Pipeline Construction Phase

In this phase, you will complete a Site Investigation & Document your findings. You will determine if trenchless technology can be used for installation and Walk the Bore Path to evaluate information. All of these measures are taken before you install the pipeline.

Post Construction Phase

In the last phase, the post camera work must be completed in the required timeframe. All documentation and videos must be complete and submitted.

Sewer Locate Process – Engineering Phase



Engineering Design Phase

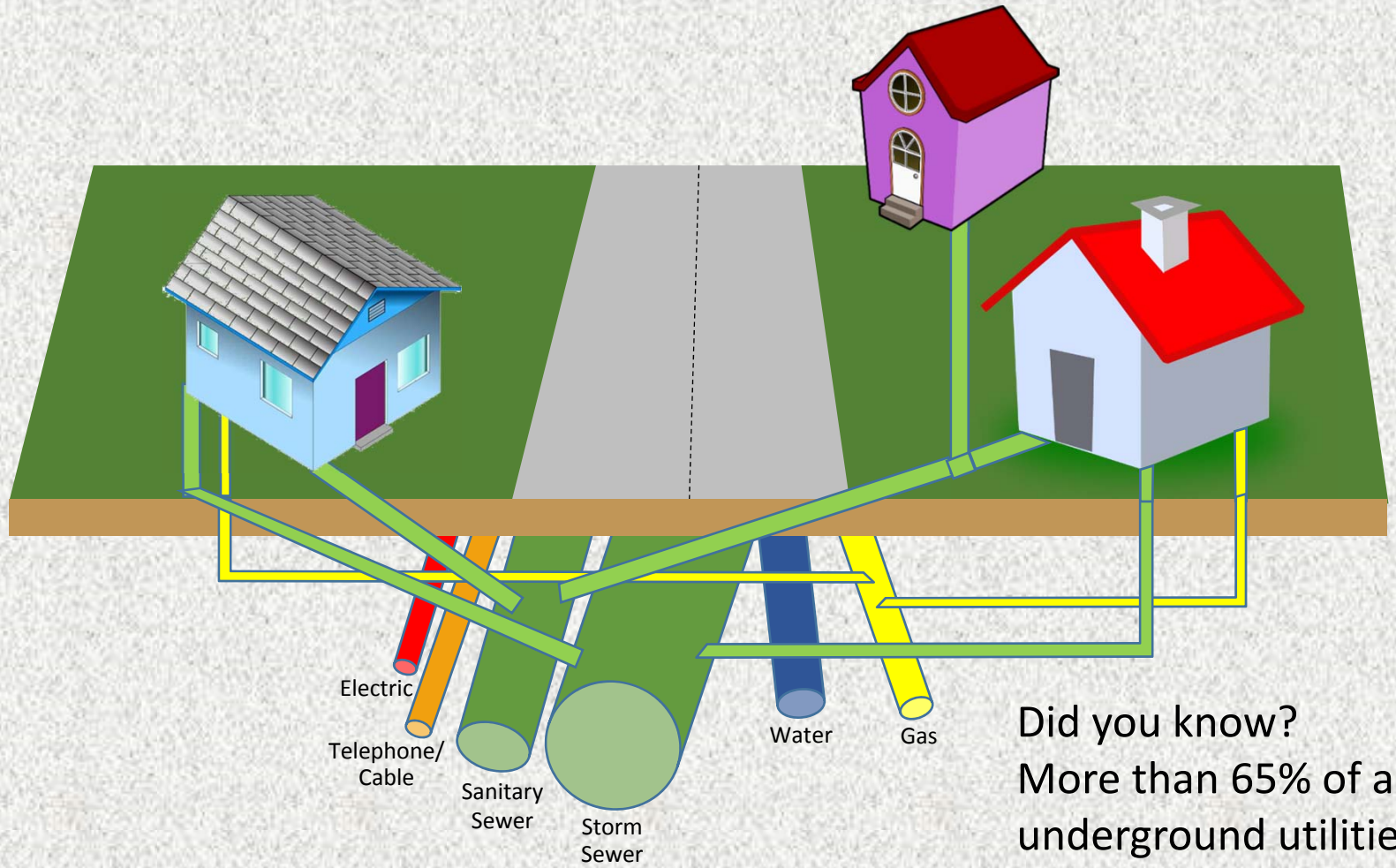
Contact utility owners to gather information on sewers. Answer questions such as:

- Is sewer information available?
- Can we obtain copies of available information?
- Will owners clean blocked sewers?
- Document contacts and phone numbers.
- Decide if sewer video is needed.

Conduct constructability review with construction leader to pass along all info found on job.

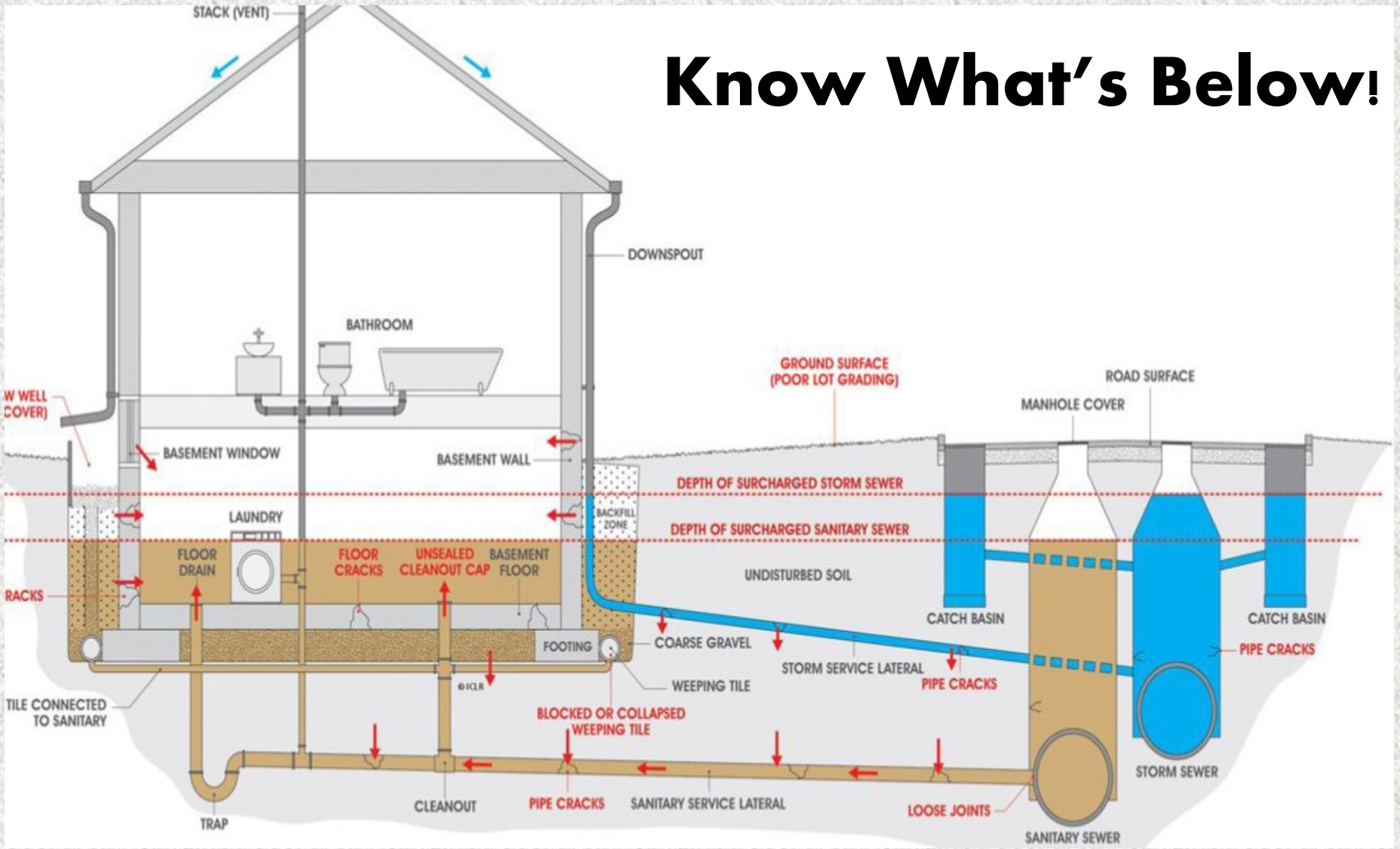
Cross Bore Awareness - Pre-Plan

Determine existing underground structures, utilities and facilities, including privately owned sewer lines and French drains



Did you know?
More than 65% of all underground utilities are privately owned.

Cross Bore Awareness



Sewer Locate Process – Pre-Construction Phase

Pre-Construction Phase

Coordinate Pre-construction sewer video.	Video Crew performs video, contacts company leader if any problems arise.
Meeting held on site to review job requirements with video crew.	Video Crew fills out their portion of sewer locate card.
Call in One-call.	Meeting held on site to review results with company rep and contractor.
Contact video crew to review project information.	

Pre-Construction Phase – Sewer Locate Card

NiSource

SEWER LOCATE CARD

Date:	Pre Video Complete ☐	Post Video Complete ☐	Pull Back Camera Only ☐ w/ Site Investigation
City:		TCC:	
Street Address:		PSID/Site ID:	
Job Order No.		Proj ID	
NiSource Representative:		Contractor Name:	
Main Foreman:		Service Foreman:	
Camera Locator Pre:		Camera Locator Post:	
Camera Operator Pre:		Camera Operator Post:	

Sanitary on another Locate Card ☐

Was sanitary main located?	Yes ☐ No ☐	Method used:	Push Camera ☐	Tractor Camera ☐
Was sanitary lateral located?	Yes ☐ No ☐	Method used:	Push Camera ☐	Tractor Camera ☐

If no, explain:

Storm on another Locate Card ☐

Was storm main located?	Yes ☐ No ☐	Method used:	Push Camera ☐	Tractor Camera ☐
Was storm lateral located?	Yes ☐ No ☐	Method used:	Push Camera ☐	Tractor Camera ☐

If no, explain:

SKETCH

POINT	MEASUREMENTS		INDICATE NORTH / DEPTH
A			
B			
C			
D			
E			
F			
G			
H			
I			
J			
K			

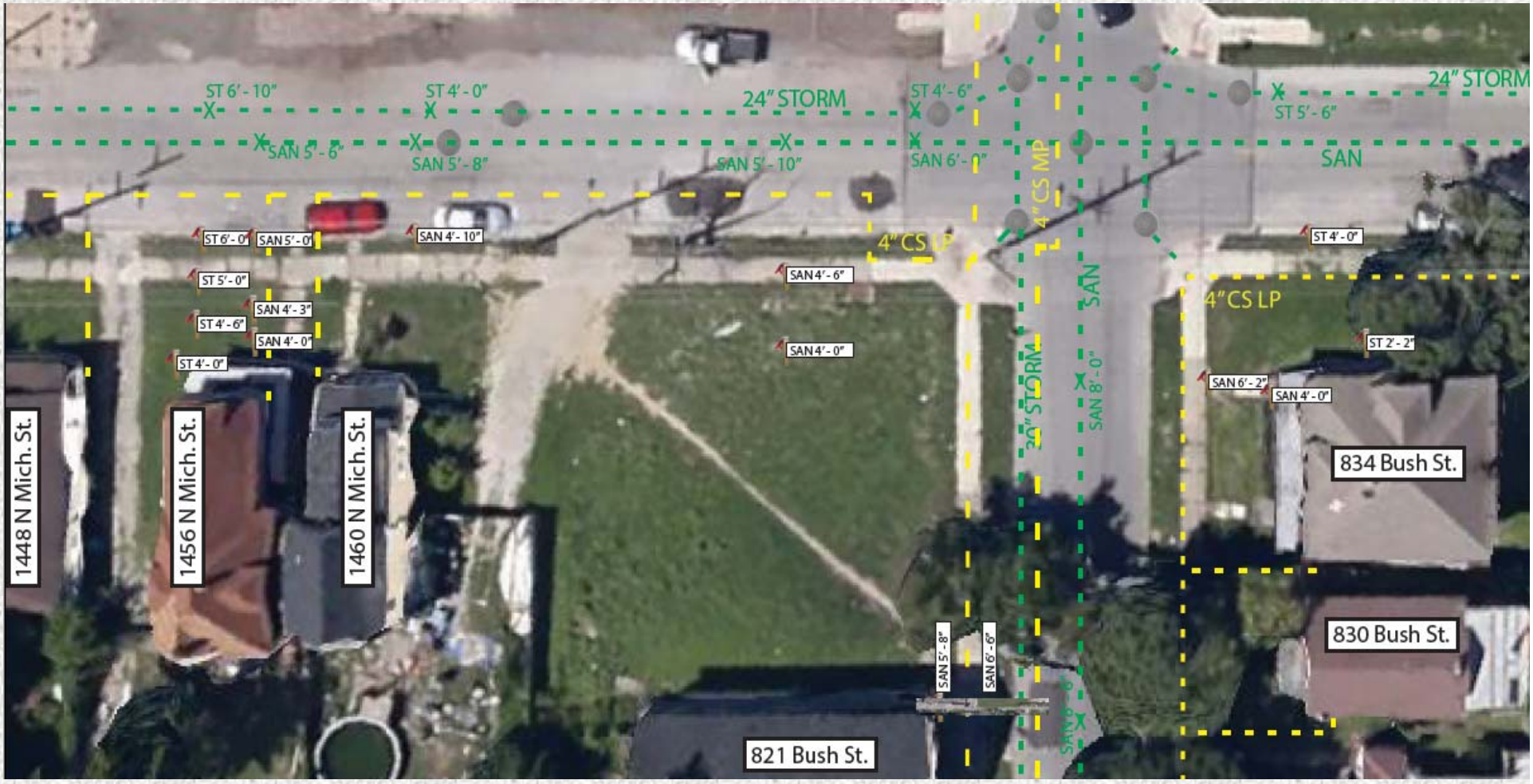
Method Main Installed:		Method Service Installed:	
Main Pre Bore Review Walk Performed By:	NiSource Rep:	Foreman:	Bore Lead:
Service Pre Bore Review Walk Performed by:	NiSource Rep:	Foreman:	Bore Lead:

Pull Back Camera Used and Video Verified Clear with Site Investigation Performed - No ☐ Yes ☐ By:

Comments:

Form GS 1100.050-1 (06/2016)

Pre-Construction Phase – Sewer Locate

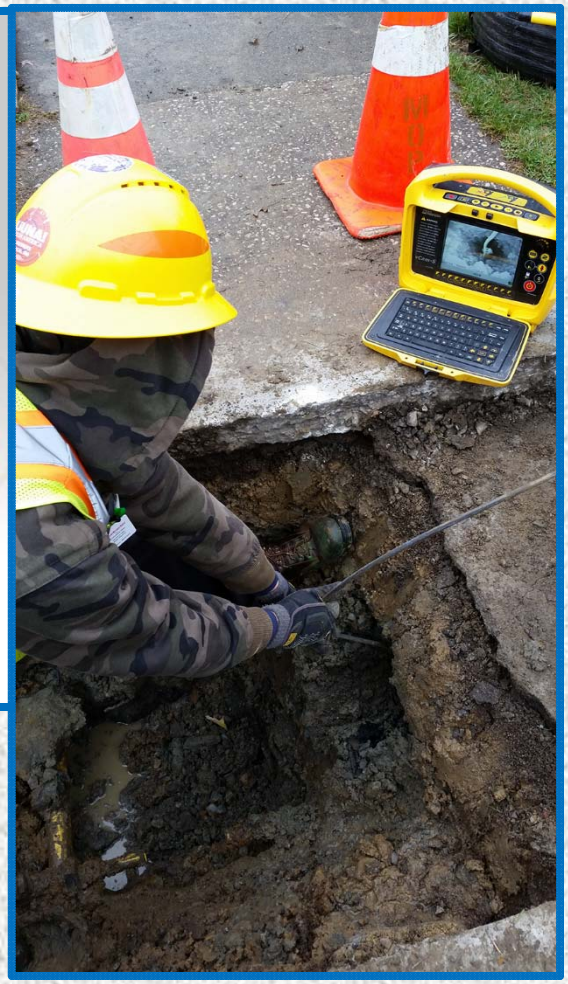


Sewer Locate Process – Construction Phase

Pipeline Construction Phase

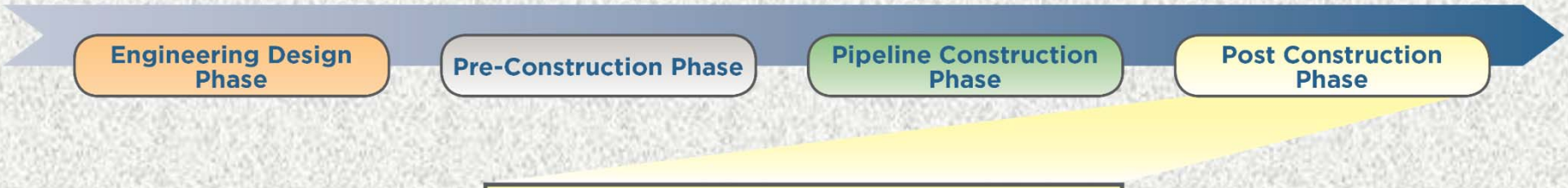
- Perform Site Investigation.
- Spot any sewer crossing within 24" of bore path.
- Update Sewer Locate Card when work is completed.
- Pull back camera with site investigation can be used for small diameter short mainline bores (2" or less, under 60').
- Notify property owners post video will be performed.

Cross Bore Awareness – Pull Back Camera Equipment



Camera slide

Sewer Locate Process – Post-Construction Phase



Post Construction Phase

After all trenchless technology is completed, contractor schedules video crew to post video sewers within 30 days.

If any damage found, company rep. is notified and an investigation is conducted.

Upon completion all videos, documentation and sewer locate cards are submitted to company rep.

Documentation is loaded into WMS Docs.

In today's challenging environment

Are you a Cross Bore monitor? Or a Cross Bore expert?

2015 CBTF Recommendations

1) Develop a “Call Before You Clear” 811 Ticket Type
2) Develop Education and Outreach material for plumbers & sewer operators and key stakeholders.
3) Develop a specific Trenchless Excavation education module
4) Develop a strategy to address the marking of sewer lateral installations that would include a requirement to be locatable using standard industry technologies.
5) Promote a change in the specifications for sewer lateral installations that would include a requirement to be locatable using standard industry technologies.
6) Develop an “automated response” to a One Call notification where trenchless excavation is the method of installation i.e. (HDD, missiles).

Status in PA Today

- ✓ Acquired approval from Minnesota to use their "Call Before You Clear" tagline.
- ✓ Approval from People's Gas to use the "Blue Boar" logo
- ✓ "Call B4 You Clear" Emergency Ticket Type went live 7/27/16.
- ✓ Public Awareness Outreach aligned with RP 1162
  - Stakeholder Questionnaire
  - Stakeholder brochure
  - Educational Video/PPT
  - Wastewater Trade magazine article

❖ **It's all about Safety!**

UGI
Energy to do more®

Columbia Gas® of Pennsylvania
A NiSource Company

Call before you clear.
Know what's inside.

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