

Threats to Distribution Pipelines



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Current Threat Issues

Gary Kenny

- Cross Bores
- Electrofusion
 - Couplings
 - Tees
- Bolt on Tees

Don Ledversis

- Abandoned Stubs
- Foreign Objects in Mains
- Other Concerns from Rhode Island

Cross Bores

- A Cross Bore is when a trenchless installation, primarily HDD, damages an existing facility.
- A predominant threat is the damage to sewer facilities, which may go unnoticed for days, weeks, months, or even years.

Maine PUC Rule Chapter 420

§3.D. Location of Underground Facilities Where Trenchless Technology Is Used

2. When the gas utility is installing natural gas facilities with these techniques, the procedures shall require ***mandatory exposure of existing underground facilities*** when alternate methods of protecting these facilities are impractical or not available.

Sewer Laterals

- Often fall through the cracks of the One Call, or Dig Safe[®], Process
- A damaged gas main, resulting from an attempt to clear a sewer lateral obstruction, offers a direct path of gas into structures

Prevention of Cross Bores

- Cameras with locating sondes in sewer mains, with ability to launch sub cameras into laterals;
 - Accurate location of sewer facilities
 - Verify adequate clearance from drill path, including a tolerance zone
- Locate laterals with a snake through the cleanout; and/or
- Potholing to verify depth or clearance during drilling and pullback

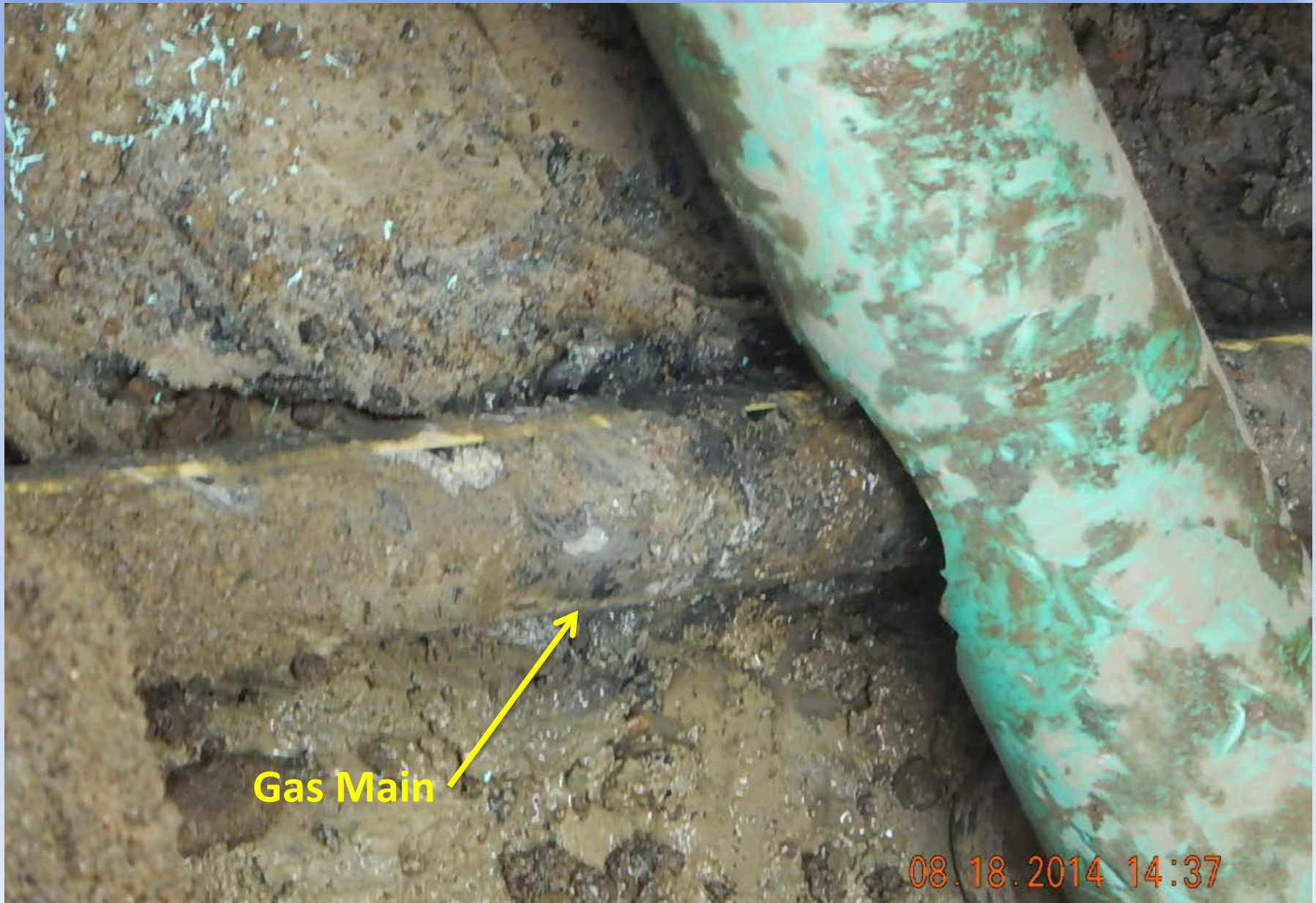
Detection of Legacy Cross Bores

- Same procedures as prevention!
- Would you rather prevent them or find them after the fact; hopefully before sewer clearing equipment finds them?

Observations in Maine

- Extensive use of HDD by one operator this year
- MPUC concern of potential Cross Bores
- MPUC requirement to verify that sewer and electric facilities are damage free, prior to the introduction of gas
- Approximately 30 damaged laterals have been found to date; all before introducing gas

Sewer Lateral Cross Bore



Gas Main

08.18.2014 14:37

Damage from Mechanical Snake



08.18.2014 15:13

Electrofusion Couplings

Is the pipe adequately prepared for this coupling?



It Depends!

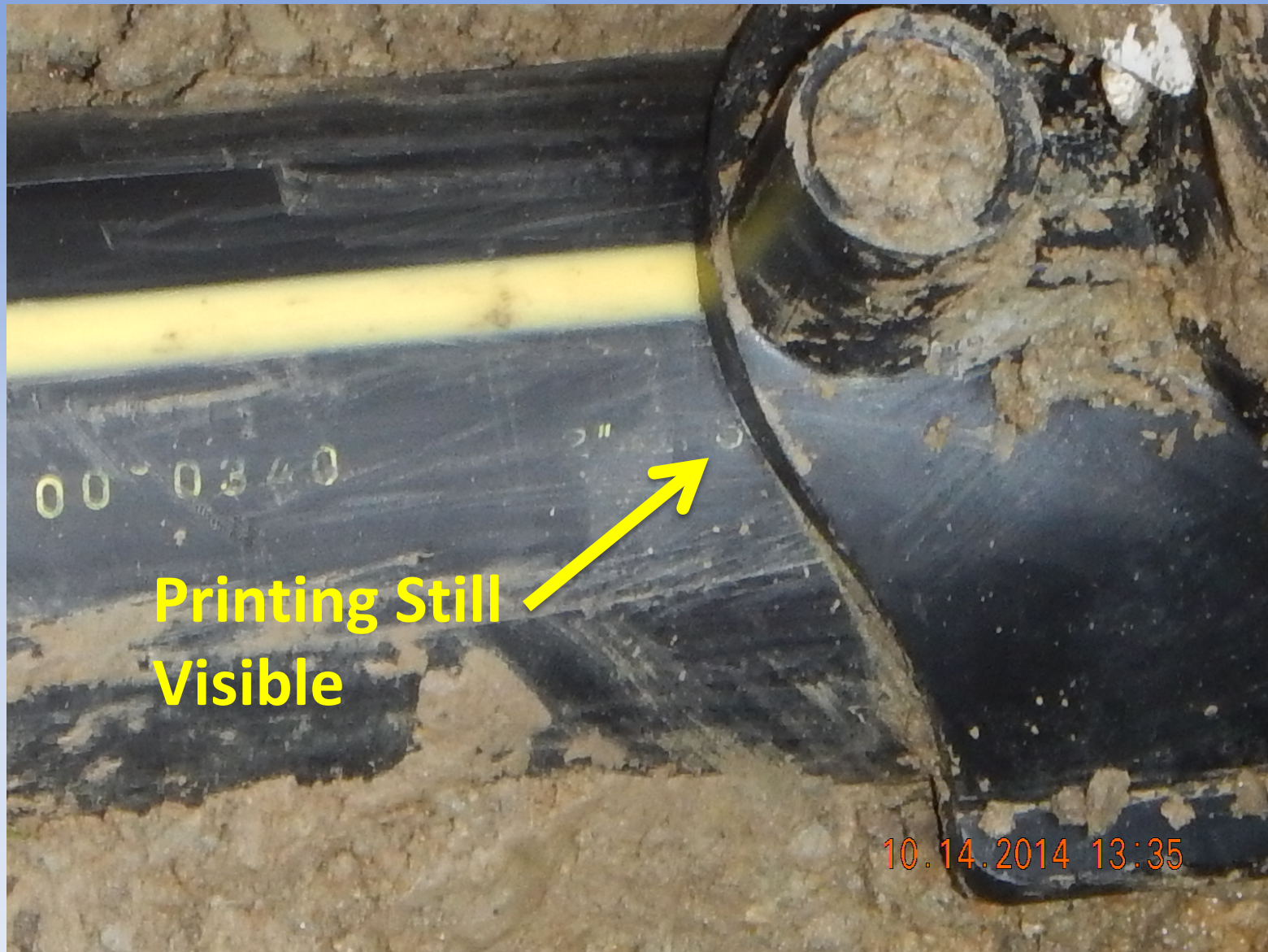
Electrofusion Couplings

- Not if it's used for a tie-in; where the coupling is slid completely over one pipe end, then back onto the second pipe.
- Central Plastics' procedure requires that the first pipe is prepared over the entire length of the coupling to avoid contaminants.

Electrofusion Tees

- A failure during pressure testing, and a subsequent failure of a tee in service have led to investigations of other tees;
- The investigation is looking for adequate surface preparation extending beyond the saddle
- At this time, the problem appears to be rooted with the use of non-serrated, paint style, scrapers (approved by the manufacturer's)

Electrofusion Tee - Installation



**Printing Still
Visible**

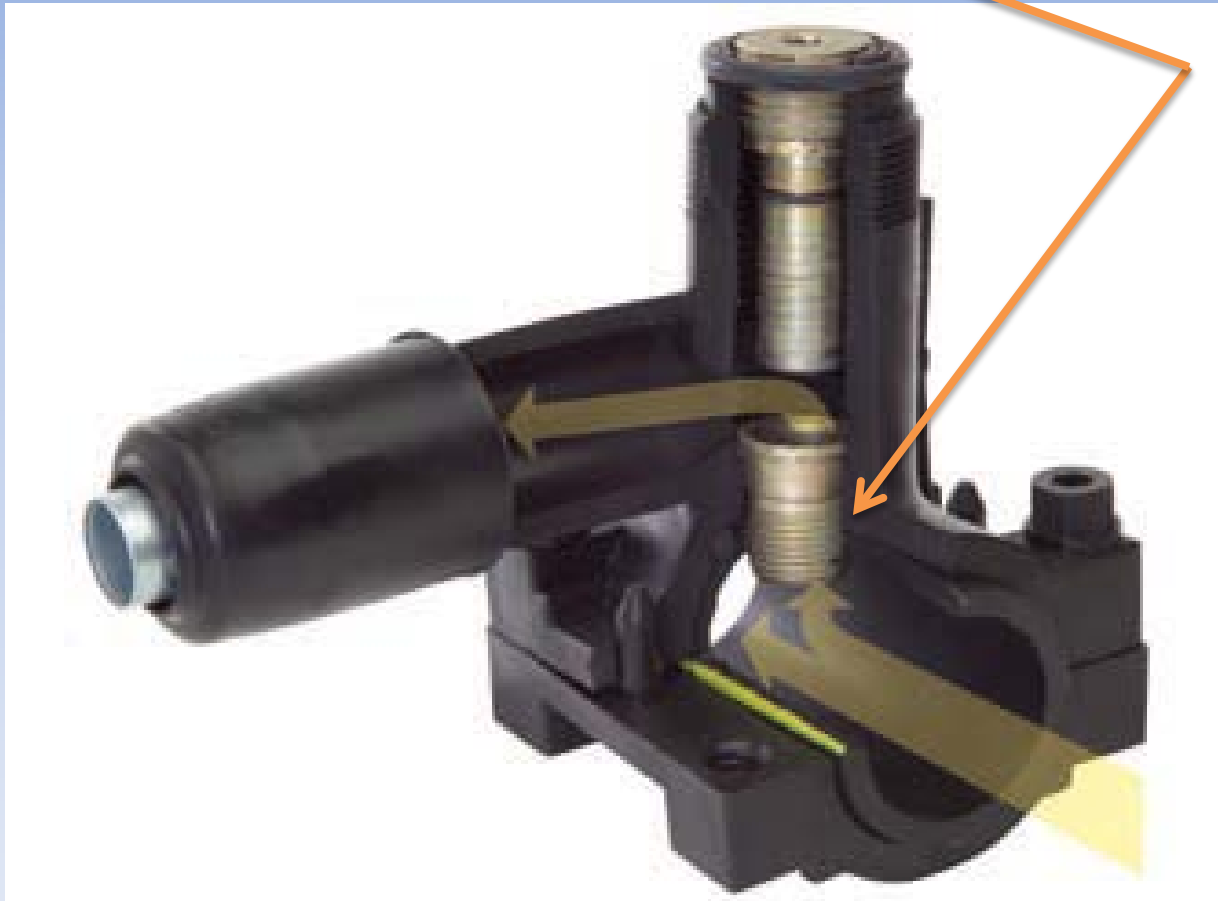
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Bolt On Tees - History

- A leak survey showed indications of gas at the approximate location of a service tee
- When excavated, the tee blew off the main
- The cutter sleeve was found to not be properly seated and the plastic bolts were broken
- Subsequently, similar tee installations have been found

Bolt On Tees - Installation

- Depend on the threads of the cutter's sleeve to hold them on the main



Bolt On Tees – The Investigation

- Initiated by the operator, utilizing in-line camera, looking for adequate sleeve penetration



Bolt On Tees – The Investigation



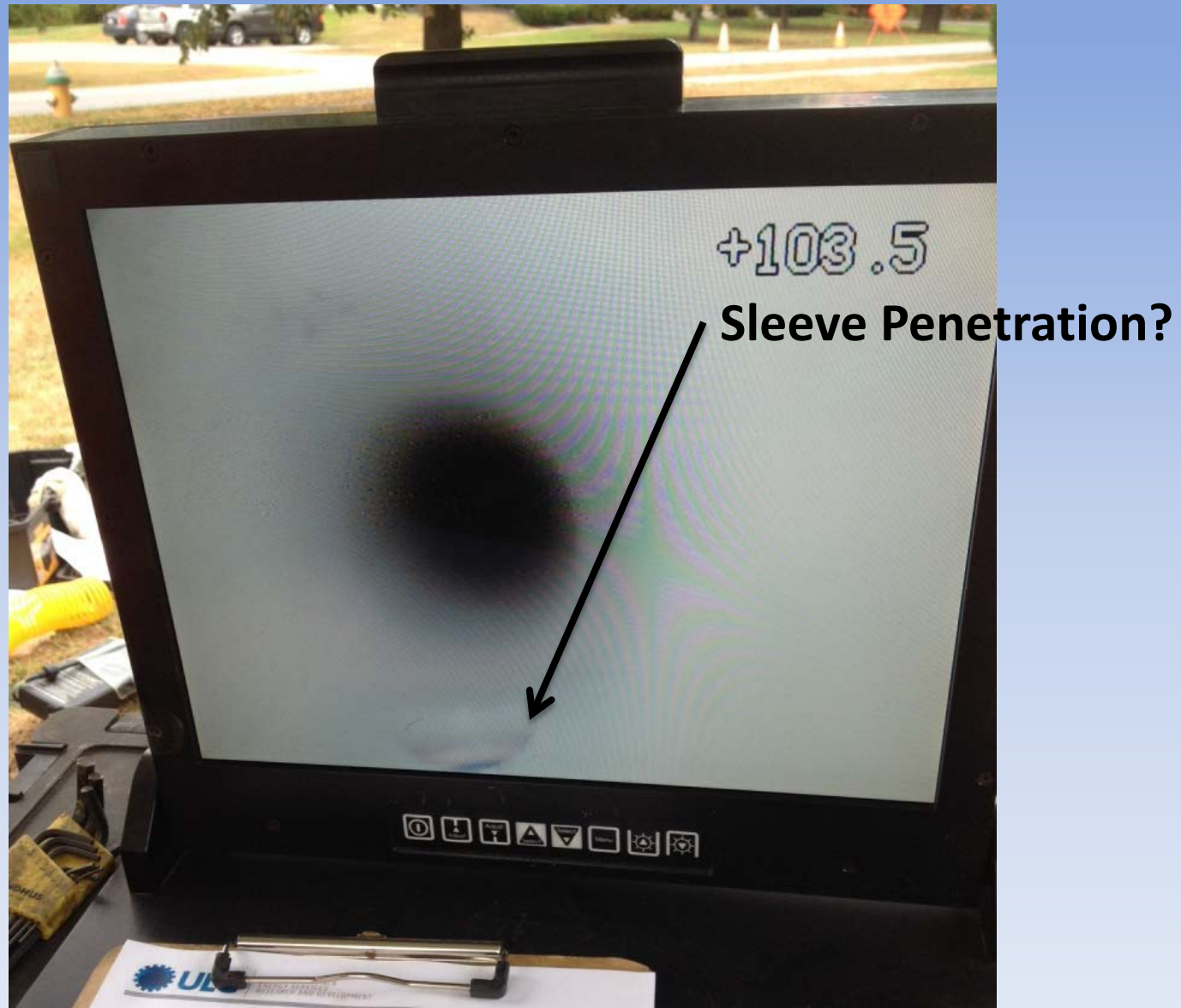
Bolt On Tees – The Investigation

Adequate Tee Penetration



09.29.2014 11:05

Bolt On Tees – The Investigation



Questions?

Five Feet?

MPUC Rule Ch. 420 §5.B.4.b.2



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Live Gas Service Line Here

Abandoned Gas Service Here



Live Gas Service Line Here

Abandoned Gas Service Here

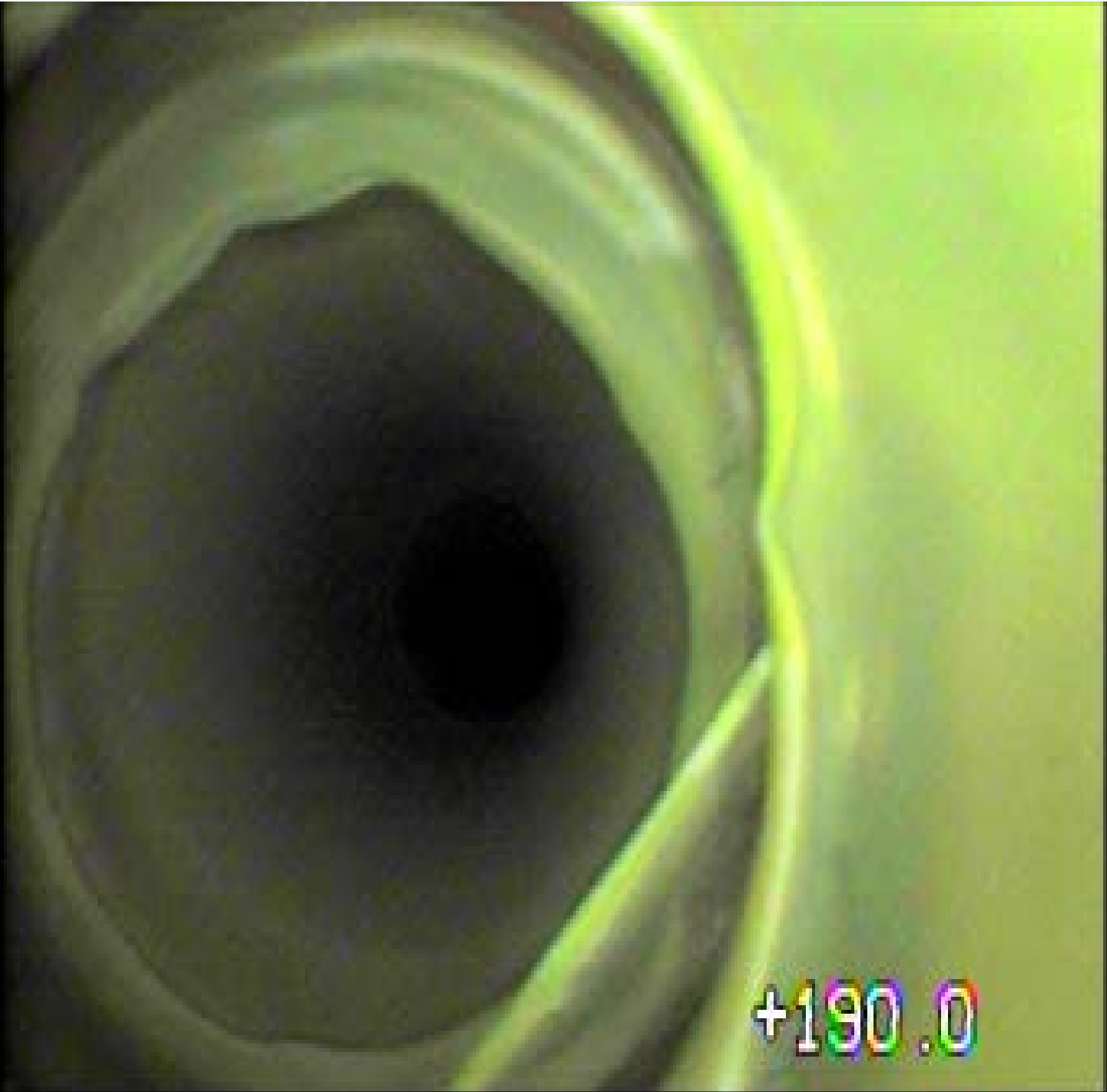


#0091. 6ft↑





+177.4



Other items found inside gas mains...





+068 .4





+072.3





+087.4

Some sort of rag used
to pack the joint

+179.4

401.87. 6ft ↑



0

150.8



The End

