

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

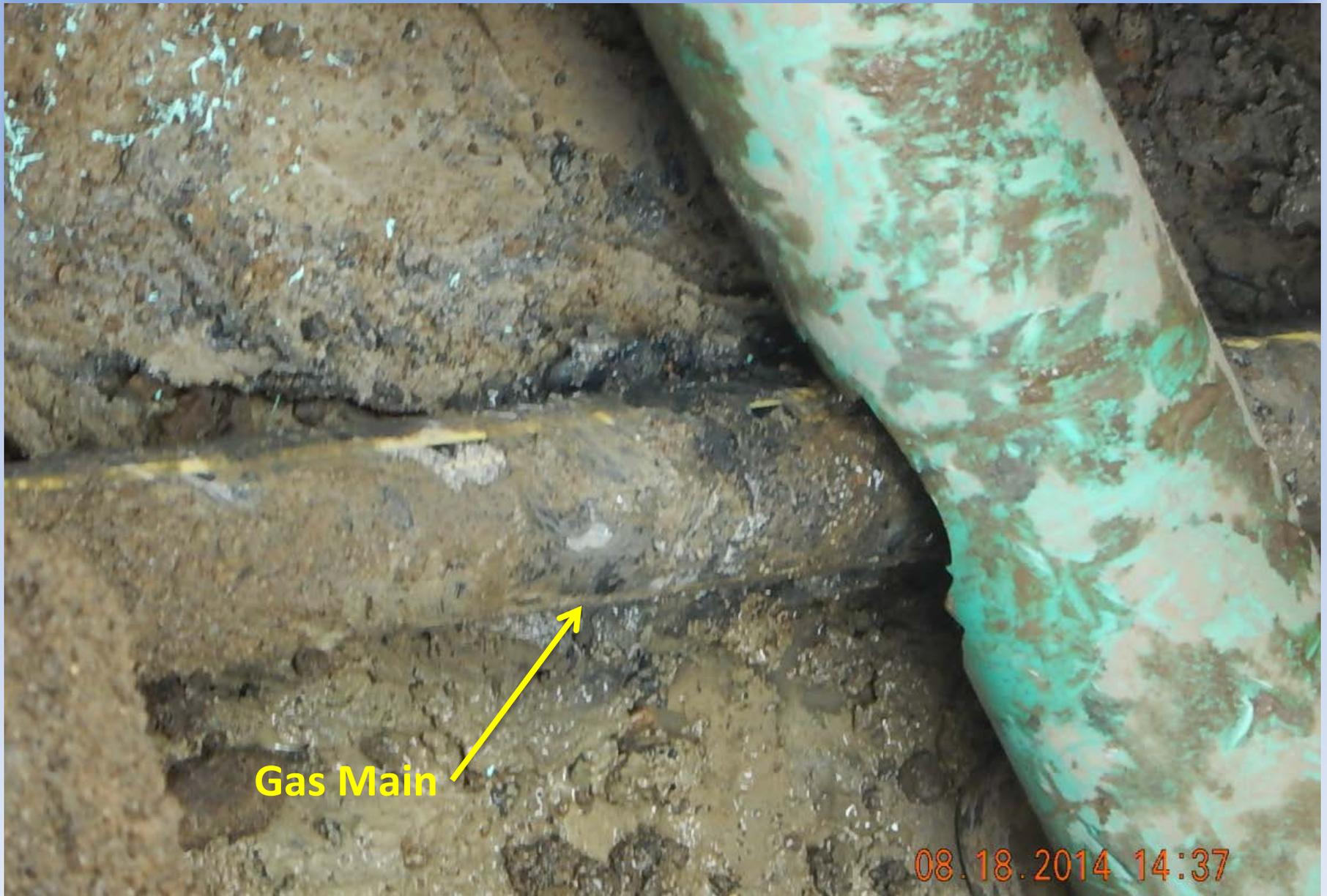
Detection of Legacy Cross Bores

- 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



Electrofusion Couplings

Is the pipe adequately prepared for this coupling?



It Depends!

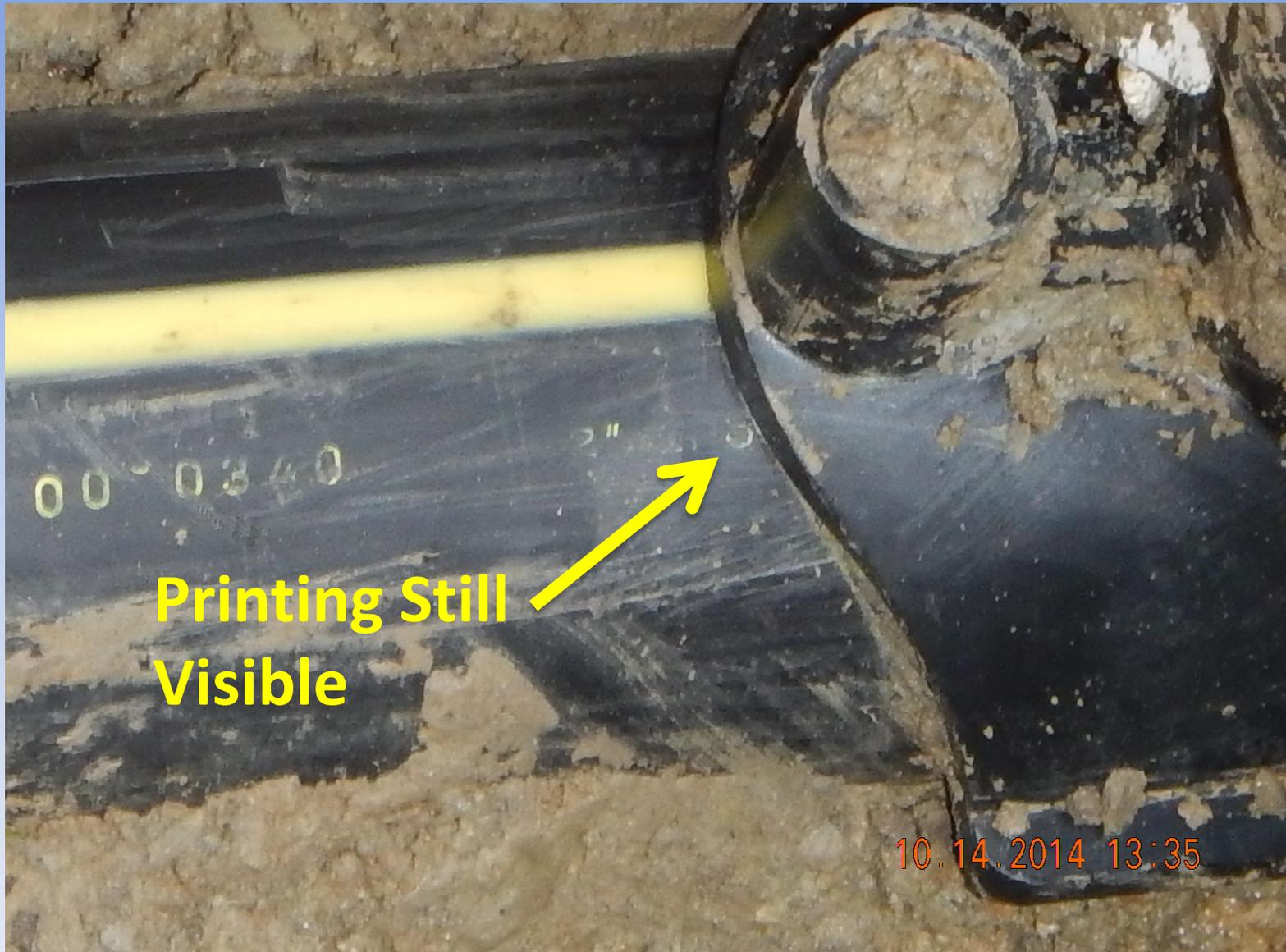
Electrofusion Couplings

- 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



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

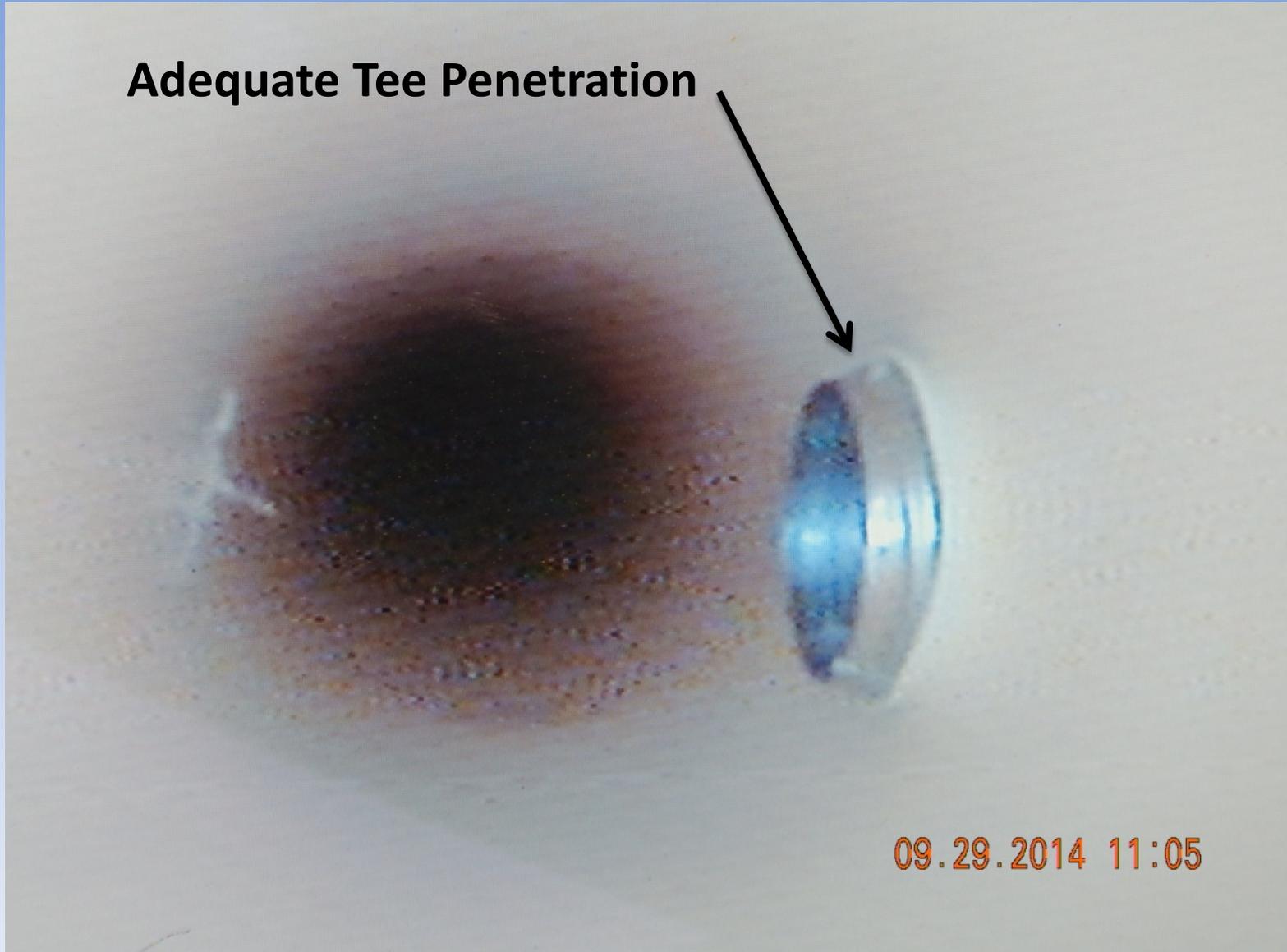


Bolt On Tees – The Investigation



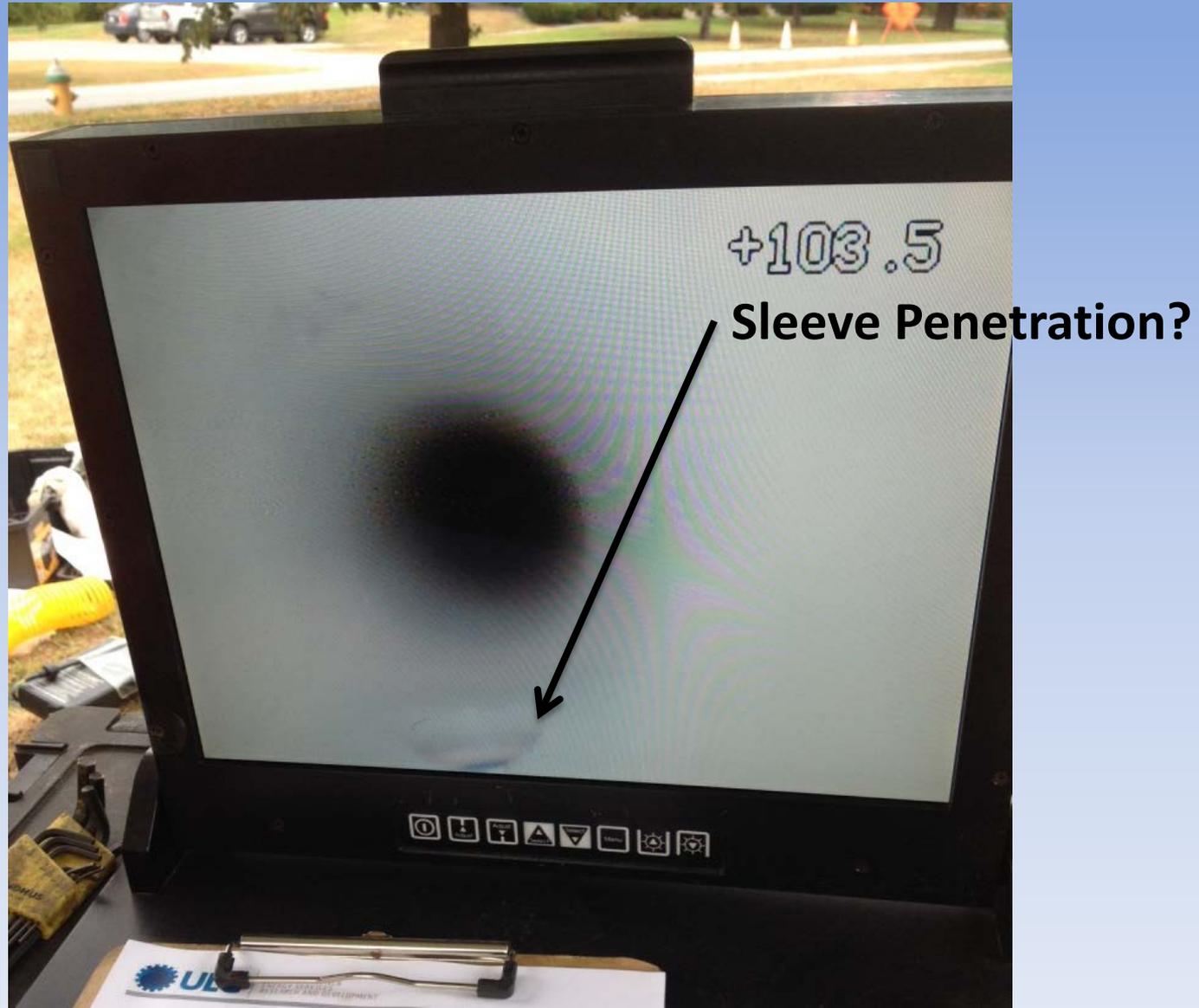
Bolt On Tees – The Investigation

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



10.09.2014 13:54



Live Gas Service Line Here

Abandoned Gas Service Here



Live Gas Service Line Here

Abandoned Gas Service Here

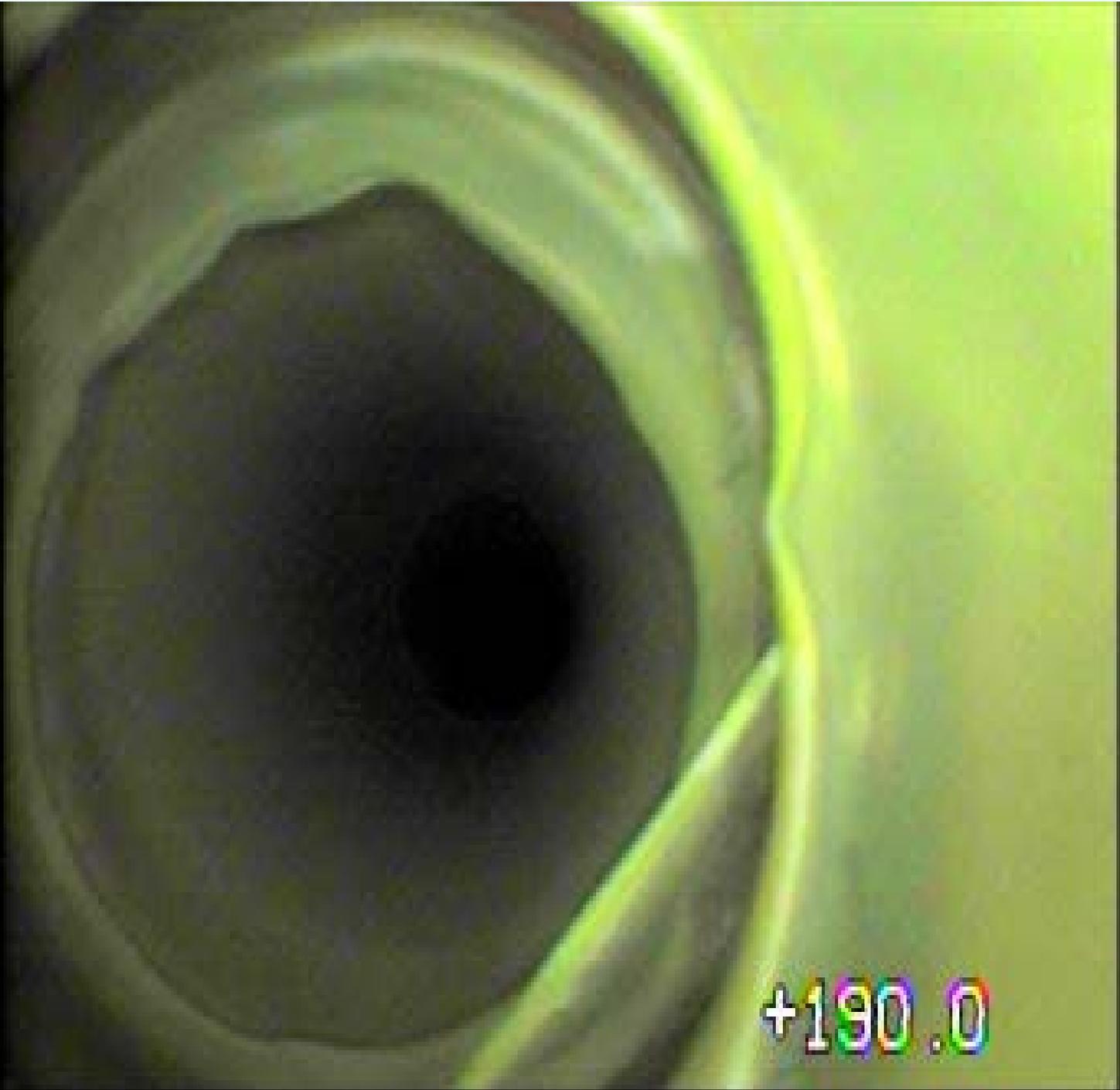


#0091, 6ft↑





+177.4



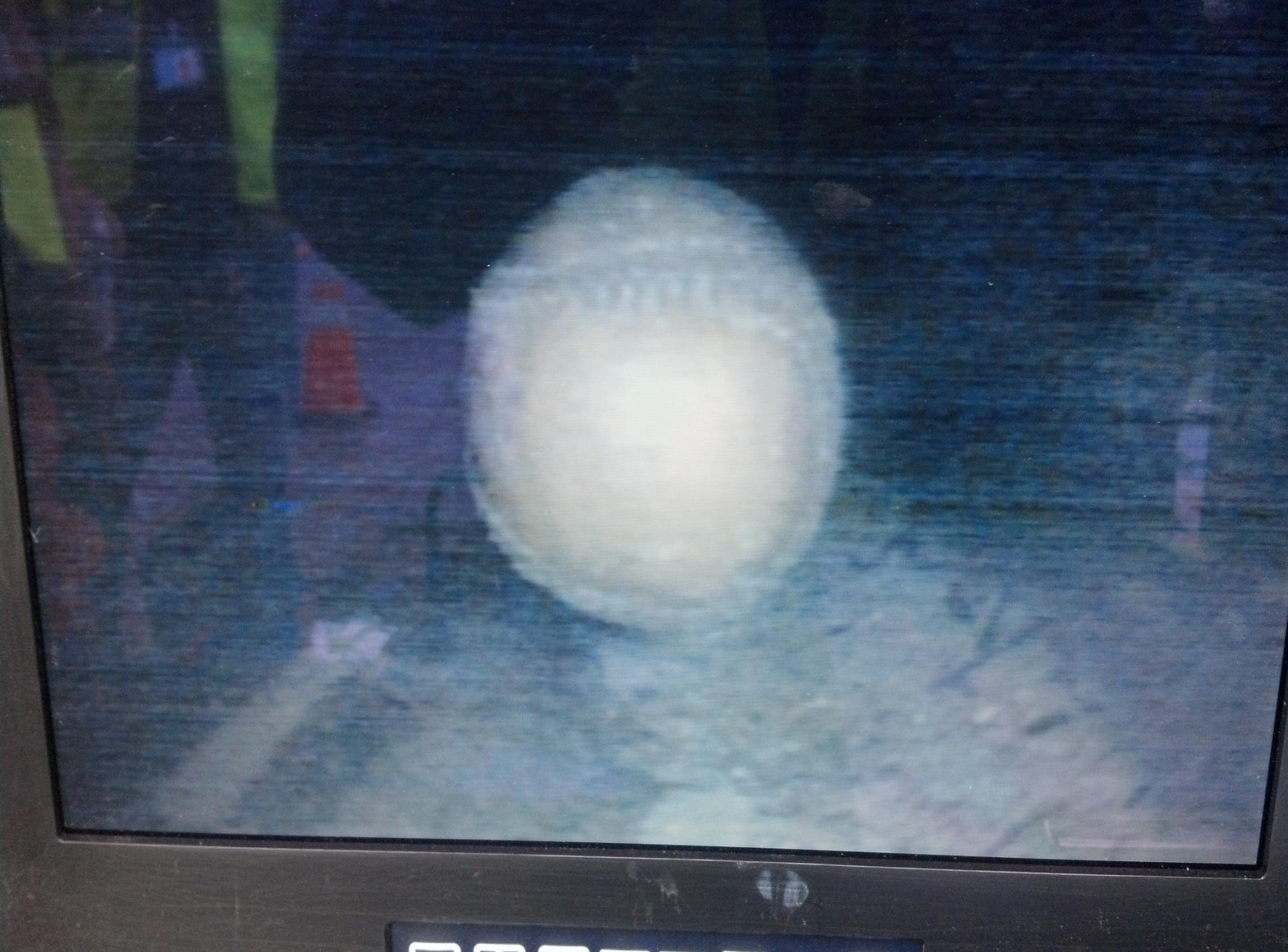
+190.0

Other items found inside gas mains...





+068 .4





+072.3





+087.4

Some sort of rag used
to pack the joint

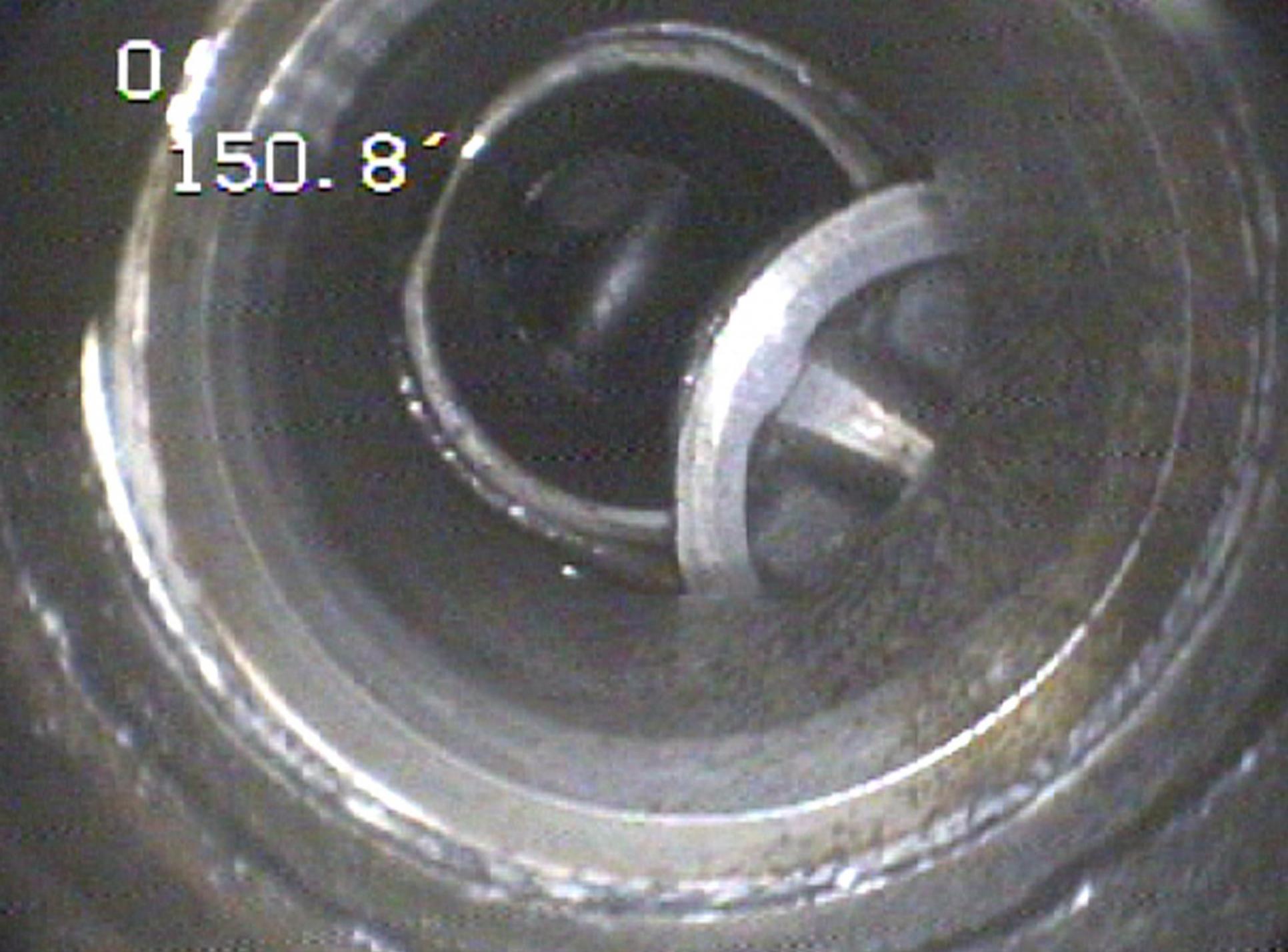
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401.87.6ft↑



0

150.8



The End

