

NAPSR

Distribution New Construction

St. Louis, Missouri April 20, 2010

Inspection findings related to Plastic Materials



Know what's below.
Call before you dig.

Topics of discussion for today:

1. Handling of plastic pipe
2. Heat plate temperatures
3. Joining card expired
4. Stab depth
5. Out of date pipe
6. Underground clearance
7. Separation distance
8. Backfill
9. Grounding equipment
10. Squeeze off

§192.59(a)(5) Plastic Pipe

New plastic pipe is qualified for use ... if it is free of visible defects.



...if it is free of visible defects.











Right in the area to be joined...





Case study:

- ▶ The Operator installed a 2" plastic with a gouge greater than 10% wall loss, the Operator did not know how to measure the defect nor did he have any equipment to measure the defect.

How do you measure a defect?

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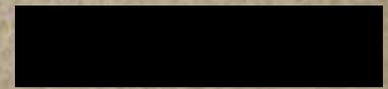


There are all
kinds of pipe
out there
with
different
wall
thicknesses

So you need the right
tools for the job.



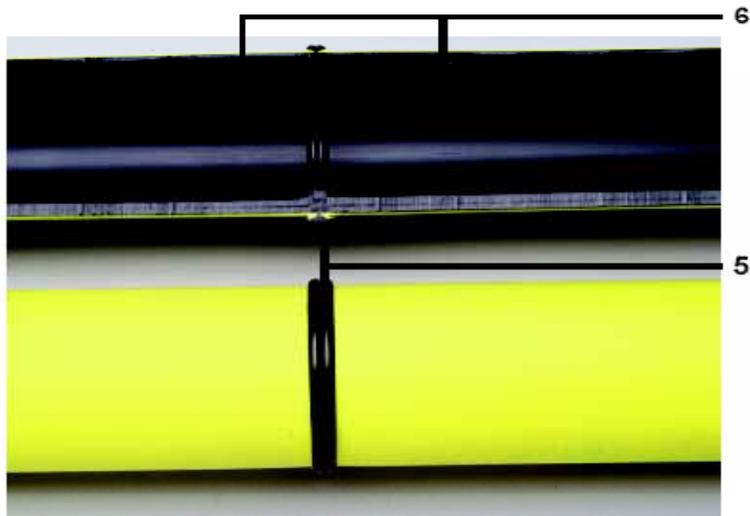
And you need to know how to use them.



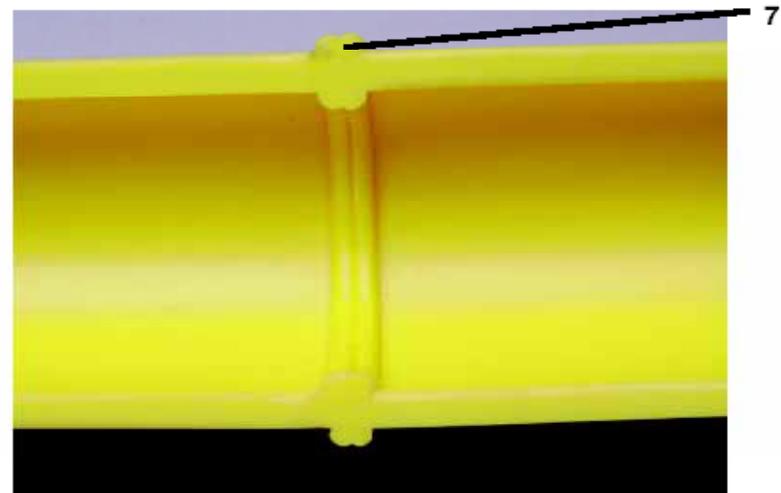
§192.273 General

(b) Each joint must be made in accordance with written procedures that have been proven by test or experience to produce strong gastight joints

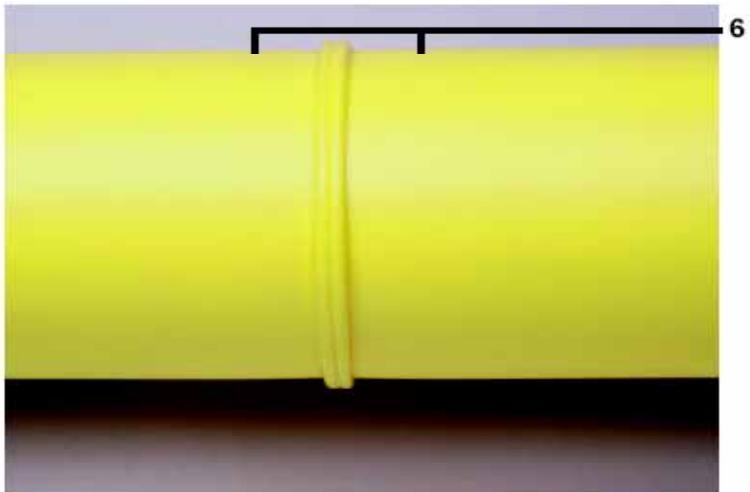
ACCEPTABLE FUSIONS



5. Proper double roll-back bead
6. Proper alignment



7. Proper double roll-back bead

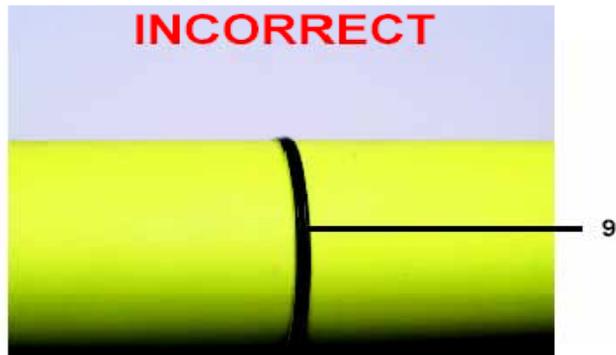


6. Proper alignment



8. No gaps or voids when bent

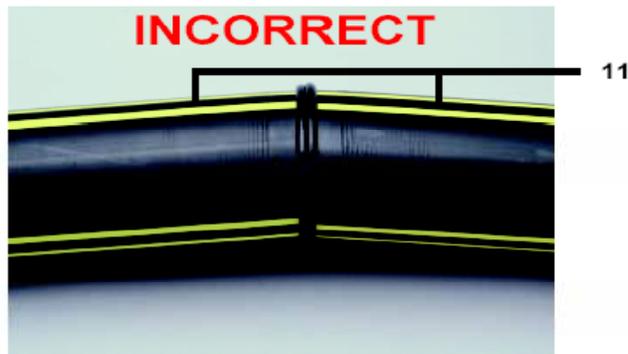
UNACCEPTABLE FUSIONS



9. Insufficient heat time; melt bead too small



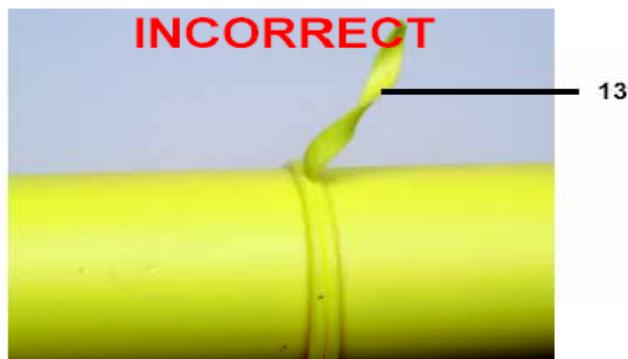
10. Excessive heat time or pressure applied during heating; melt bead too large



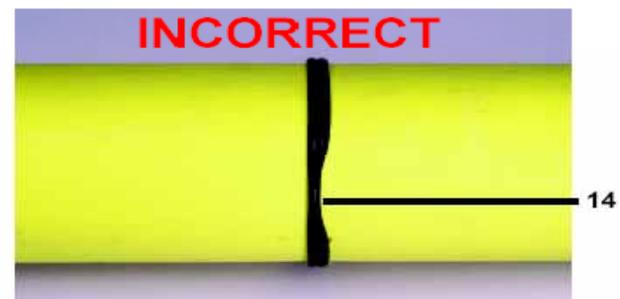
11. Pipe angled into fusion unit



12. Improper "High-Low" alignment



13. Incomplete face off or failure to re-



14. Incomplete face off

§192.605(b)

Procedures for O&M

...Prepare and follow a manual of written procedures

Case study:

- ▶ The Operator's contractor performing heat fusion did not verify the heating temperature. When the temperature was verified, the temperature was not within the procedural specification.

How do you measure plate temperature?

in accordance with a written procedure.



Expensive, but accurate.



In-expensive, but less accurate.

Check plate temperatures at several locations, such as the 12, 3, 6, and 9 o'clock Locations...





§192.285

Plastic Pipe:

Qualifying persons to make joints

(c)(1) A person must be re-qualified if during any 12 month period that person does not make any joints under that procedure

Case study:

- ▶ The Operator's contractor performing heat fusion had an expired joining card.



Who's responsibility is this?

- ▶ Ultimately it's the Operator's responsibility to ensure compliance.



§192.303
Compliance with
specifications or
standards.

Each gas main must be constructed in accordance with comprehensive written specifications or standards that are consistent with this part.

Case study:

- ▶ The tapping tee failed during tapping operations by the contractor. The Operator initiated a Failure Investigation and concluded that the tee failed due to improper preparation and clamping. The manufacturer is redesigning the clamping tool used during the electrofusion process.



Newly installed high volume tapping tee.



Gas Escaping

Case study:

The Operator did not mark the proper stab depth before performing an electrofusion.



Another example of not marking the proper stab depth before performing an electrofusion.



Case study:

The Operator did not follow procedures.

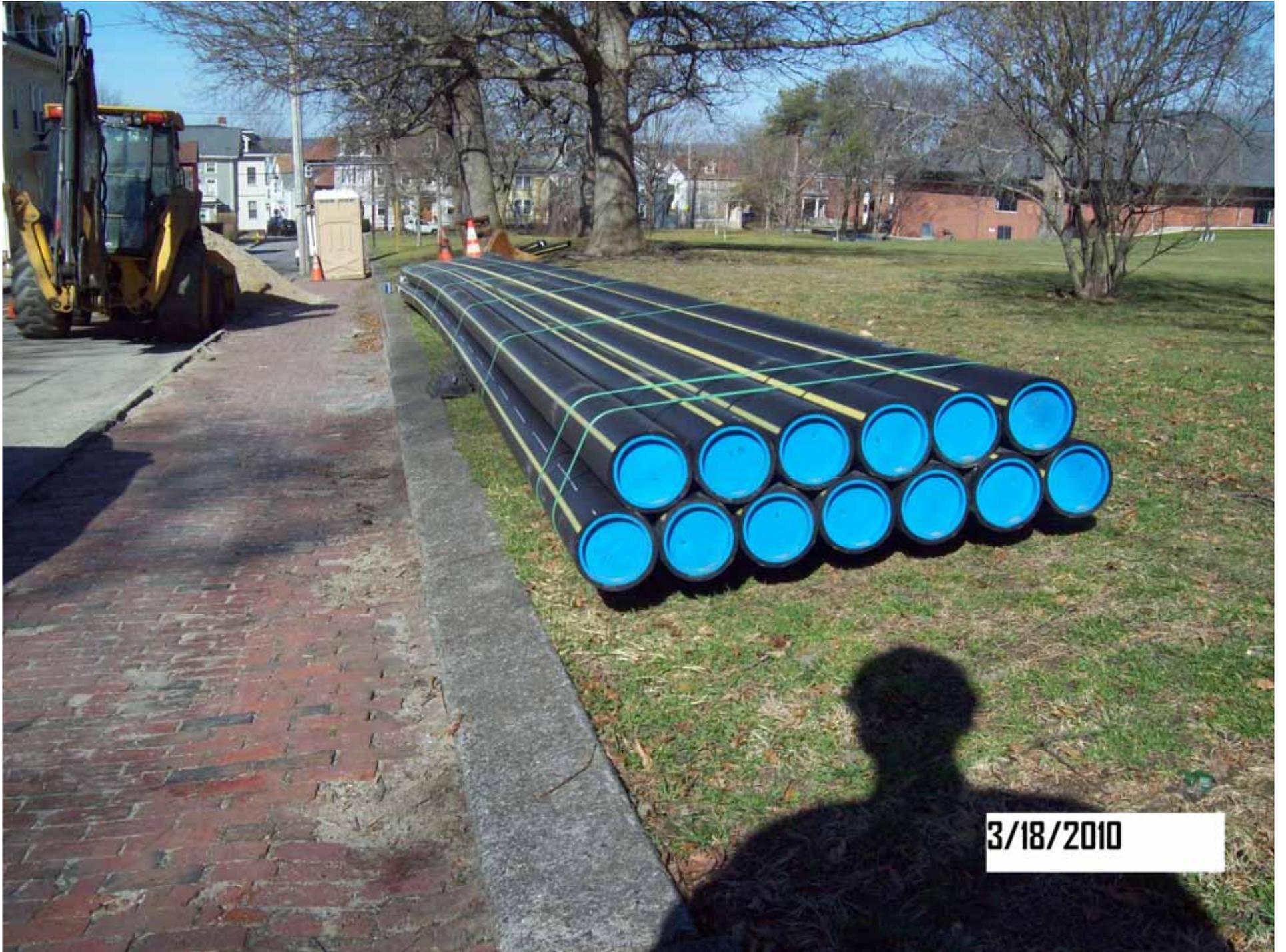


§192.605(a) - Failure to follow written procedures.

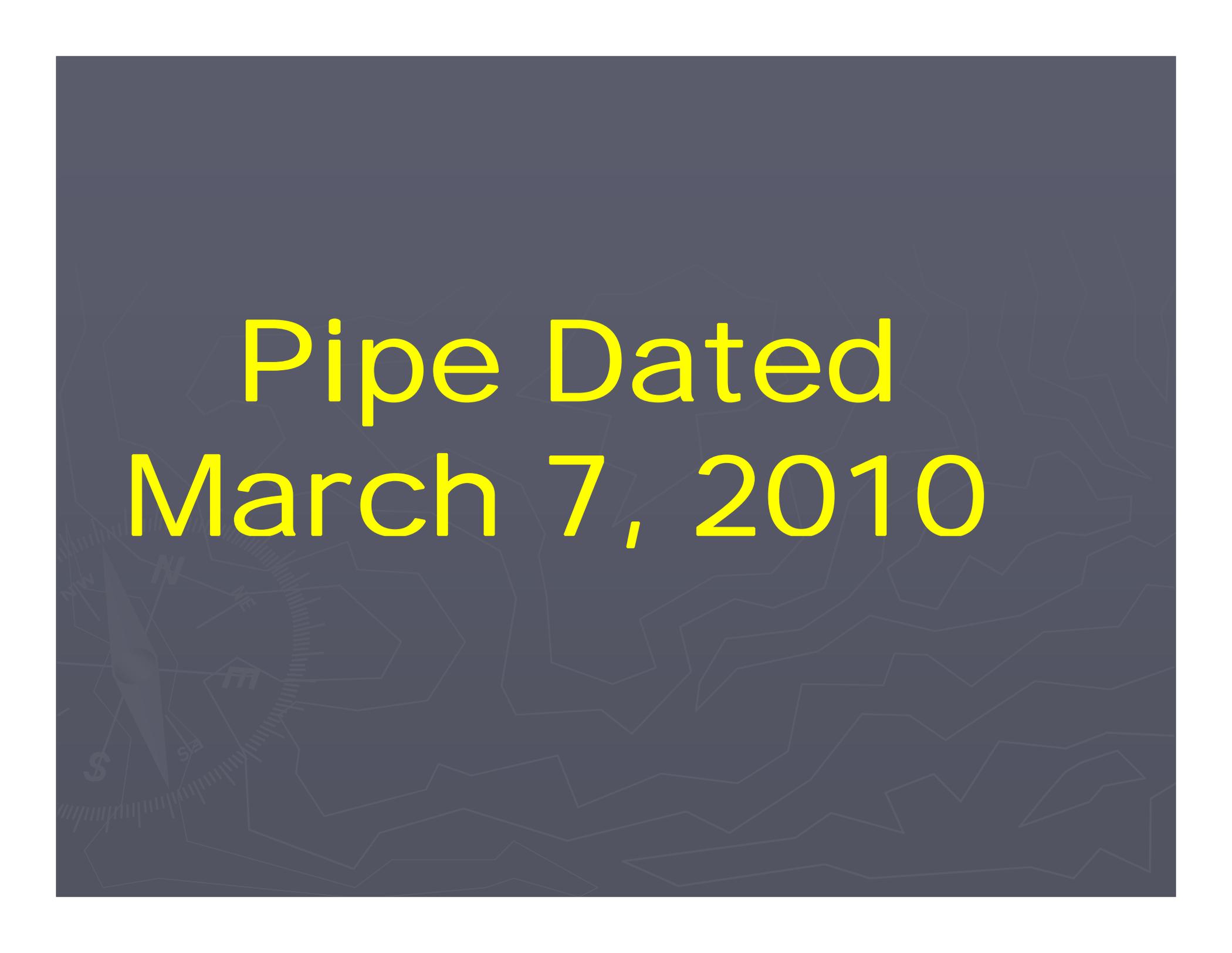


Case study:

- ▶ The Operator's contractor performing the service installation failed to inspect the manufacturing date on the pipe. Once alerted by the State inspector it was later discovered that 500' of this pipe had already been installed.



3/18/2010

The background is a dark blue-grey color with a faint, light-colored topographic map overlay. The map shows various contour lines and a compass rose in the lower-left quadrant. The text is centered in a bright yellow color.

Pipe Dated
March 7, 2010

Pipe is 11 days old from the factory?

LOWSTRIPPE © 8309 GDS PE3608 / 4710 PETD EEA5TMD2513 WTO13Y NR A1-019 07MARI ©

03/18/2010

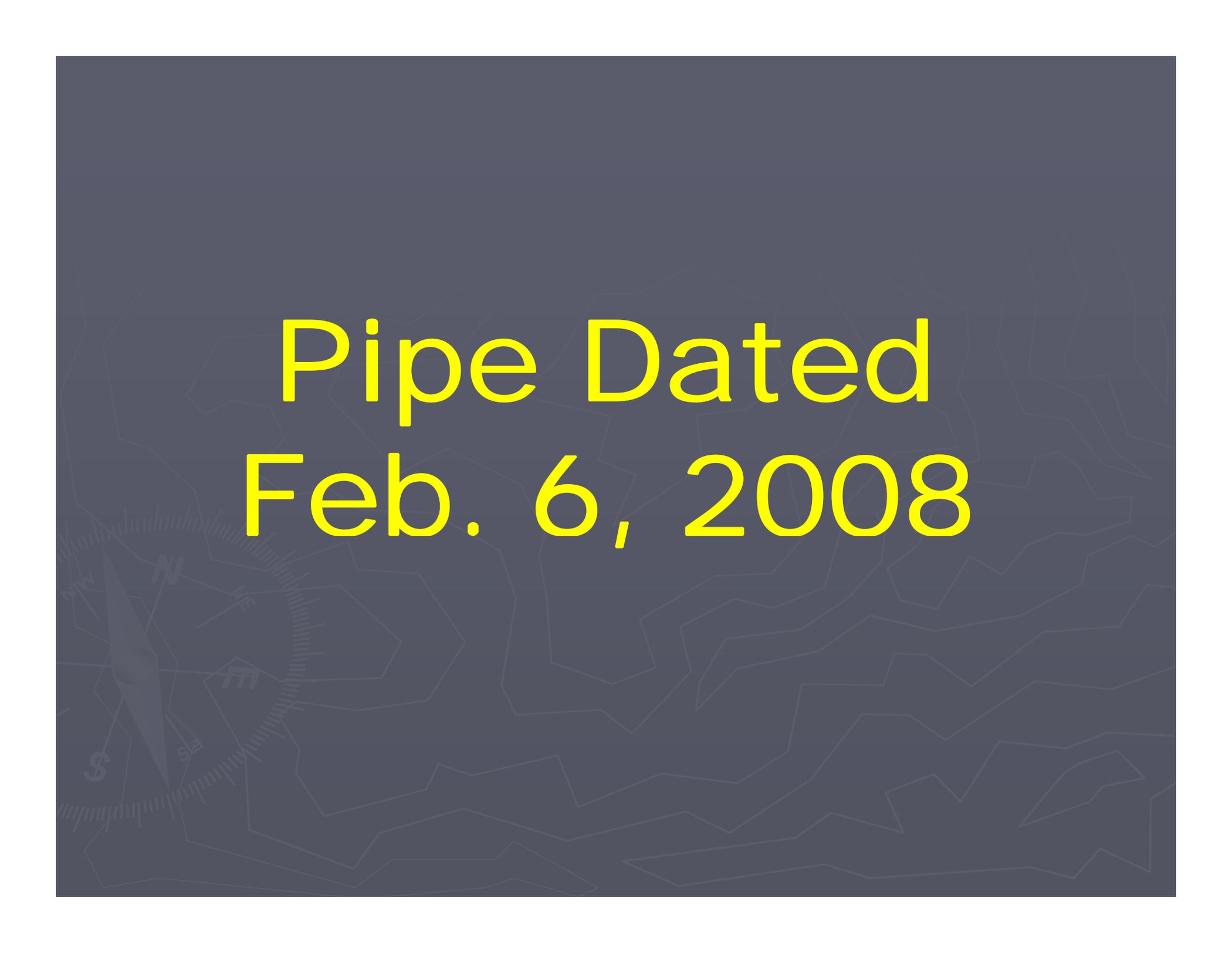
Delivered cross country in 11 days!



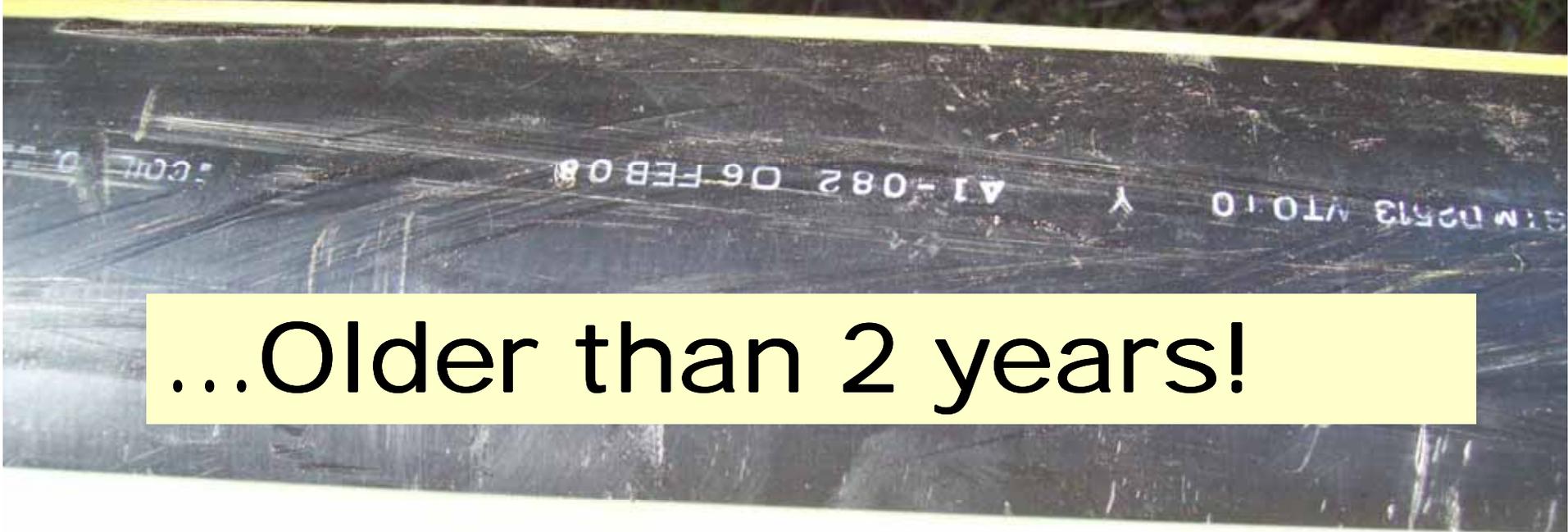
Same job site.



3/18/2010

The background is a dark blue-grey color with a faint, light-colored topographic map overlay. The map shows various contour lines and a compass rose in the lower-left quadrant. The text is centered in a bright yellow color.

Pipe Dated
Feb. 6, 2008



...Older than 2 years!

3/18/2010

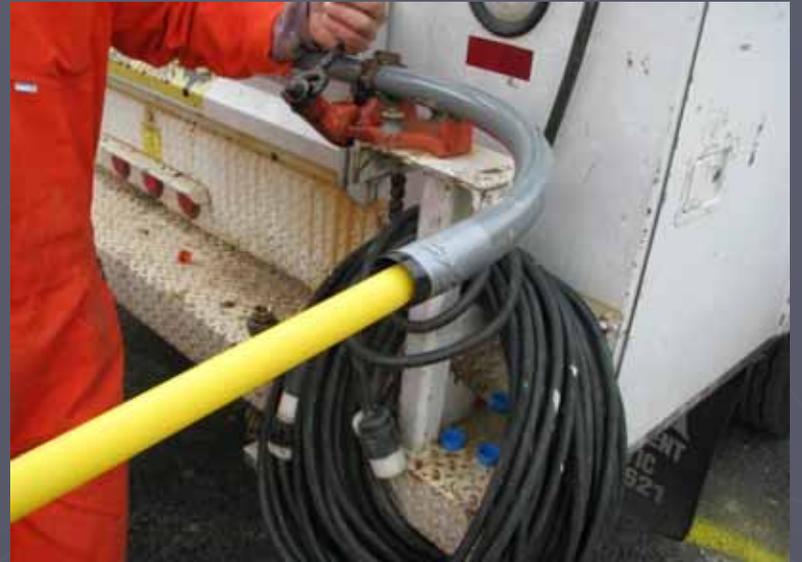
§192.361(d)

Service lines: Installation

Each service line must be installed so as to minimize anticipated piping strain...

Case study:

- ▶ The Operator's contractor performing a branch service installation shortened two anodeless risers. There was no procedure for this activity.

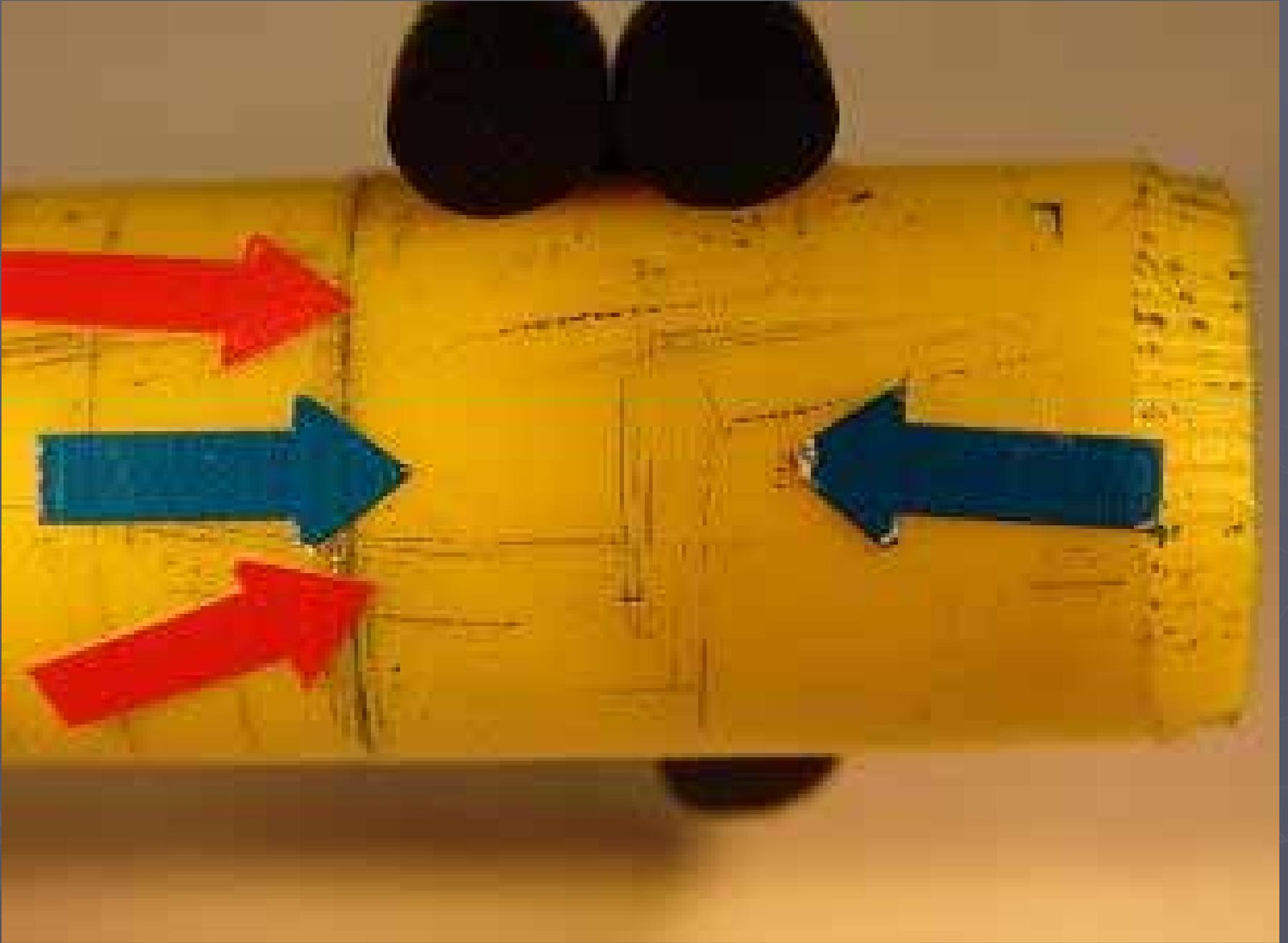


Another Case study:

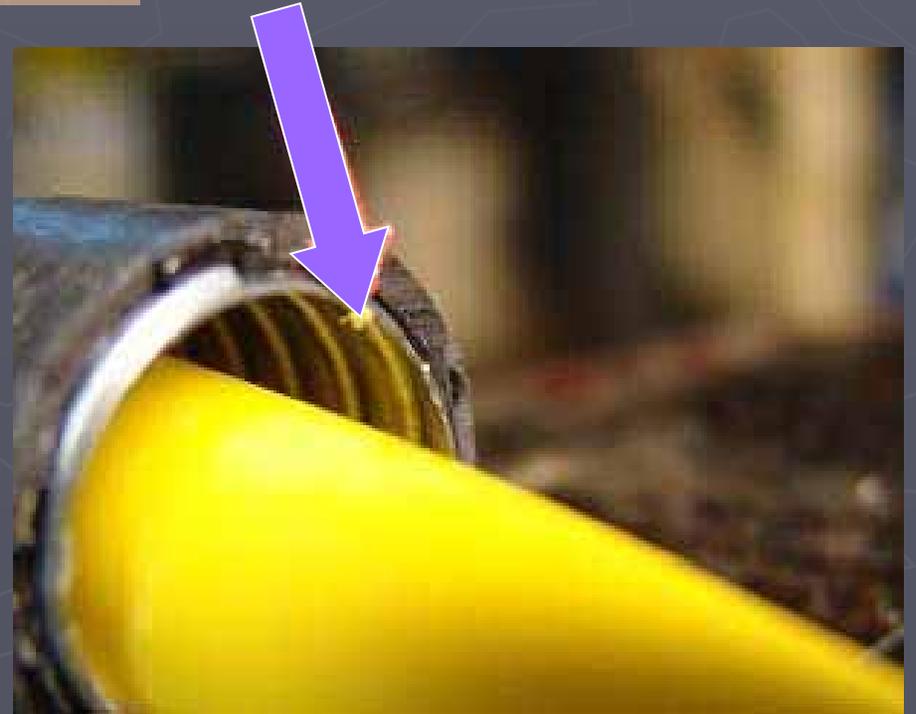
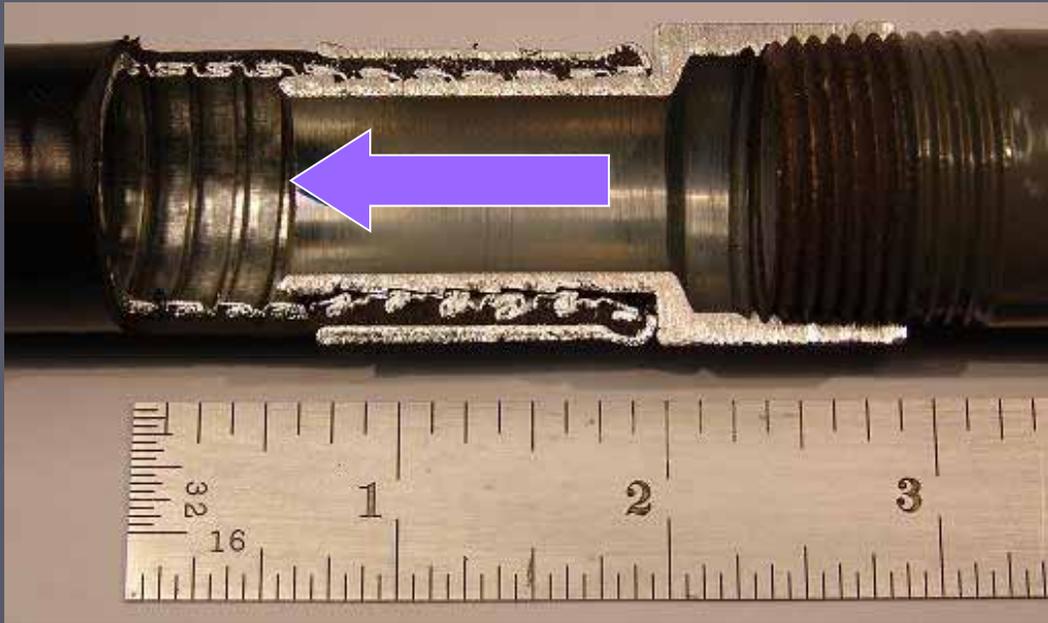


- ▶ This time the Operator had a written procedure to assemble anodeless risers but unfortunately the parts supplied were leading to on site failures.









§192.375(a)(i)

Service Lines: Plastic

Each outside plastic service line must be installed in a manner to protect the plastic service line against deterioration and external damage.

Case study:

- ▶ The Operator's contractor installed service stubs above ground that were left above the ground for several years.

§192.375(a)(i) - Failure to install a service line in a manner to protect the above ground level part of a plastic service from deterioration and external damage.



Another Case study:

- ▶ The Operator installed a temporary gas service above ground over a garage.





§192.325(b)
Underground
clearance

Each main must be installed with enough clearance from any other
underground structure to allow
for proper maintenance

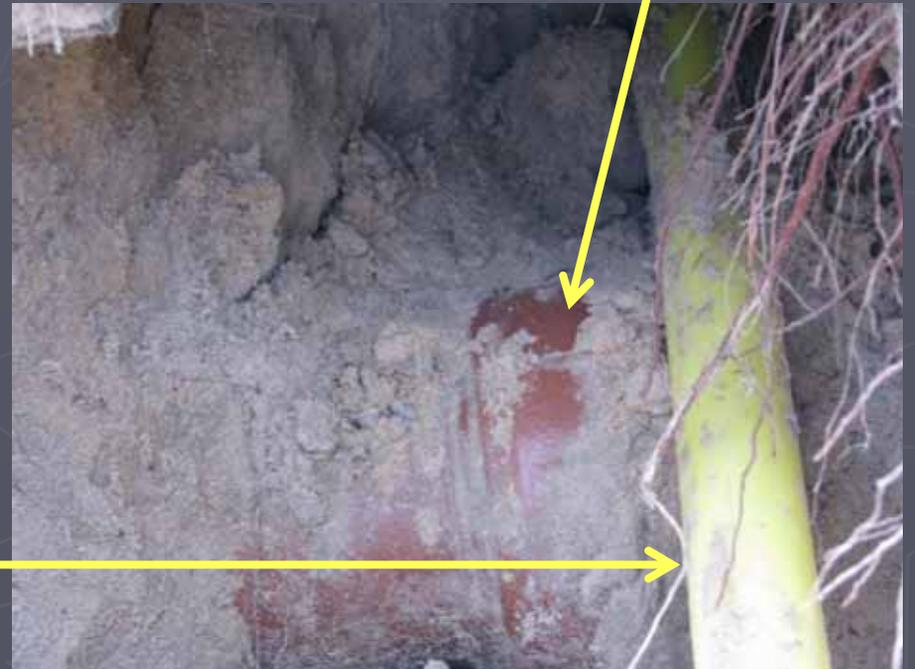
§192.325(b) - Failure to install a main with enough clearance from any other underground structure to allow for proper maintenance



Electric Line

Sewer Line

2" Plastic Gas Main











Grounding rod right next to the service

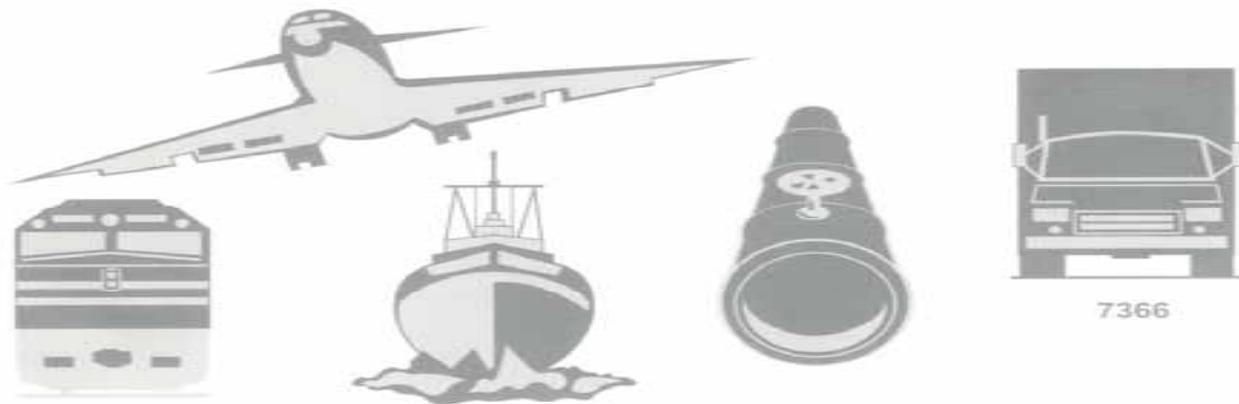


NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

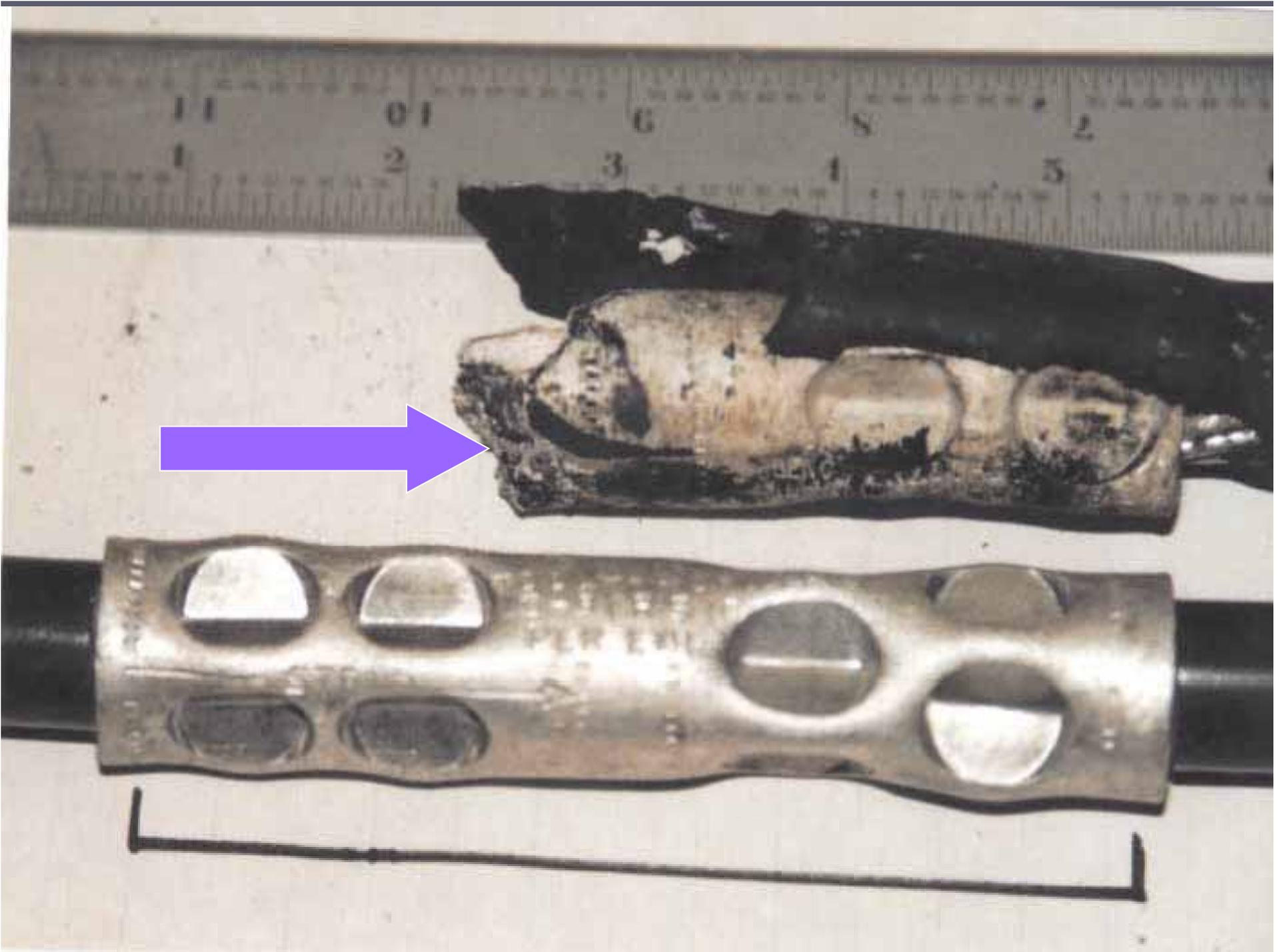
PIPELINE ACCIDENT REPORT

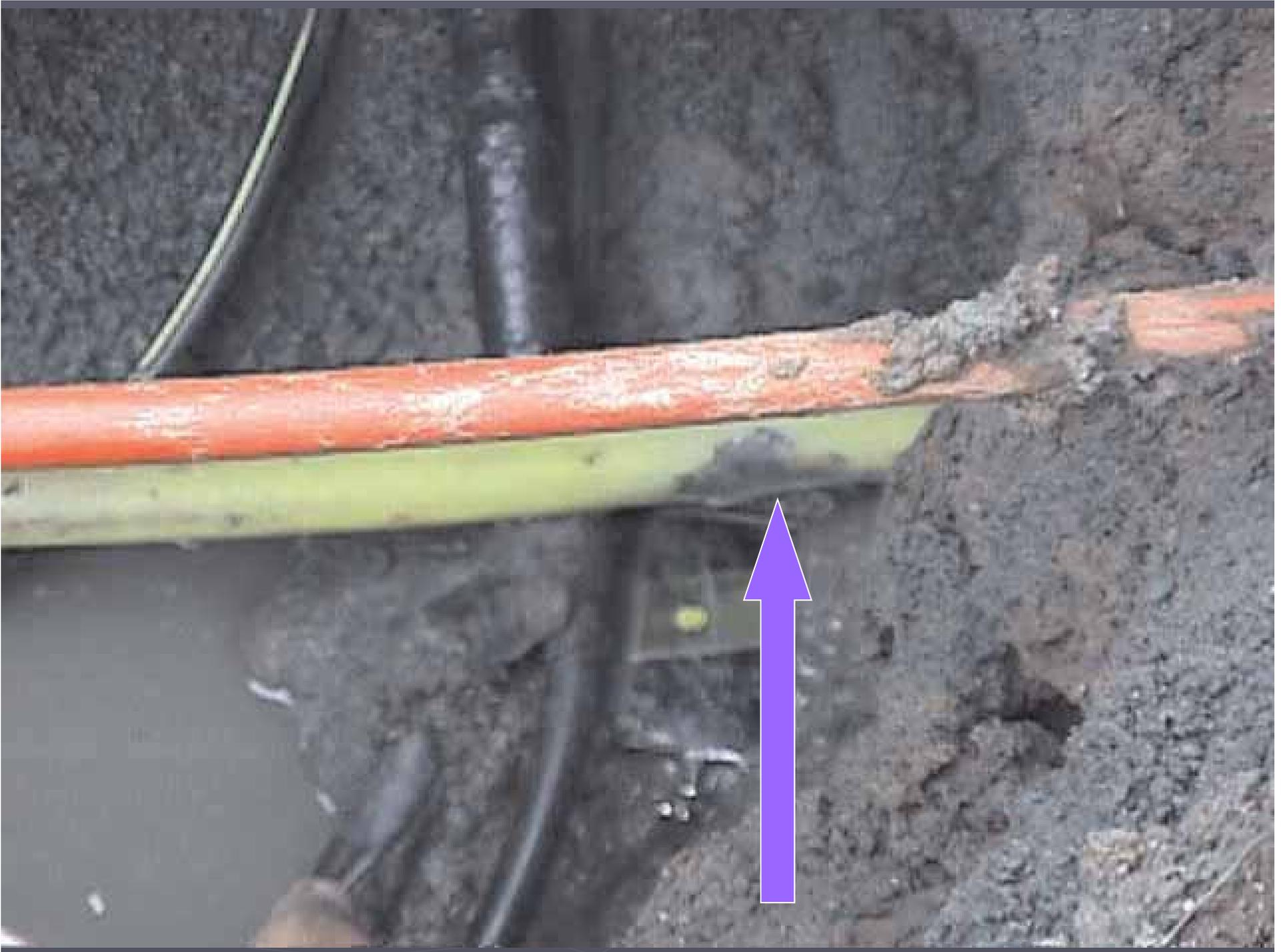
NATURAL GAS EXPLOSION AND FIRE IN
SOUTH RIDING, VIRGINIA
JULY 7, 1998



7366







Forestville, Maryland

11 Years Later

Penn Mar Mall



2nd Part

§192.325(b)
Underground
clearance

Each main must be installed with enough clearance ... to protect against damage that might result from proximity to other structures.



Steam Line

Plastic Gas Main

§192.319(b)(2)

Installation of Pipe in a ditch

When a ditch is backfilled it must be backfilled in a manner that prevents damage to the pipe from the backfill material.

Case study:

- ▶ The Operator's contractor installed a 4" plastic main with improper backfill material. About 2500' (about a ½ mile) of the newly installed 4" gas main was replaced and select backfill was brought in.



§192.319(b)(2) - Backfill in a manner that prevents damage to the pipe from the backfill material.

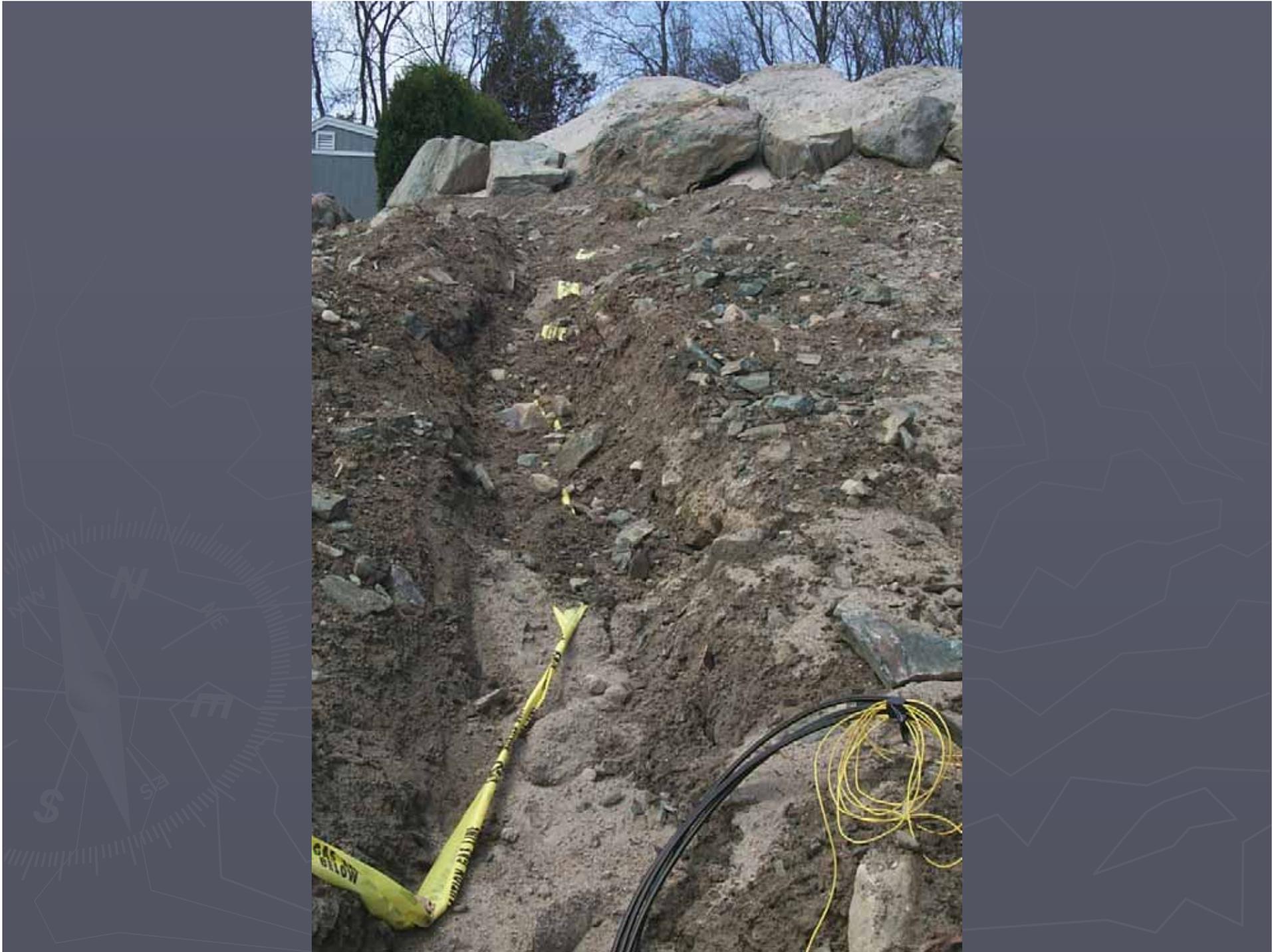




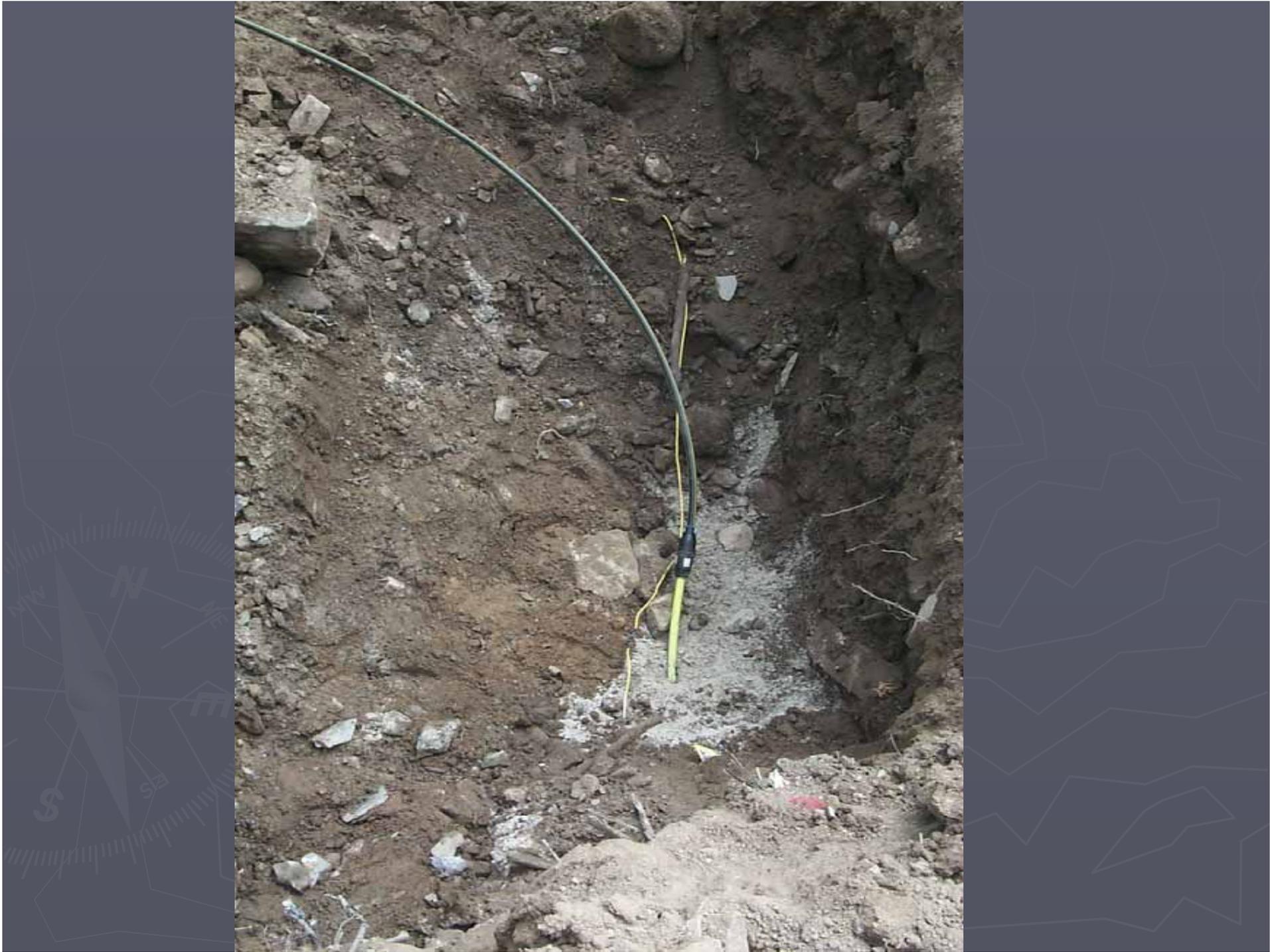












§192.605(b)(9) O&M Procedures

...Take adequate precautions to protect personnel from the hazards of unsafe accumulations of the vapor of gas.

Case study:

- ▶ The Operator was performing a tapping process without properly grounding the cutting tool. A failure of the operator to follow procedures.



§192.605(b) O&M Procedures

Failure to have adequate procedures for squeezing off a pipeline.

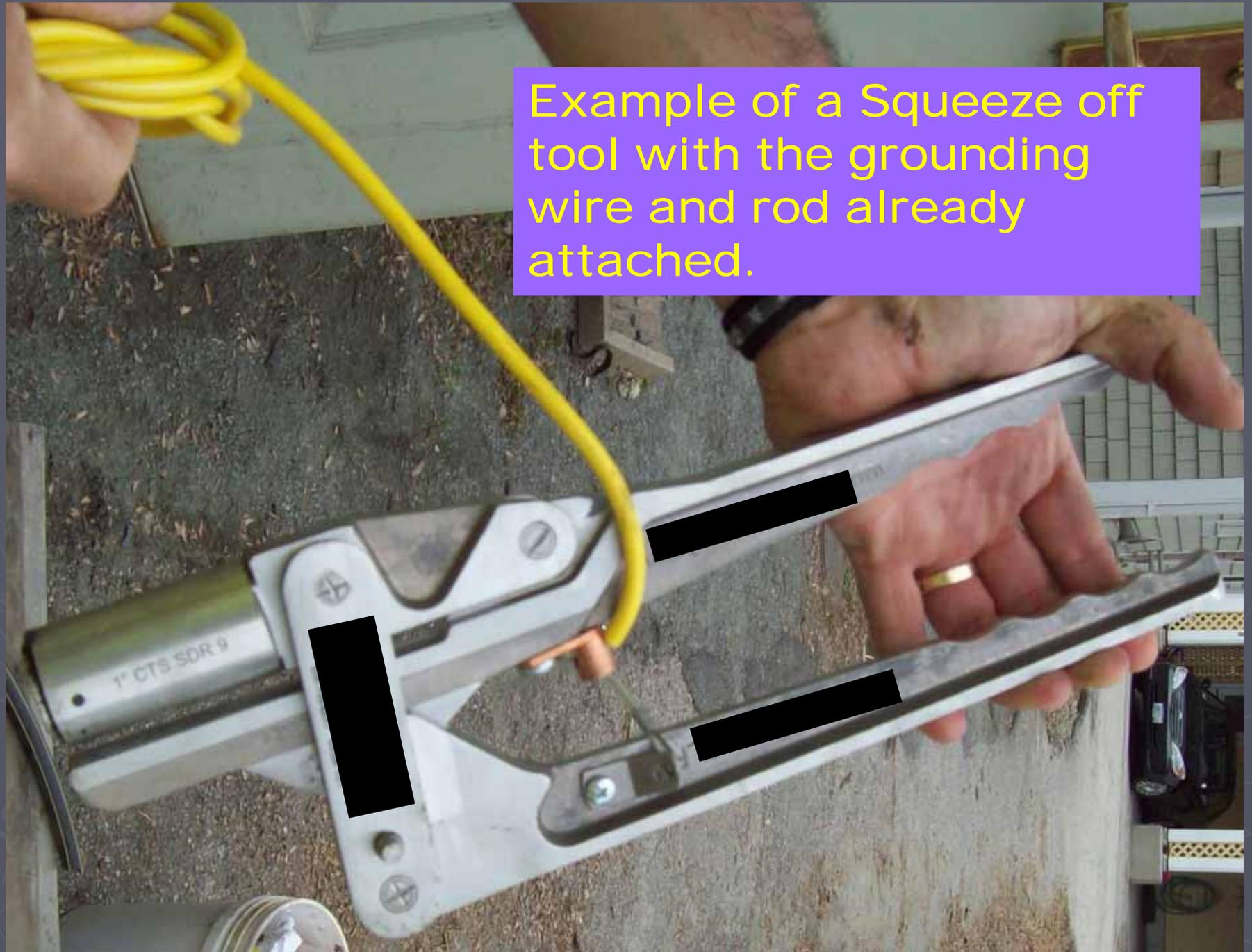
§192.605(b) - Failure to have adequate procedures for squeezing off a pipeline.



Industry Standards and Pipe Manufactures Recommend

- ▶ The squeeze off tool must be at least 3 pipe diameters, or 12 inches, whichever is greater, away from any butt fusion, or any socket, saddle, or mechanical fitting.

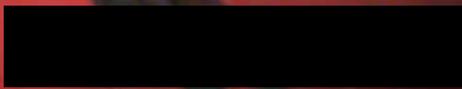
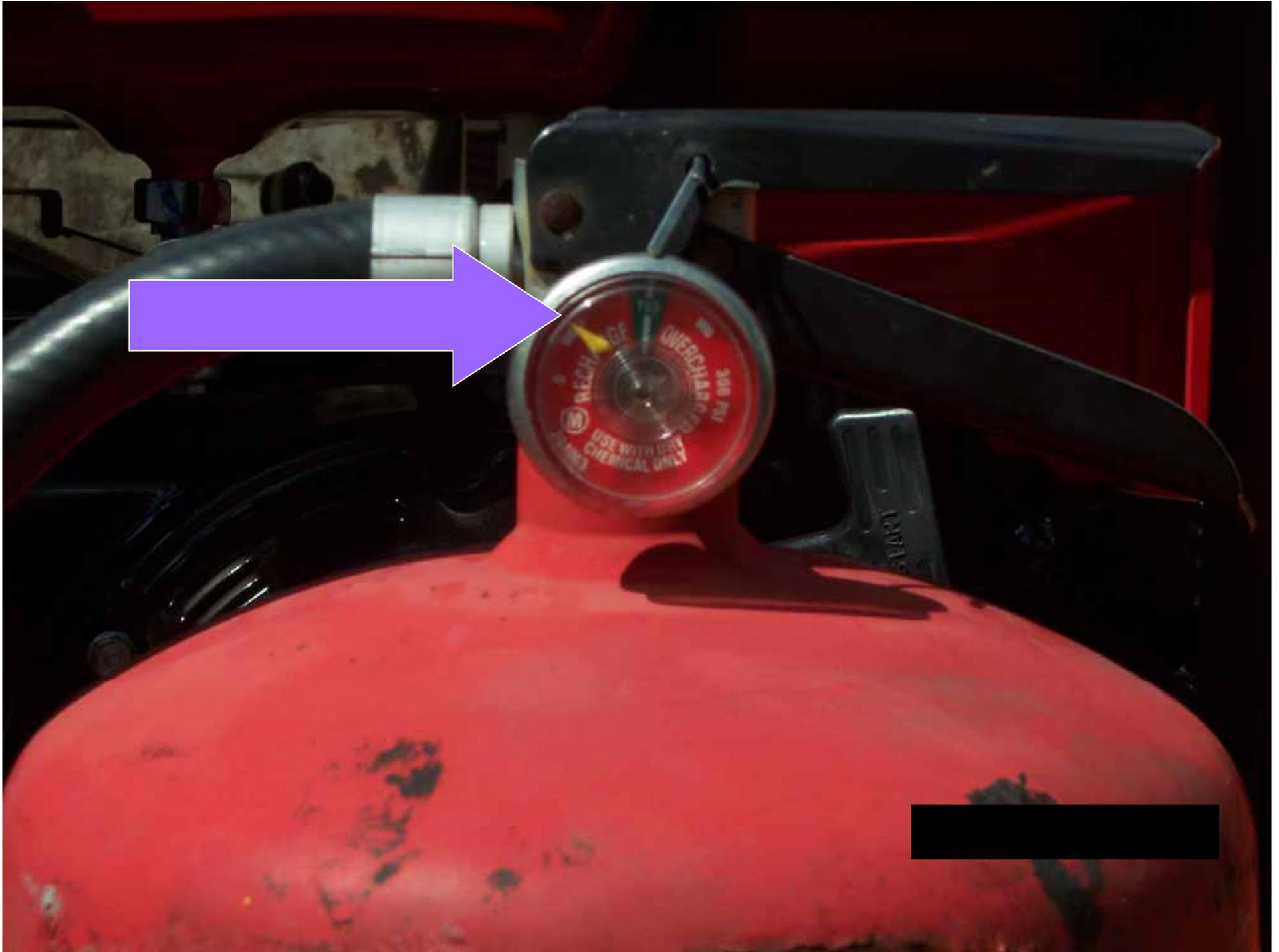
Example of a Squeeze off tool with the grounding wire and rod already attached.

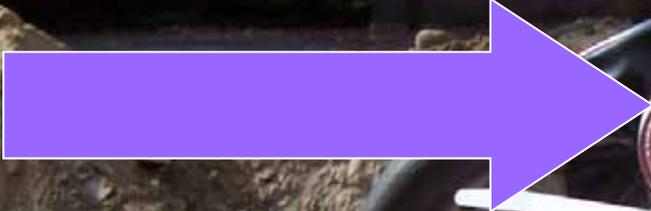


In closing, a final safety message.









FIRE EXTINGUISHER
PEMALL
DRY CHEMICAL MODEL PA 100T ABC-C
STORED PRESSURE

INSPECTION AND MAINTENANCE

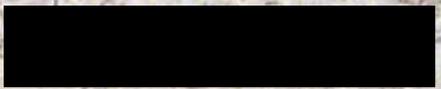
CAUTION

TO RECHARGE

Pem All Fire Extinguisher Corp.
304 North Street, Cranston, New Jersey 07914

UL LISTED
UNDERWRITERS
LABORATORIES

UL NO. J6526538





§192.321(e)

Installation of Plastic Pipe

Tracer wire may not be wrapped around the pipe and contact must be minimized, but is not prohibited.



Is this a violation?

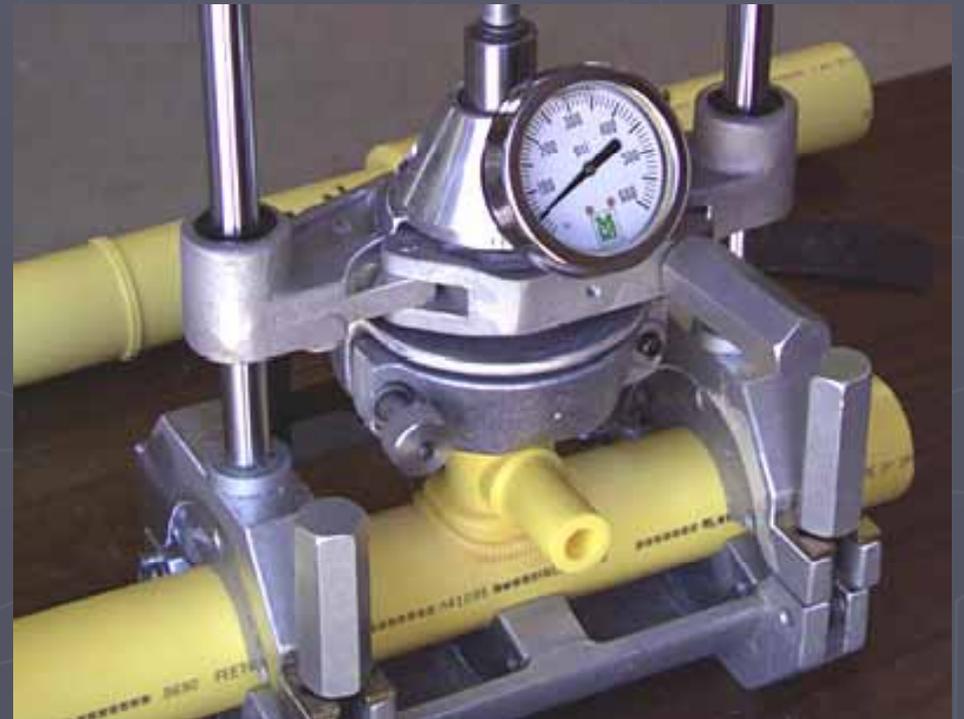
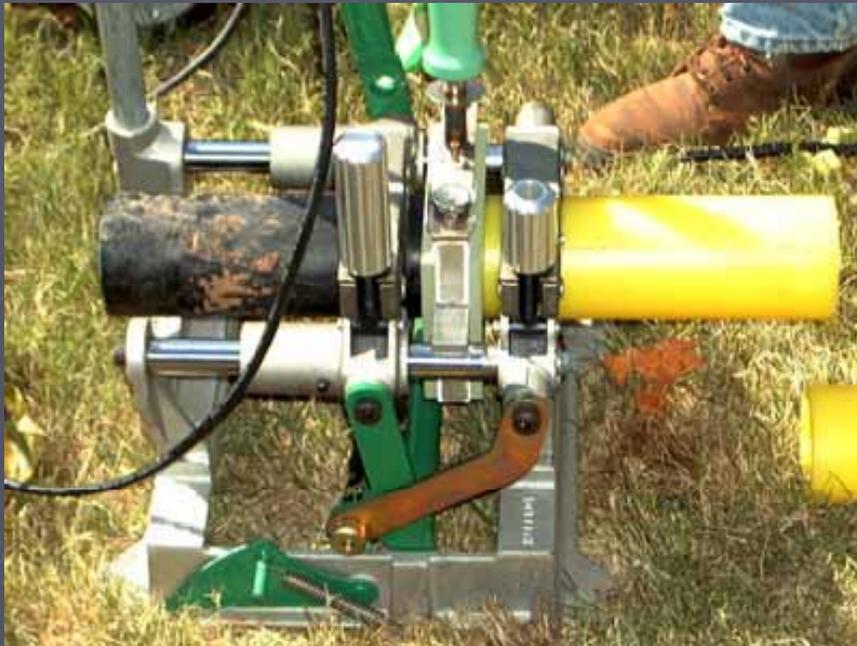
How is this line going to be marked?



§192.327(b) - Failure to install a main with at least 24 inches of cover.



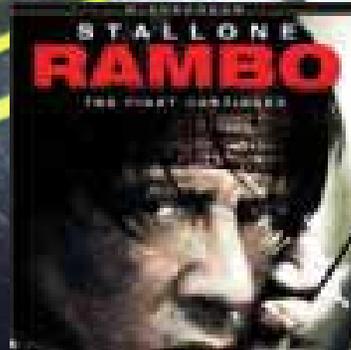
Special Tools

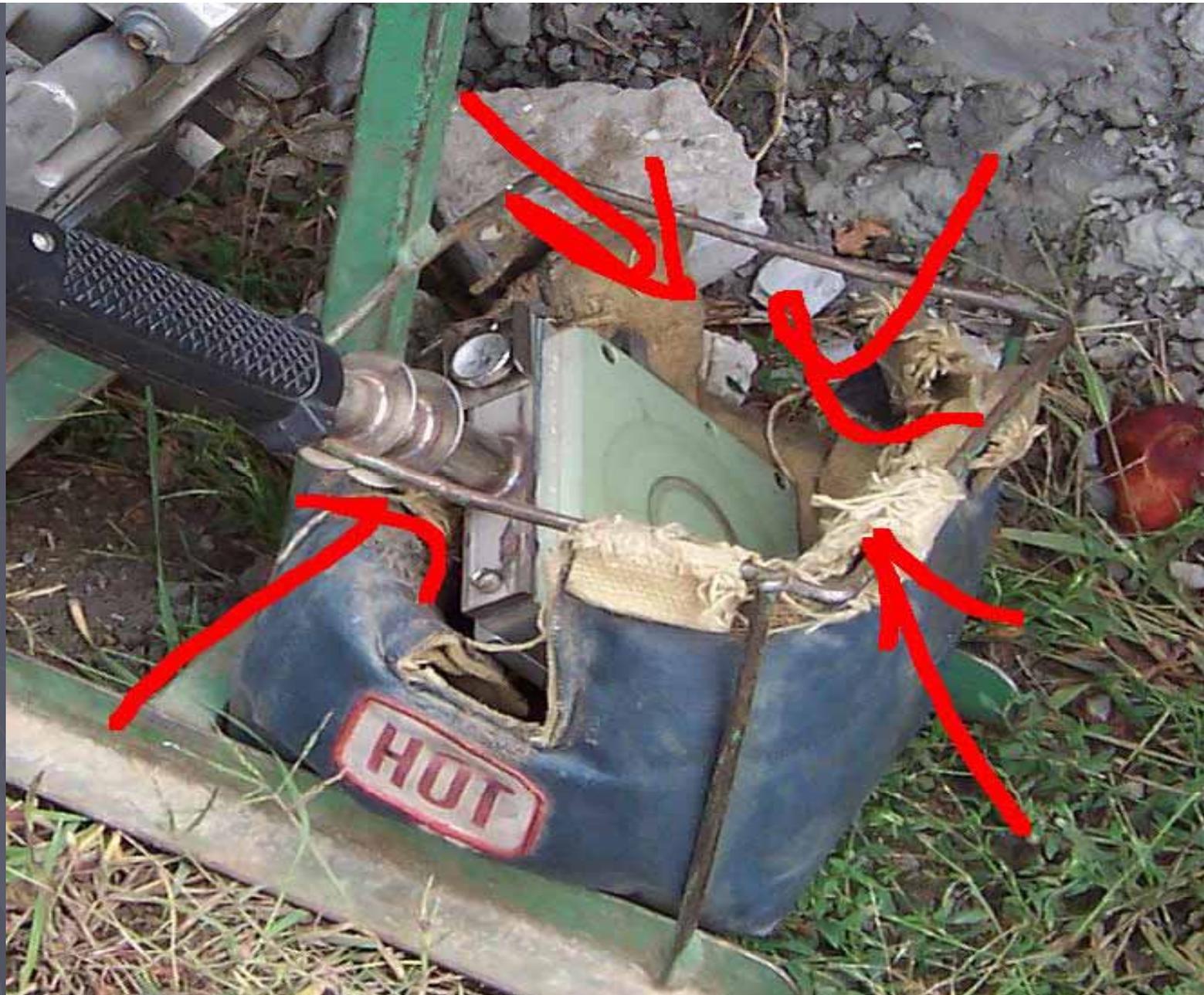


Special Fittings









Ripped heater bag and dirty heat plate.



Rusty facing blades, your prone to failure.





In conclusion:

The plastic gas pipe you install today should be around 100 years from now, 2110...

In conclusion:

Why is there not enough time to do it right the first time but enough time to come back and do it over again?

The End

