You Seeing This..?

A Collection of Interesting Finds

Presented by Inspectors Martin Salamonski and Israel Gray

We'll make this fun.

- We show you pictures
- We let you guess what's wrong
- We give you the answers
- Everyone feels like a genius

Ready? Let's start with an example..

What's wrong here?

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- Station protection did not stop the vehicle
- Resulted in damage to chart box, sensing lines, and relief stack
- Blowing gas, regulator station damaged
- Additional protection required (One example, bollards could be installed deeper).
- Take away: The importance of protection from traffic. Imagine how much worse this could have been!

Meter Installation Issues

Let’s start easy..


GAS COMPA
NUMBER
MAOP 5 P.S.I.
AMERICAN


TEMP. COMP.
CU. FT. AT 60°F
VIKING

52 PA Code § 59.18. Meter, regulator and service line location.

(8) Meters and service regulators may not be installed in the following locations:

(vi) In contact with soil or other potentially corrosive materials.

There is potential for corrosion from puddles after rain or salt during winter.

49 CFR §192.353 Customer meters and regulators: Location.

(a) Each meter and service regulator, whether inside or outside a building, must be installed in a readily accessible location and be protected from corrosion and other damage, including, if installed outside a building, vehicular damage that may be anticipated. However, the upstream regulator in a series may be buried.

It's a matter of time before that meter gets run over.

§192.357 Customer meters and regulators: Installation.

(a) Each meter and each regulator must be installed so as to minimize anticipated stresses upon the connecting piping and the meter.

This meter is held up by the connecting piping.

Meter Installation Takeaways

- Meters should not be touching the ground
- Meters should not be unprotected from traffic (where applicable)
- Meters should not be unsupported

Things operators could do:

- Include these issues in continuing surveillance procedures
- Meter readers, leak surveyors, one call locators – if they see issues, they could report it.

Did someone say continuing surveillance?

Continuing Surveillance

- Plastic main undermined and exposed to the elements
- Leak survey, valve maintenance, and one call records show crews were in the area while this was going on
- All this time, nobody thought to say anything

- This was a pre-code installation
- That doesn’t mean you should ignore it though
- Could be remedied with additional supports, e.g. a steel beam running across with pipe supports
- Think of falling trees, high water levels, etc.

- Similar situation here
- What on Earth is this?
- Could use supports

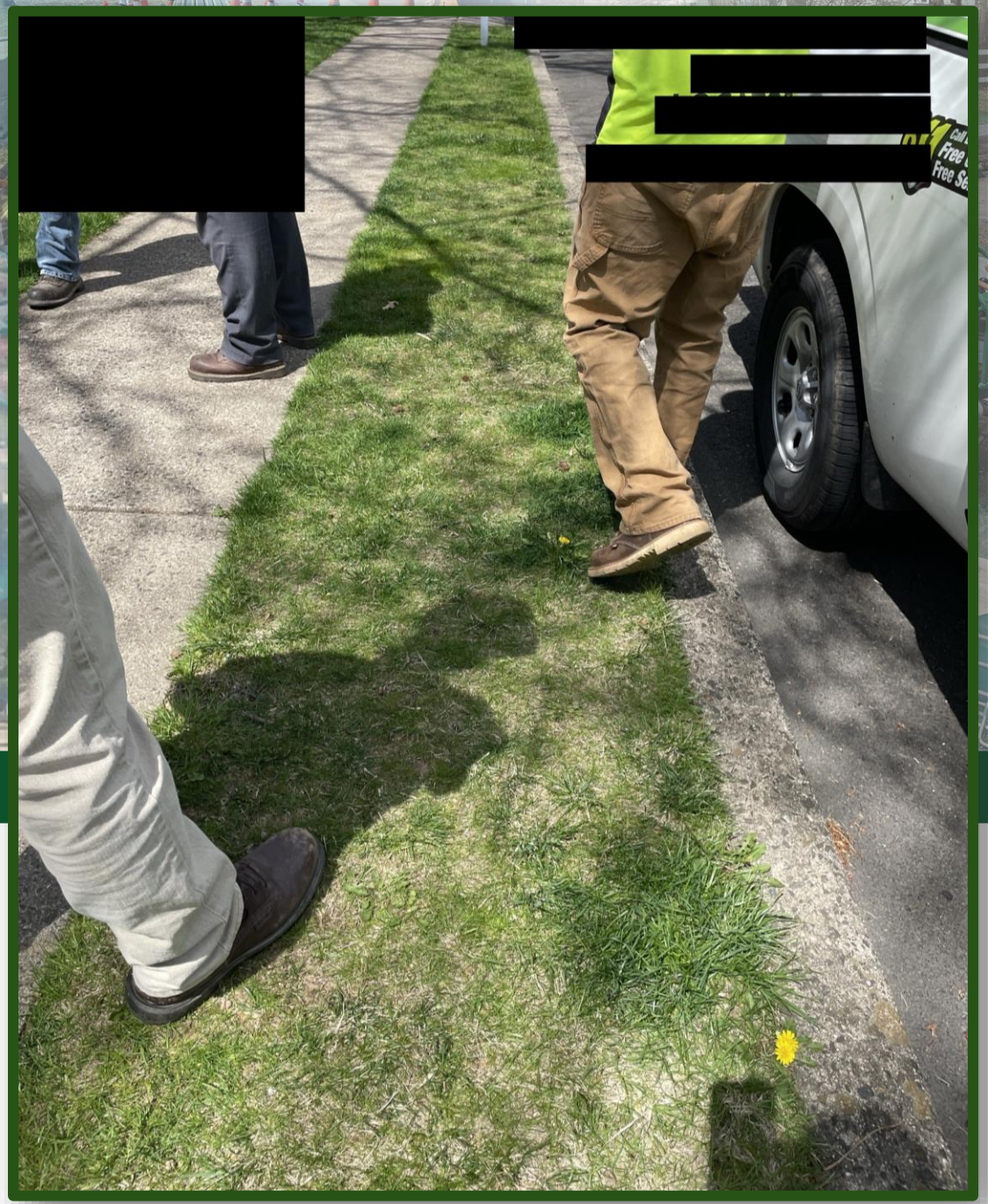
- Another pre-code installation
- Peeling coating
- Corrosion risk
- Patrols are meant to catch this early

Continuing Surveillance Takeaways

- Easy for people to stay focused on the current task at hand, e.g. valve maintenance
- Important to look at the big picture and note any other problems, even when irrelevant to the task at hand
- If you see something, say something!

But wait! There’s more..

One Call Mark Outs



Or in this picture, a lack thereof..

The Master Plan:

- Hydraulic hammer to break up asphalt
- Remove asphalt
- Work on main

Why do you think we are here today?

Oops!

- Facilities were marked
- Crew looked at maps, saw the main was going up and over a sewer, and thought the main was much deeper
- Crew used mechanized equipment in the tolerance zone and found out about prudent digging techniques the hard way
- This was a pre-code install; main was so shallow that it would have been hit with a sawcut, too

Pause – what can you even do to dig prudently in a situation like this?

- You may dig test holes next to the facility
- You may use jackhammers and digging bars to break up the asphalt
- Never use depth provided on a record to gauge whether it's safe to excavate with heavier equipment until the facility has been found – records can be wrong!

- Offset mark: 2” Stl [gas company]
- OK – But how far back?

- No yellow flags
- No facility info (size, material, etc.)

Another example:

Let me enhance this a little for you..

Where's the main??!

PAPUC

deep breath *exhale*

One Call Mark Out Takeaways

- One Call Mark Outs seem to be the simplest things, but are so, so important to get right.
- Make sure you have very detailed procedures, example diagrams, and make explicit that every locator is to follow this process and format – so all locates from all locators are standardized and look the same.
- Audit yourselves – don’t wait for the PUC! Check in on previously marked tickets.

Alright, moving along..

Regulator Station Issues

Hmm..

Wood you look at that!

§192.161 Supports and anchors.

(c) Each support or anchor on an exposed pipeline must be made of durable, noncombustible material [...]

Not good..

- Atmospheric corrosion
- Corrosion at pipe to soil interface
- Riser installed in such a way that water pools at the base

- Example of corrosion at pipe to soil interface
- Pooling water accelerates corrosion

Alright; how about this one?

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If that sensing line goes, the whole station goes.

Single sensing line supplying both regulators

§192.199 Requirements for design of pressure relief and limiting devices.

Except for rupture discs, each *pressure* relief or pressure limiting device must:

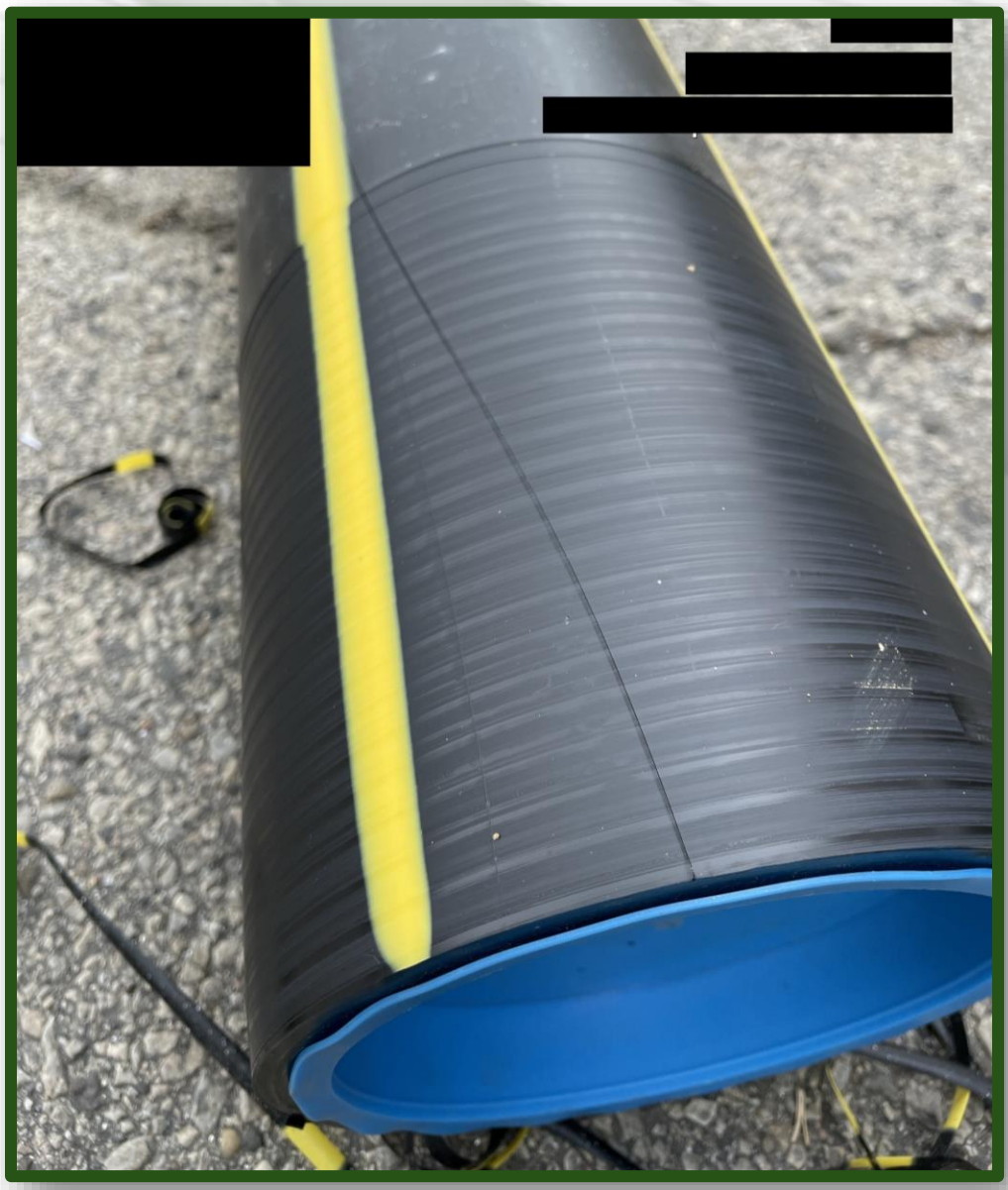
(g) Where installed at a district regulator station to protect a pipeline system from overpressuring, be designed and installed to prevent any single incident such as an explosion in a vault or damage by a vehicle from affecting the operation of both the overpressure protective device and the district regulator

Regulator Station Takeaways

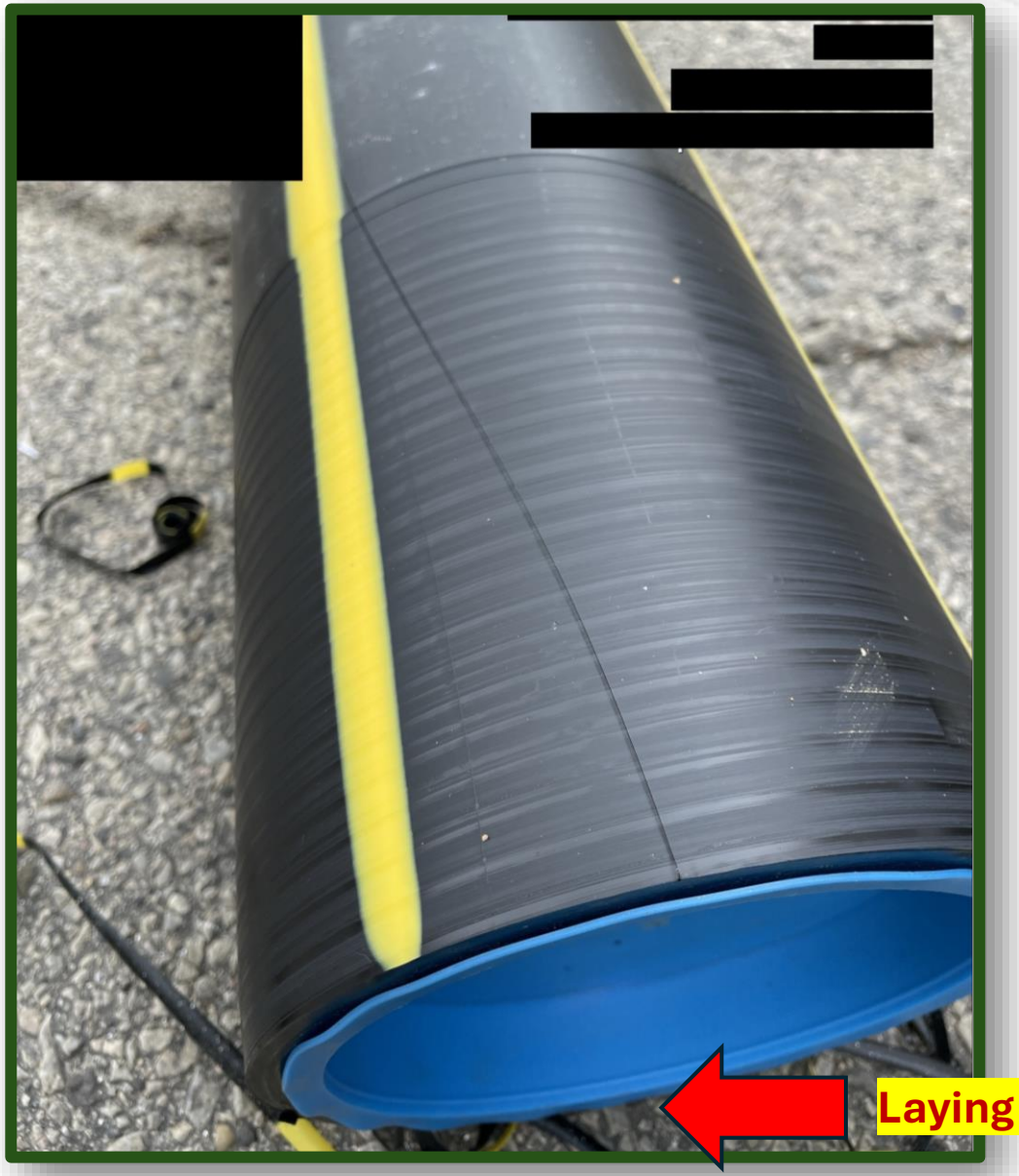
- Don’t just replace soft goods, check lock-up, and leave – take a good look!
- Look for corrosion
- Look over configuration – does the design make sense?
- Look for missing locks, flammable materials, trash, vegetation
- Look at the fencing/enclosure
- Look at the signage
- Make sure everything’s in tip-top shape

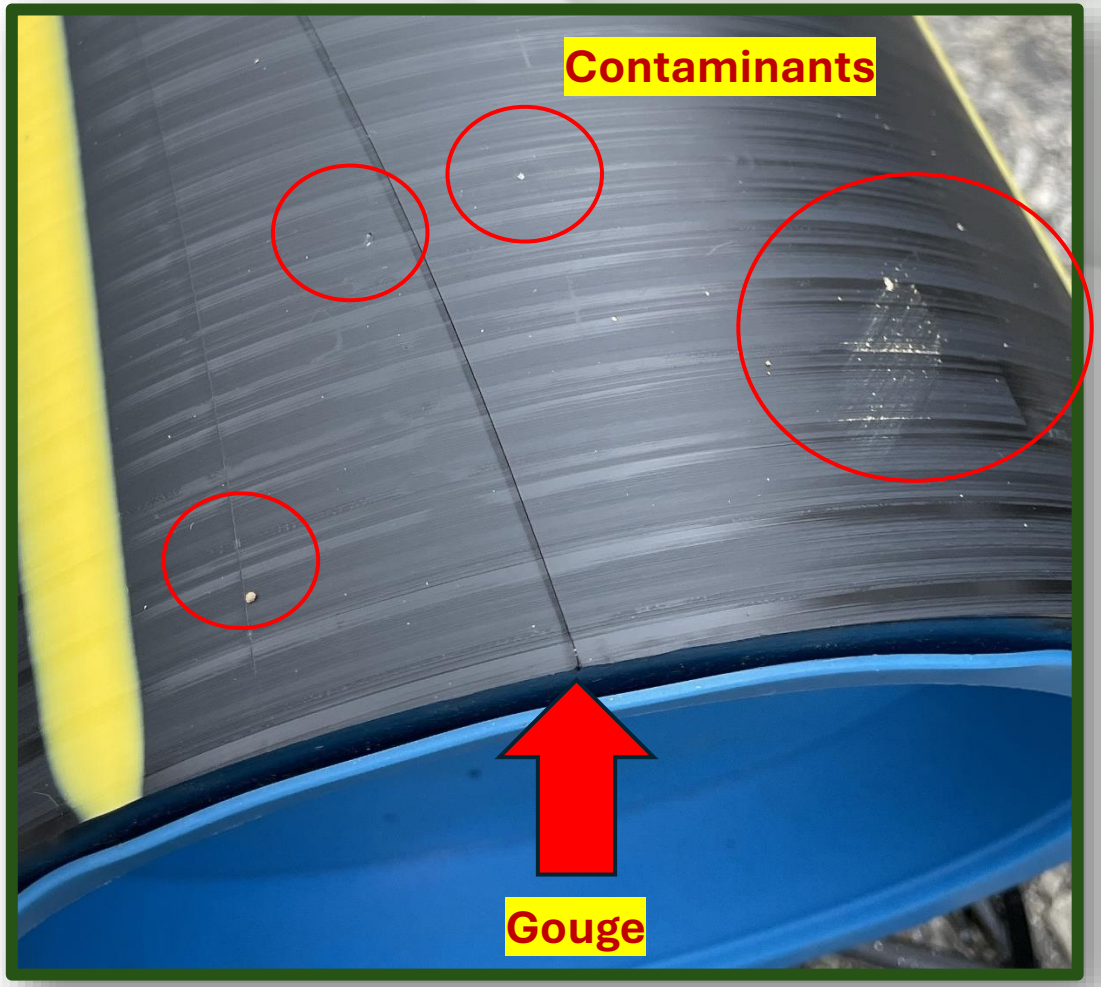
How about some

Plastic Fusion and Installation Issues



This is what's called "advance scraping" - a move where you "save" a minute down the road by wasting a minute beforehand and ruin all your work. (People think it's easier to prep outside of the trench and put things together later. But it's very wrong.)





Now this is interesting!

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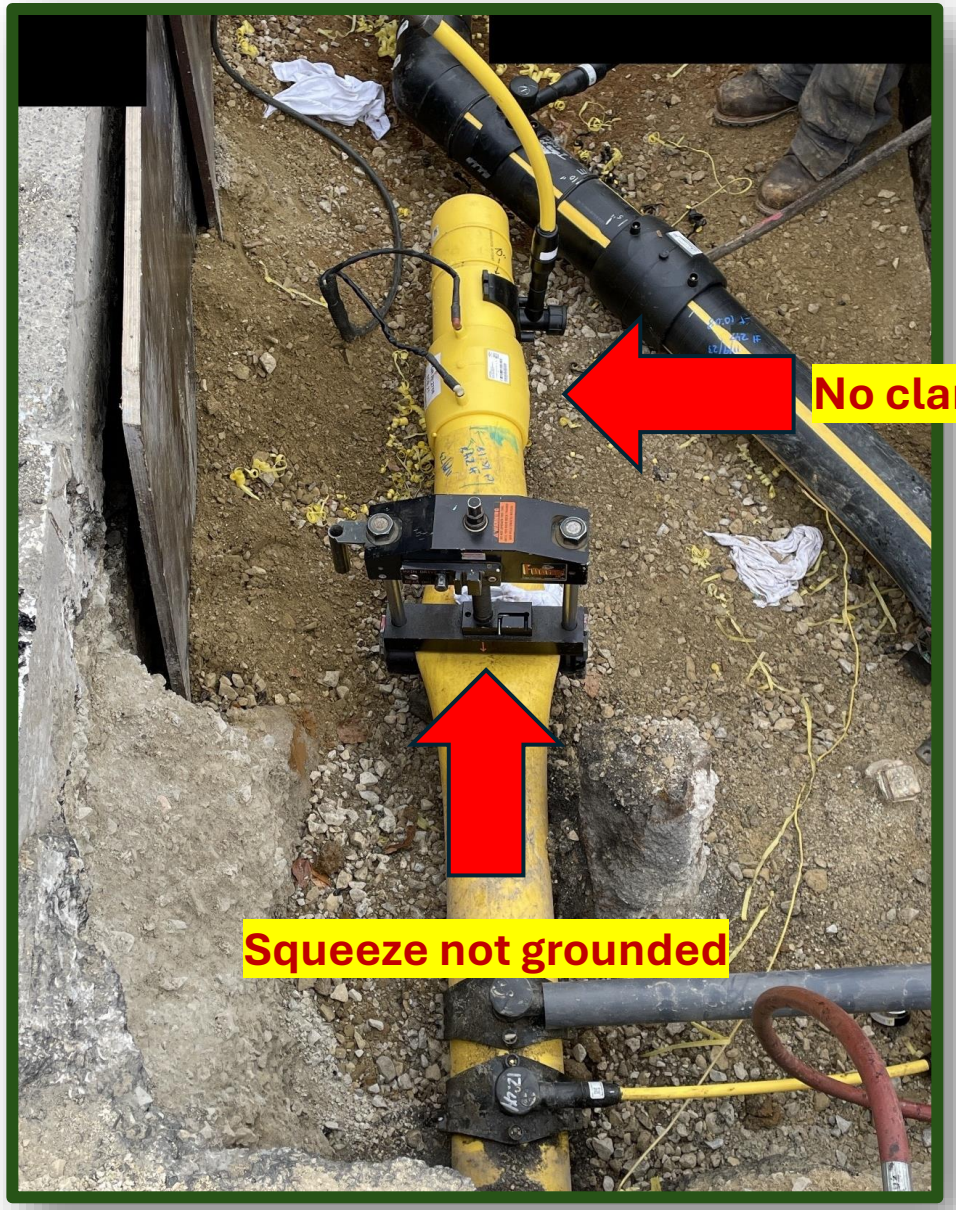
- Typically, company procedures state you must use clamps, not a whole excavator
- When the copper coils in the electrofusion couplings get hot, the plastic melts
- Molten plastic is soft, gooey, and slippery
- You are ruining the fusion by introducing an external force


No clamps
Squeeze not grounded


Crew did not have a functional clamp


Resulting fusions (mitered)

Hey, wait a minute..

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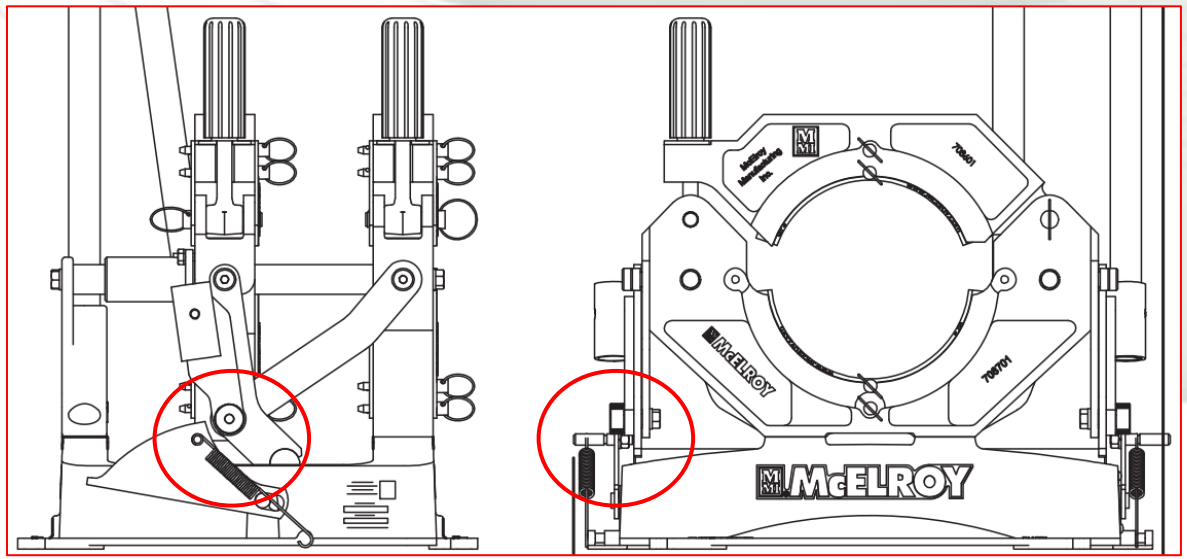

This machine is missing parts!

§192.756 Joining plastic pipe by heat fusion; equipment maintenance and calibration.

Each operator must maintain equipment used in joining plastic pipe in accordance with the manufacturer's recommended practices or with written procedures that have been proven by test and experience to produce acceptable joints.


And this one’s in the air, unsupported..

Ah, here’s the thing..

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- Federal code says you have to follow company procedures
- Typically, company procedures state that once you prepare the surface for fusion, you should not let the scraped area make contact with any contaminant
- This would be contaminating that prepared area

On a similar note..

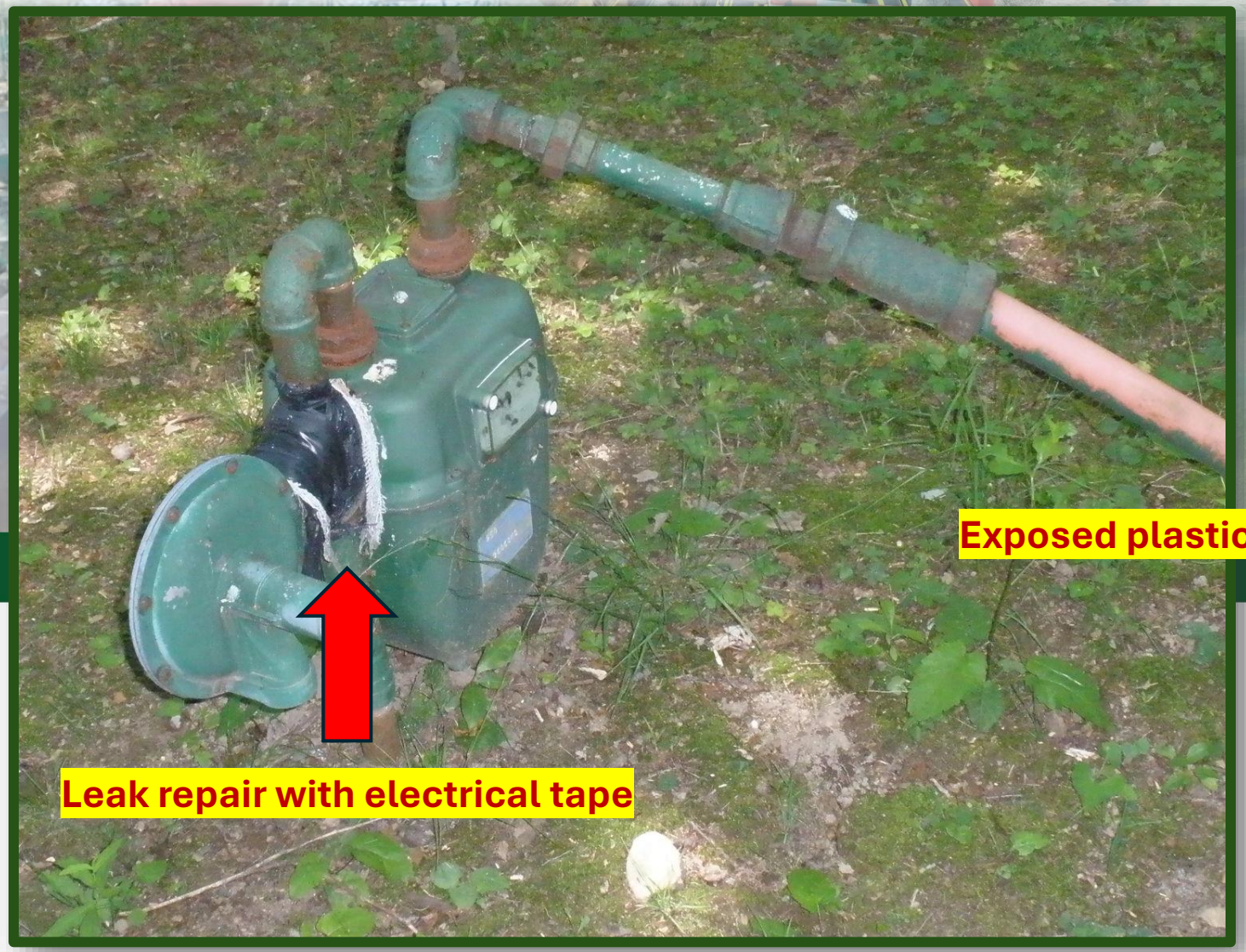
- Embossed print line on pipe
- Mud in the print line
- Surface scraped once, mud still in print line
- Fusion made over the muddy print line

Plastic Fusion and Installation Takeaways

- Plastic is a fantastic material – you can cut and fuse in any configuration you need, almost like playing with Legos
- However, it must be done right!
- Common issues revolve around taking shortcuts and saving time – advance scraping, skipping over using clamps, trying to make multiple fusions at once, not removing strands when scraping, etc
- Complacency is a factor, too – for example, forgetting to inspect equipment because it always works
- Go out in the field with the procedures and audit/inspect yourselves. Just because personnel are qualified does not mean they are not taking shortcuts.

Rapid fire

Honorable Mentions



Above ground plastic piping, wrapped in electrical tape to fix a leak (Hint: it didn't work)

Vehicle exhaust damage to plastic main after it had been prepared to be moved to the trench for installation – always inspect pipe again before installation!

§192.235 Preparation for welding.

Before beginning any welding, the welding surfaces must be clean and free of any material that may be detrimental to the weld, and the pipe or component must be aligned to provide the most favorable condition for depositing the root bead. This alignment must be preserved while the root bead is being deposited.

A metal plate and a pipe stand would have been so much better..

Bad welds

No way this passes visual inspection..

[Applause Please]

- We moved quick through these slides, but they should be available online after the conference
- You are encouraged to use these slides and photographs to bolster company procedures and training

Thank you!