



# **NTSB Findings & Recommendations West Reading, PA candy factory explosion**

2026 Wisconsin Pipeline Safety Seminar  
Joe Murphy, PSC of Wisconsin

- Incident Overview and Background
- NTSB investigation findings – probable cause and other key findings
- NTSB Recommendations



## UGI Corporation Natural Gas-Fueled Explosion and Fire

West Reading, Pennsylvania  
March 24, 2023

# Location and Setting

**R.M. Palmer Company**  
is a chocolate candy  
manufacturer in West  
Reading, PA



# Location and Setting



R.M. Palmer Company **before** the explosion

# Explosion and Fire: Mar 24, 2023



- 7 people were killed in the explosion. All were employees of the Palmer Company
- 10 injured (4 of these serious)
- 3 families displaced

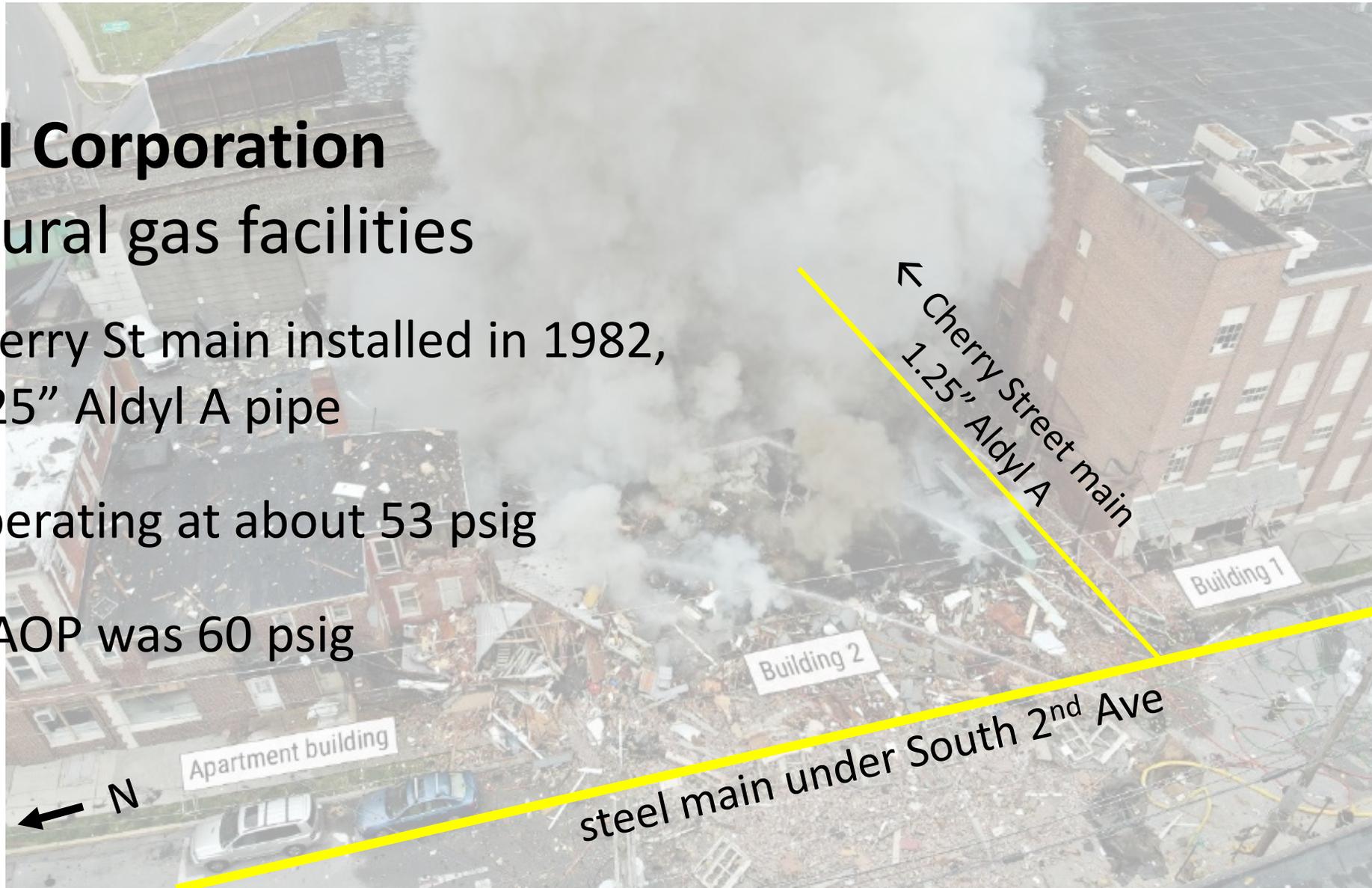
- Palmer Building 2 destroyed
- Apartment building next-door sustained significant structural damage as did Palmer Building 1
- Estimated \$42 million in property damage

# So, how did this happen?

- Before we get into the incident cause, some background...
- **UGI Corporation** owns and operates the natural gas pipeline in the area serving the Palmer factory

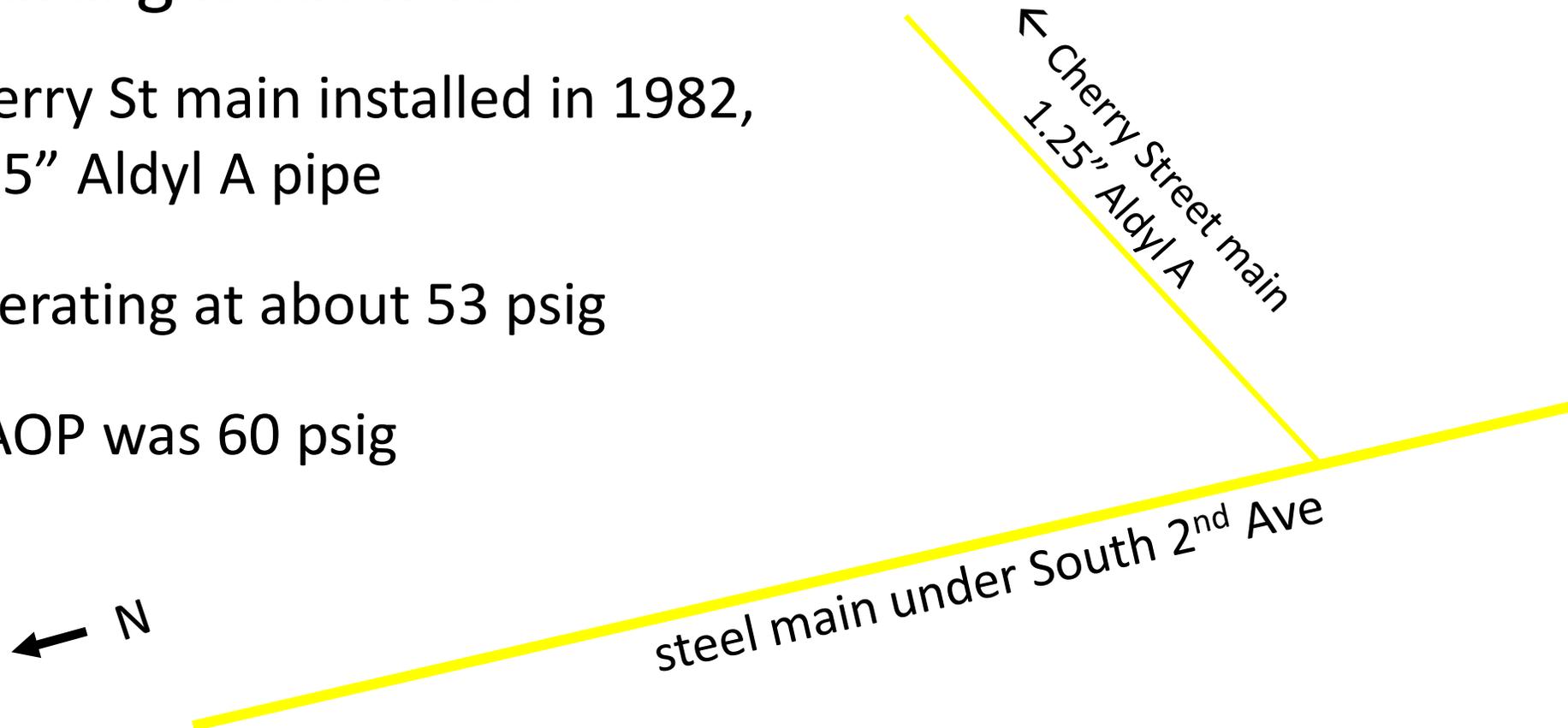
## UGI Corporation natural gas facilities

- Cherry St main installed in 1982,  
1.25" Aldyl A pipe
- Operating at about 53 psig
- MAOP was 60 psig

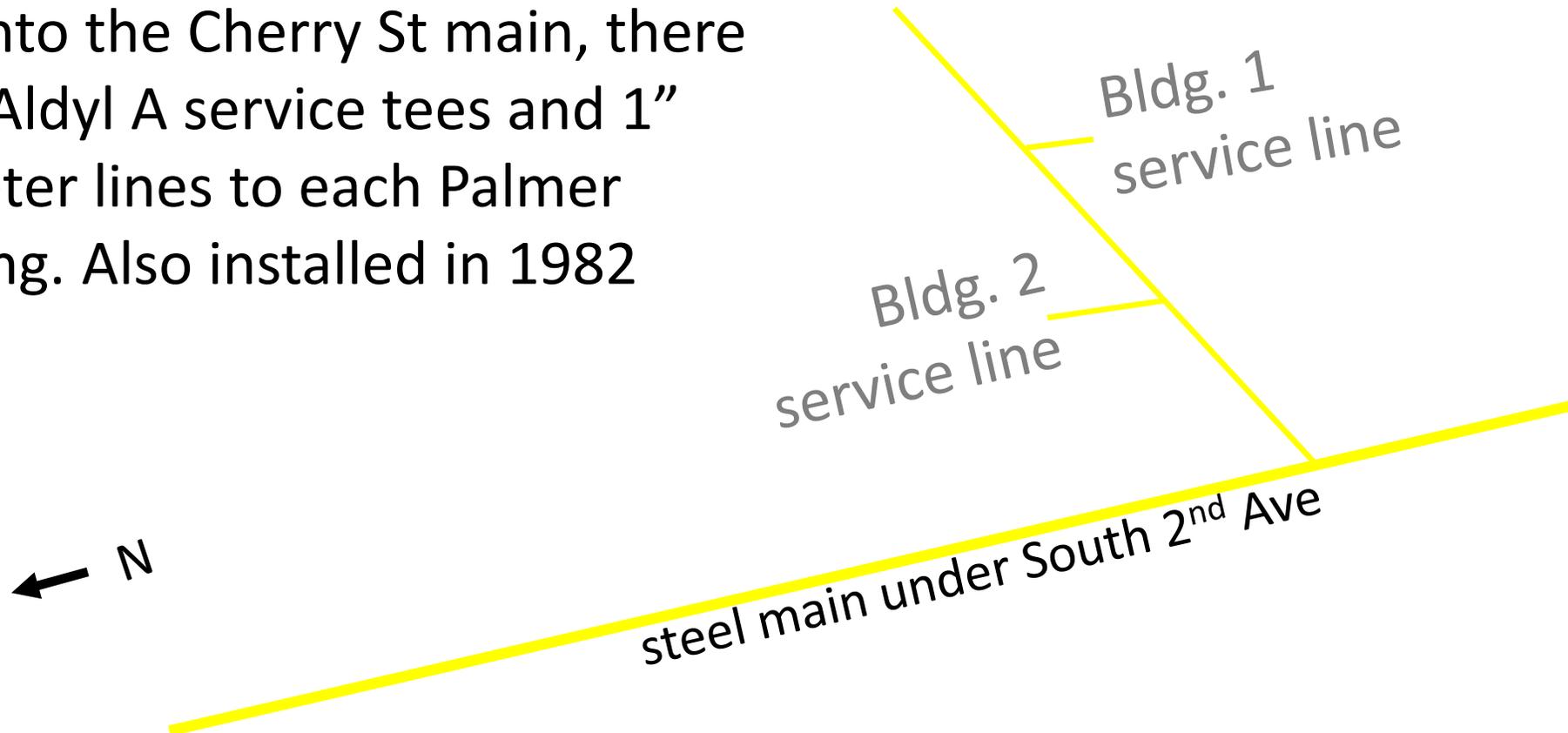


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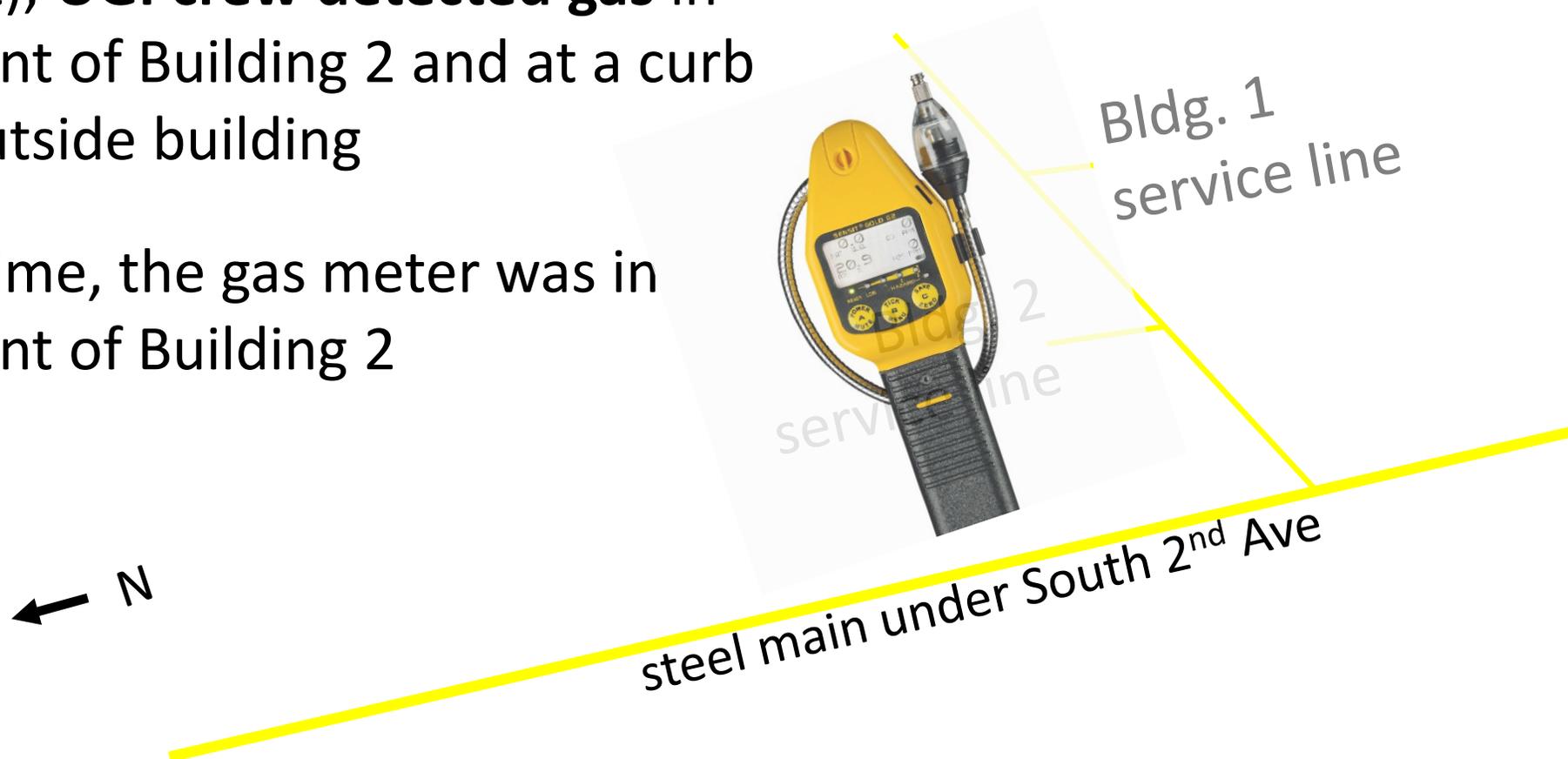


- Tied into the Cherry St main, there were Aldyl A service tees and 1" diameter lines to each Palmer building. Also installed in 1982



# Incident Background – Meter Inspection

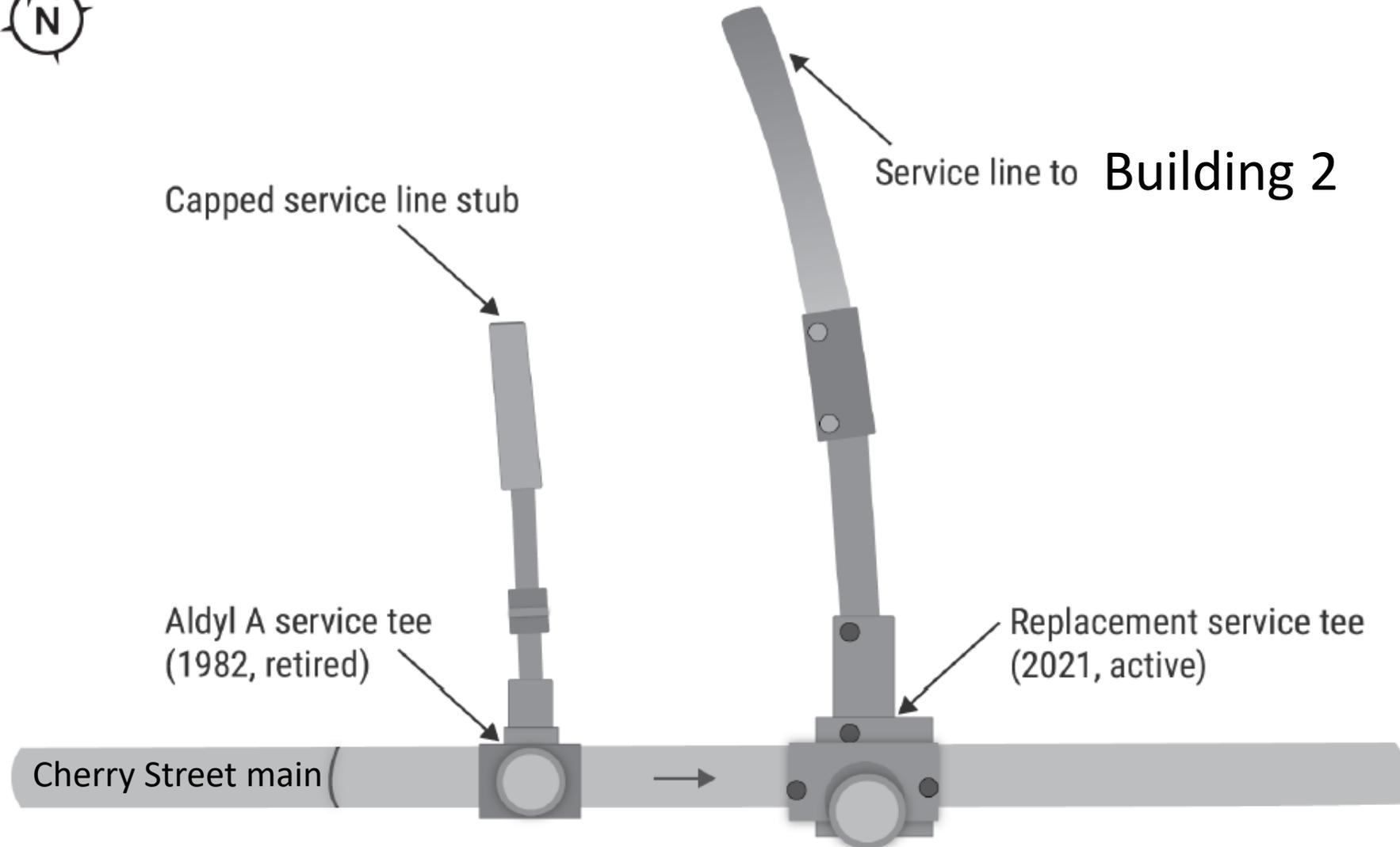
- During a meter inspection in February of 2021 (two years before the incident), **UGI crew detected gas** in basement of Building 2 and at a curb valve outside building
- At the time, the gas meter was in basement of Building 2



- As required by UGI procedures this grade of leak called for immediate attention, so UGI replaced the service line, service tee, and moved the meter from basement of Building 2
- As part of this process, the old Aldyl A service line and tee from 1982 was cut and capped and the stub left in place



# Service Line & Tee Replacement - 2021



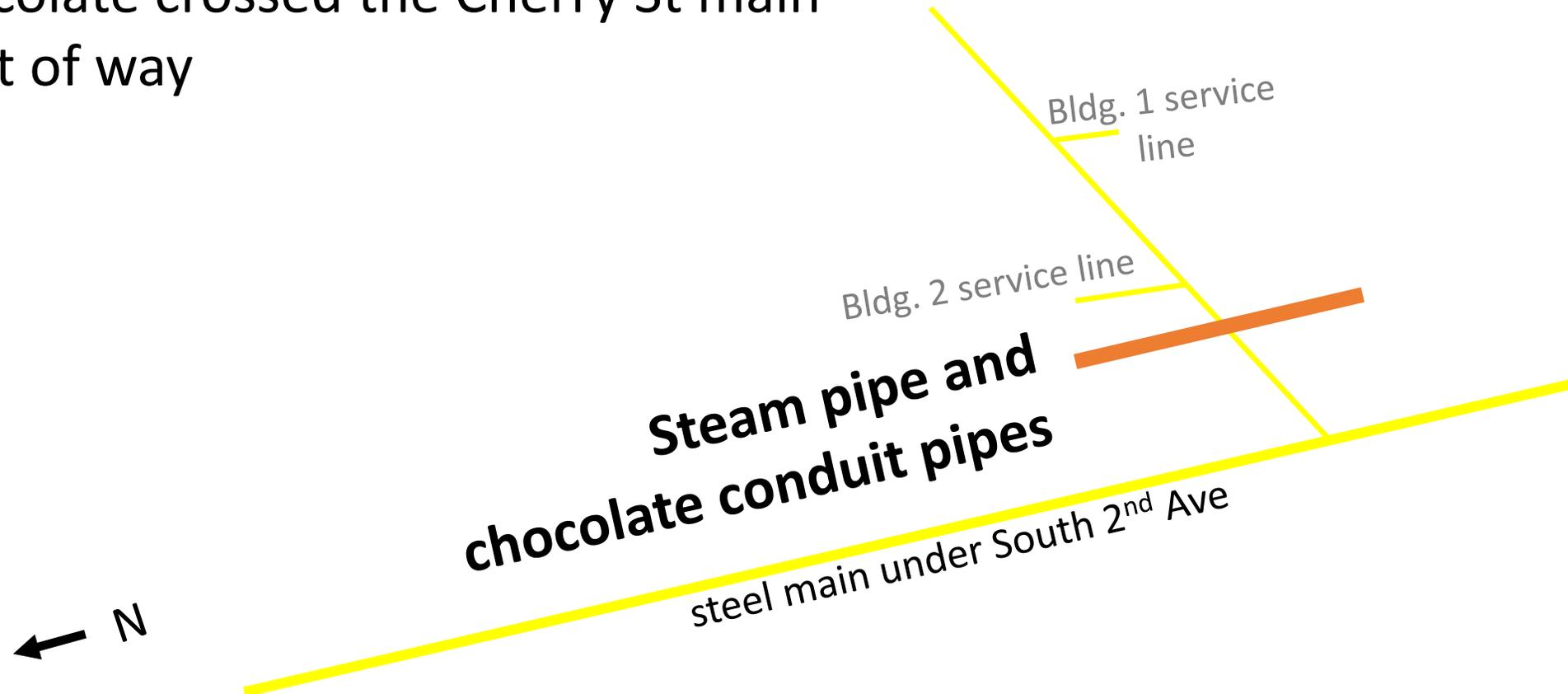
# “The rest of the story...”

- What key piece of information have I **not** told you yet?

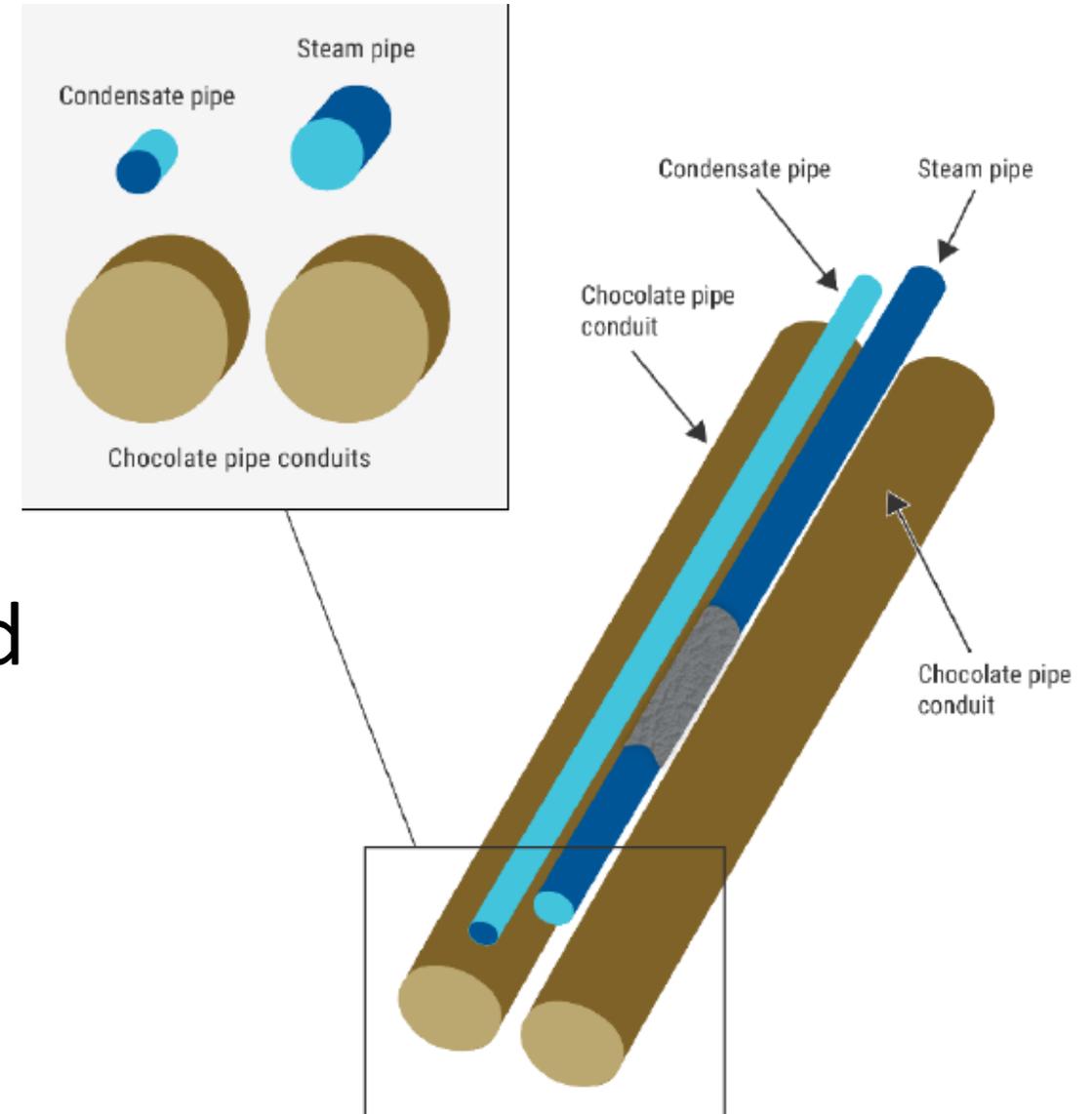
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**ANSWER: STEAM PIPE**

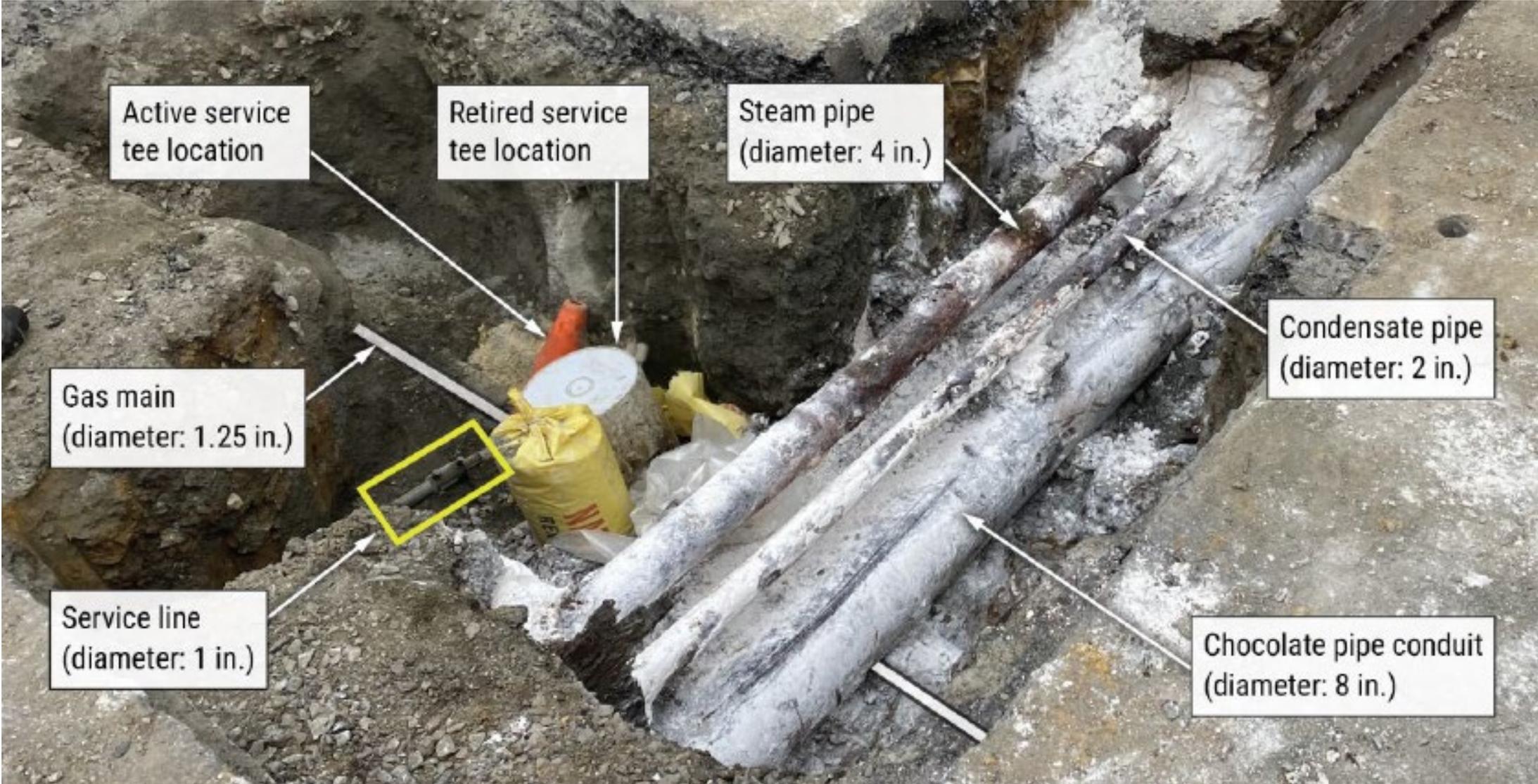
- Palmer-owned pipes carrying steam, condensate, and conduits for chocolate crossed the Cherry St main right of way



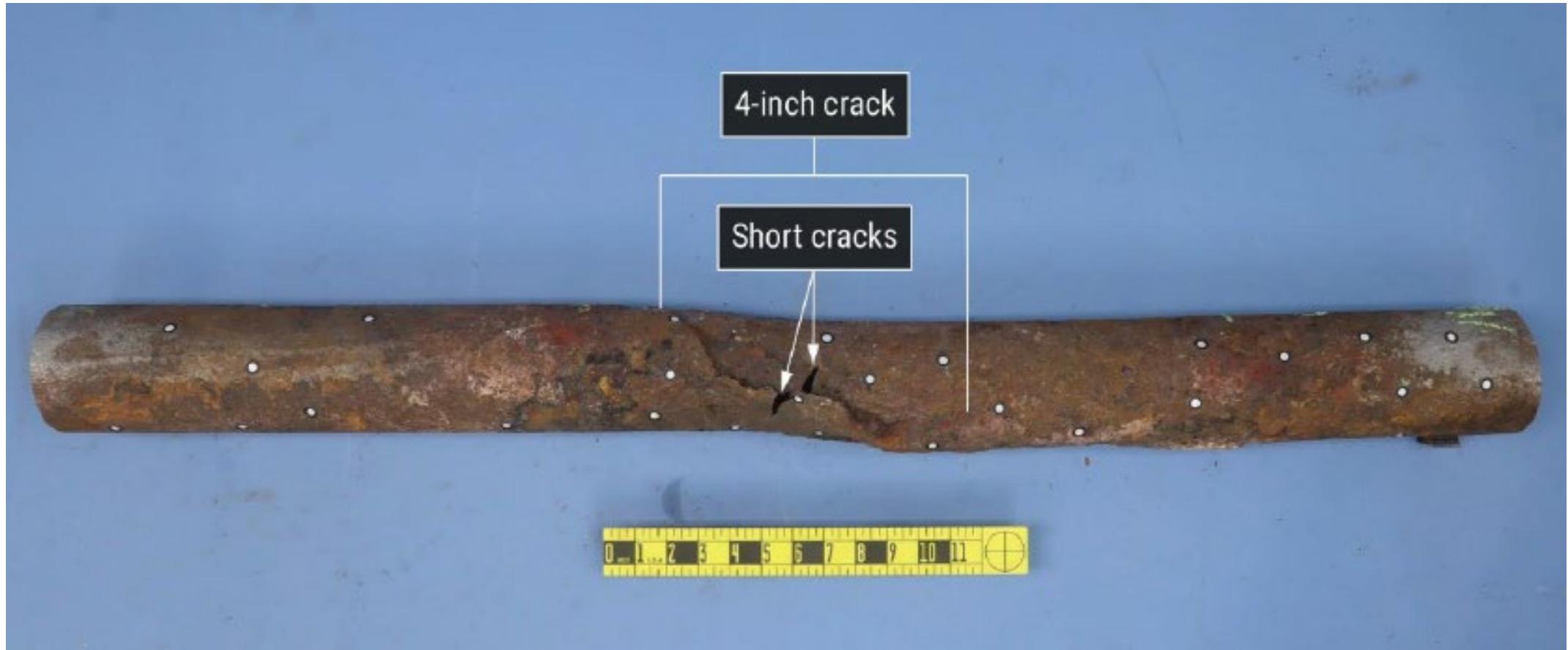
- Steam was used for heating the two Palmer buildings
- Chocolate pipe conduit carried smaller pipes for candy production



# Palmer Pipes

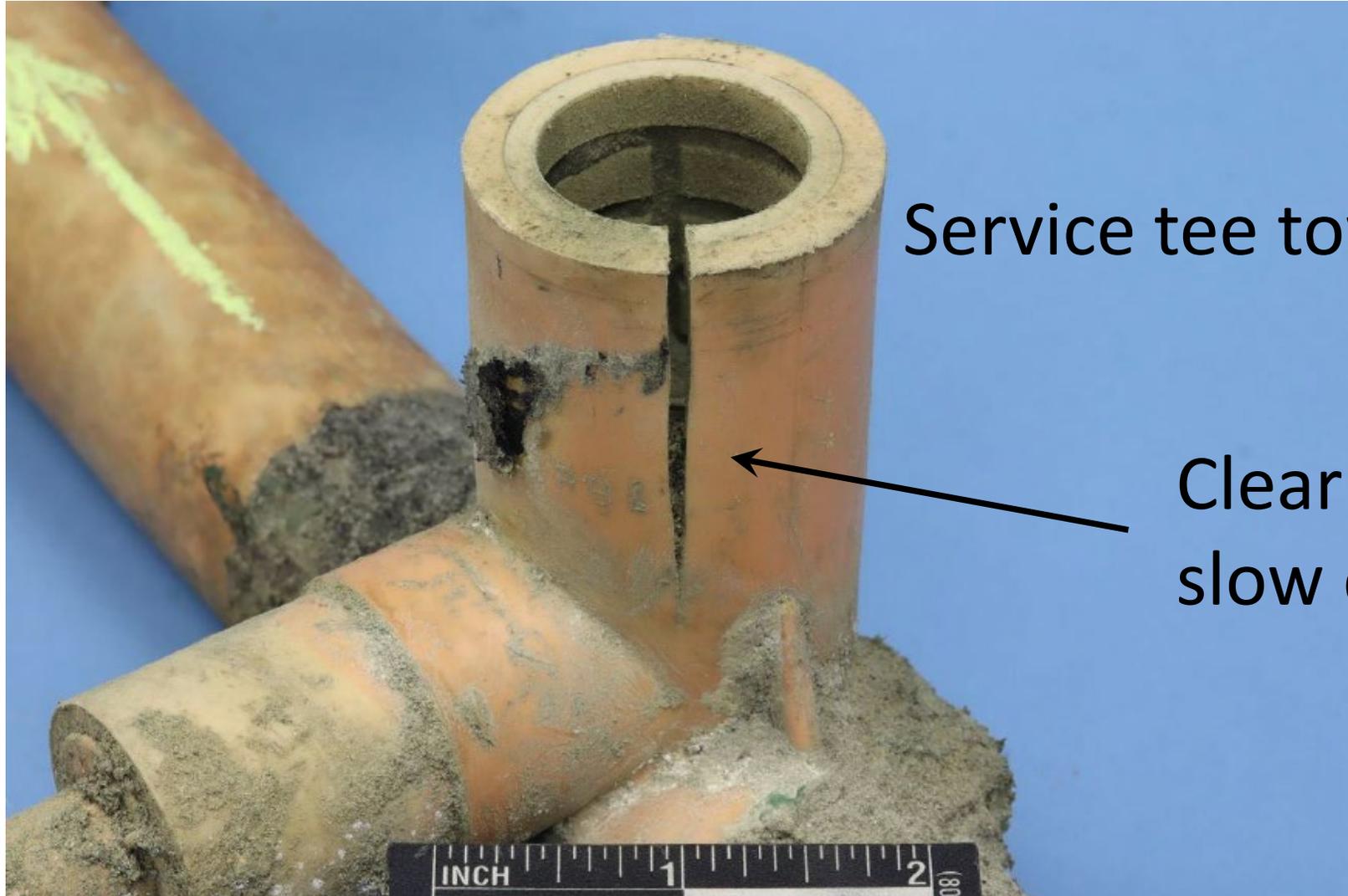


# Palmer Pipes – cracked steam pipe





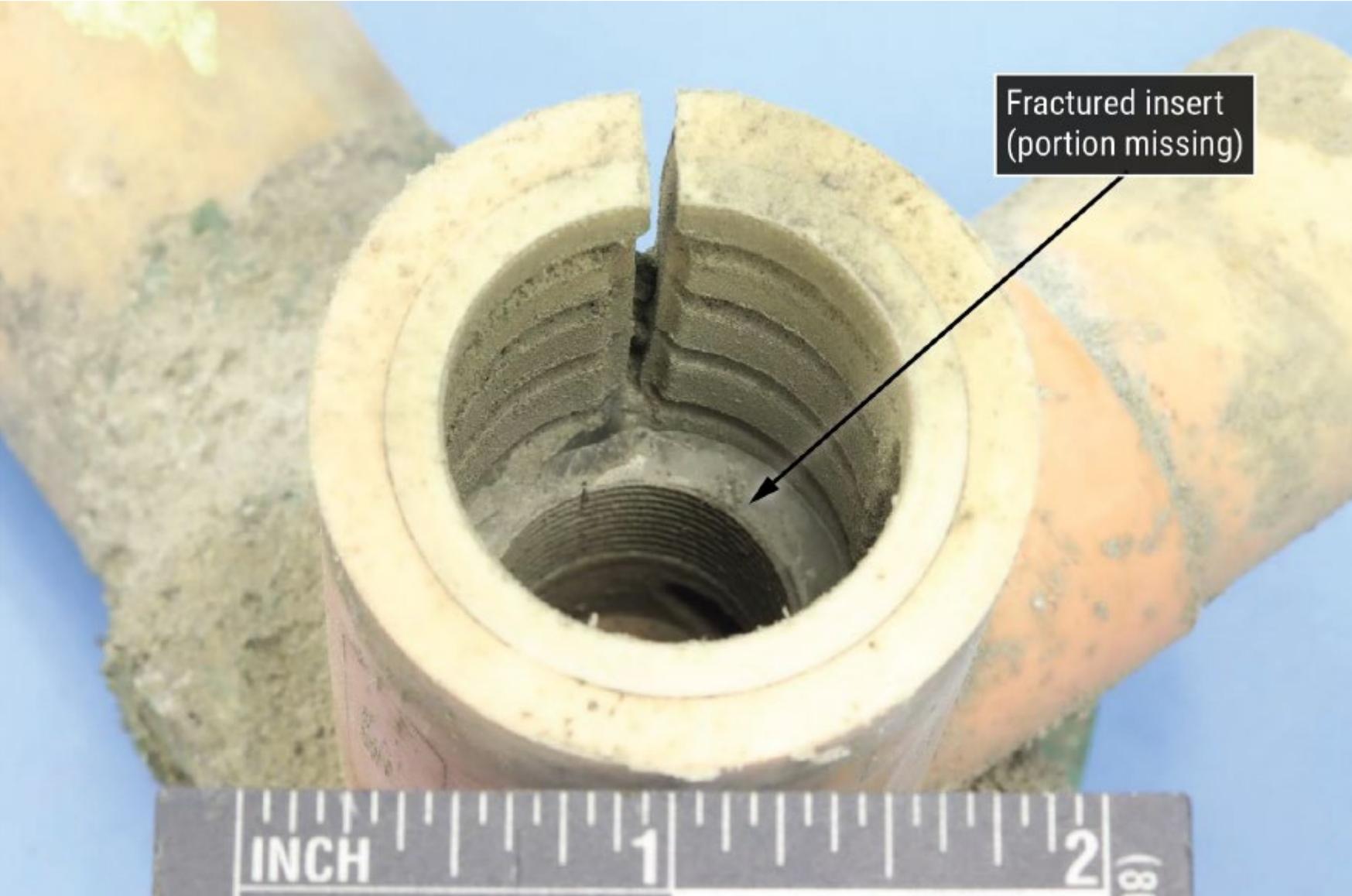
Retired Aldyl A Service Tee  
with Delrin insert



Service tee tower

← Clear evidence of  
slow crack growth

# Incident Cause – NTSB Lab Analysis



- The NTSB determines that the probable cause of the explosion was degradation of a retired 1982 Aldyl A service tee with a Delrin insert
- This failure allowed natural gas to migrate underground into the R.M. Palmer buildings where it was ignited by an unknown source

- The retired service tee failed due to elevated ground temperatures from steam escaping R.M. Palmer Company's corroded underground steam pipe, located near the retired service tee.
- The steam pipe had been unmarked and cracked.

- Through interviews with Palmer employees and a review of surveillance footage, investigators found that **there was about 15-25 minutes** from first report of gas odor in the Palmer buildings until the explosion happened.
- Around 4:30 pm, employees in and around Buildings 1 and 2 began to smell natural gas odors, and some reported the smell to their supervisors.

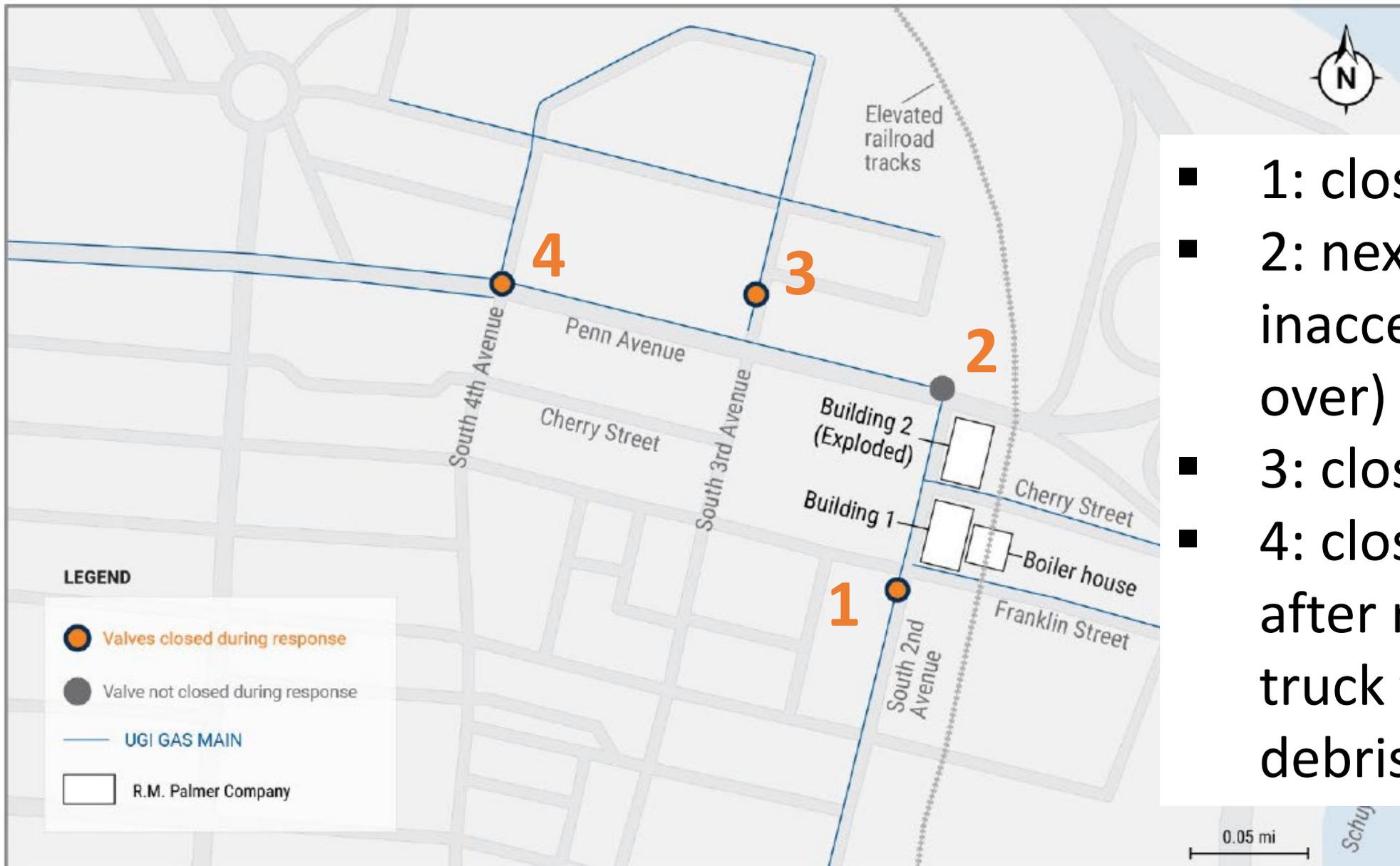


- An assistant line technician working on the first floor of Building 2 evacuated the building shortly after 4:30 pm because “the smell of gas was strong enough to hurt his eyes.”
- Another production employee stated that her understanding of employee protocol during such a situation was that they must stay at their workstations and await instructions from a supervisor.

- Palmer Building 2 exploded at 4:55 pm.
- Palmer management did not evacuate Building 2 before the explosion, and no employees pulled the fire alarm.

- After the explosion at 4:55 pm, City of Reading FD self-dispatched to explosion site at 4:56 pm.
- A UGI mechanic arrived at the scene at 5:19 pm to isolate the gas system in the area.
- He received valve ID numbers over the phone and was directed to close off two underground valves near the incident location.

# UGI Emergency Response – Valves Closed



- 1: closed at 5:30
- 2: next valve inaccessible (paved over)
- 3: closed at 5:50
- 4: closed at 6:15 after requiring vac truck to clean out debris

- UGI Corporation did not effectively inspect and maintain its valves through its valve maintenance program, leading to a delay in shutting off gas to the affected area.

So, what does all this mean to us?

Where do we go from here?

This report generated 18 new safety recommendations.

*I will only be hitting 4 of them.*

## Safety Recommendation P-25-1:

Issue an advisory bulletin to gas pipeline operators referencing DIMP regulations and encouraging operators to:

- Complete a one-time inventory of **all plastic assets** that are located in environments that experience or are at risk of **elevated temperatures**;

- Continue, during maintenance and new construction projects, to identify plastic assets that are in **elevated temperature** environments; and
- Evaluate and mitigate risks to deter the degradation of these assets.

## Safety Recommendation P-25-2:

Issue an advisory bulletin that reviews the details of the March 24, 2023, natural gas–fueled explosion and fire in West Reading, Pennsylvania, and advises all regulated natural gas distribution pipeline operators **to address the risk associated with Aldyl A service tees with Delrin inserts**, including replacing or remediating them.

## *Advisory Bulletin (ADB-2026-01)*

Issued January 23, 2026 addresses the first two  
safety recommendations

## Safety Recommendation P-25-3:

Identify effective means for natural gas distribution pipeline operators to communicate with people who live, work, or congregate within the coverage area of a natural gas distribution pipeline system and implement a plan to help operators drive continuous improvement in public awareness of natural gas safety.

## Safety Recommendation P-25-8:

Assess the methodology used by natural gas pipeline operators to determine **where emergency valves should be located** to ensure the operators are properly considering consequences and emergency response times as well as population sizes.

- Do you know where elevated temperature sources are in the ground relative to your plastic pipe?
- Are DIMP programs identifying and removing known problematic materials? This incident points to adding Aldyl A service tees with Delrin inserts to the list.
- Are PAP programs meeting all the audiences they should? Are the messages adequate?
- Are valves being adequately inspected, maintained, and deployed where they should be?



Questions?



Thanks!

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