



the Energy to Lead

Just a Few Recent Trenchless Natural Gas Incidents

- > Ditch Witch and GTI
 - Location: Questar Gas
Salt Lake City, UT

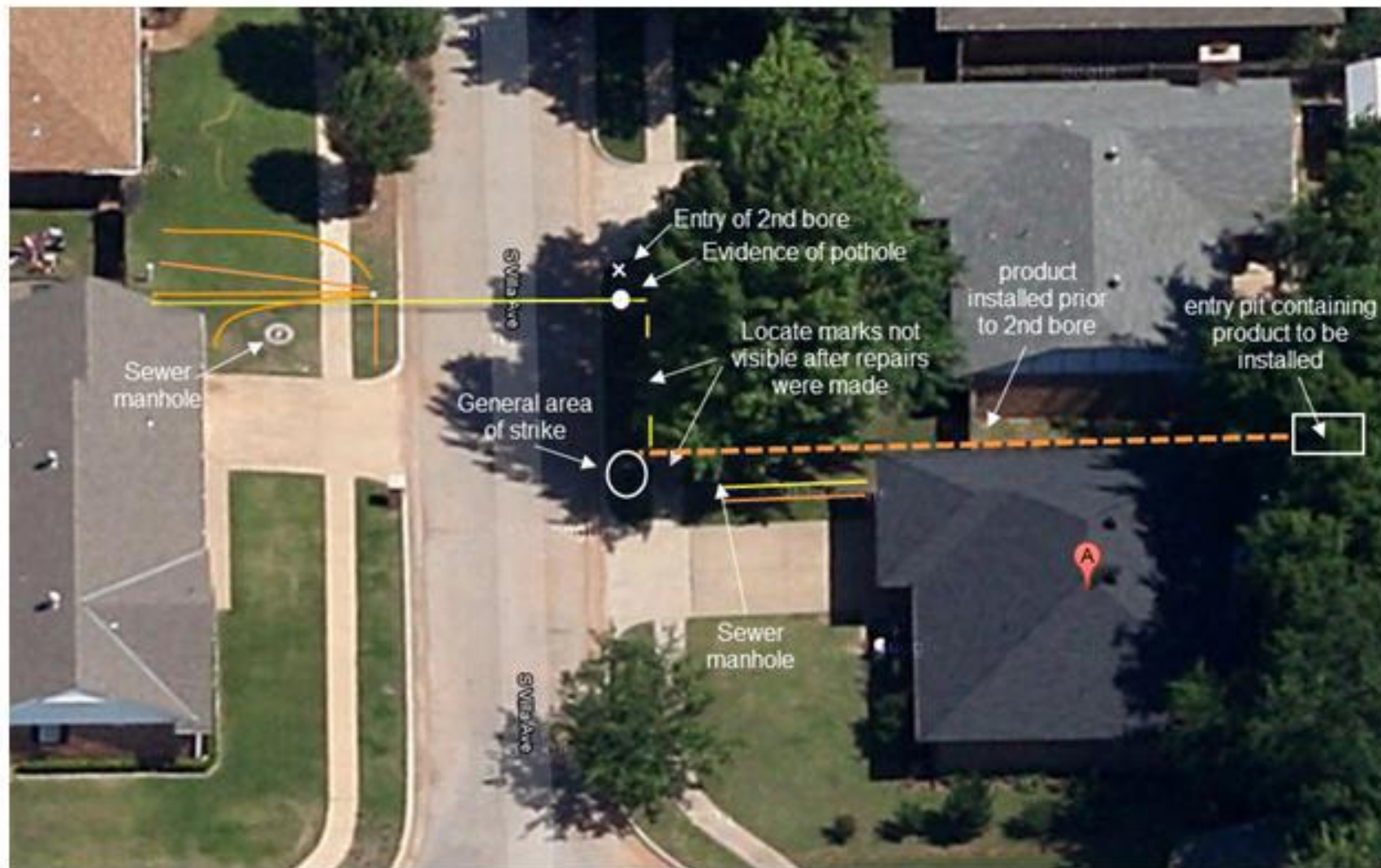
Recent HDD Incidents

- > Recent incidents have highlighted the need for better practices and better damage prevention rules
 - Oklahoma City, OK – Jan. 2013
 - JJ's Restaurant in Kansas City, MO – Feb 19, 2013
 - Royal Oaks, MI – Feb 27, 2013
 - Louisville, KY – Feb 19, 2013
 - Grand Junction, CO – March 2013
 - St Louis, MO – Feb. 2014
 - New Jersey – March, 2014



Oklahoma City – January 2013

Sub-contractor installing telecom lines parallel to gas line



Aerial view of area prior to explosion obtained from Google Earth and revised with site information.

- marked phone/cable line
- marked natural gas line
- phone line installed by contractor prior to 2nd bore

Oklahoma City – January 2013

Sub-contractor installing telecom lines parallel to gas line

Injuries and house destroyed



JJ's Restaurant in Kansas City, MO – Feb 19, 2013

One death, multiple serious injuries -- Business destroyed, many bldgs damaged
Contractor installing telecom line across gas line



JJ's Restaurant in Kansas City, MO – Feb 19, 2013

One death, multiple serious injuries -- Business destroyed, many bldgs damaged
Contractor installing telecom line across gas line



Royal Oaks, MI – Feb 27, 2013

One death -- Two or three homes destroyed, many others damaged.
Gas company crews installing new main hits gas service.



Royal Oaks, MI – Feb 27, 2013

Utility crew came within an inch of puncturing the line in front of Laura Kelley's house a few doors down. She was home with her two children at the time.



DAVID PIERCE/DETROIT FREE PRESS

Ashville, NC – Jan. 2014

12" - High Pressure Transmission Line ruptures sending flames hundreds of feet into the air – boring machine damaged the line in 2003.



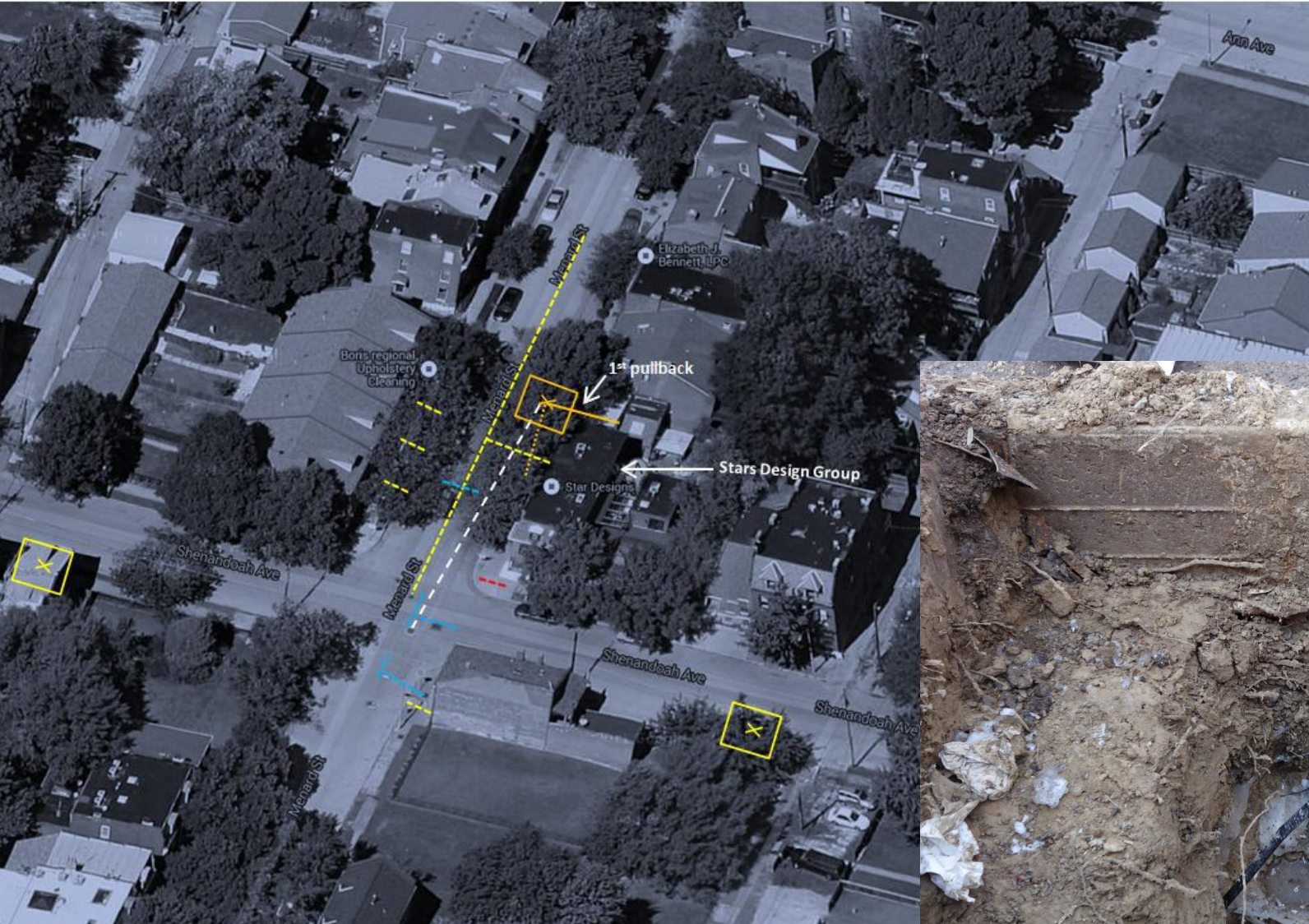
St Louis, MO – Feb. 2014

14 people evacuated less than 1 min prior to explosion - Building destroyed
Contractor installing telecom, crossed a gas service, snow covered locates



St Louis, MO – Feb. 2014

14 people evacuated less than 1 min prior to explosion - Building destroyed
Contractor installing telecom, crossed a gas service, snow covered locates



Ewing, New Jersey – March, 2014

1 death, multiple injuries -- A total of 55 homes were damaged or destroyed.

PSE&G Contractor installing electrical conduit via HDD – Details unknown



Ewing, New Jersey – March, 2014

The events leading to the explosion began when a contractor working to replace the electric service to the house hit a gas line.



Current Trenchless Procedures/Practices

- > One call laws for potholing crossing and/or parallel utilities vary by state, city, facility owner, etc.
- > **CGA Best Practice**
 - **Practice Description:** Locate in the area of the entrance pit, the trenchless excavation path and the exit pit when trenchless excavation is being used.
 - The trenchless equipment operator performs a site inspection walking the trenchless excavation path prior to commencing work and has a good understanding of the job.
 - The trenchless excavation operator confirms and maintains the path and minimum clearances established by the project owner and design engineer by tracking and recording the path of the trenchless excavation until complete. Means of tracking trenchless excavations include: electronic locating / guidance devices, pipe lasers, water levels, visual inspection, etc.
 - When existing facilities are known to be present but cannot be potholed due to local conditions the facility owner and the excavator meet to discuss how to safely proceed with the excavation.
- > Is this a sufficient Best Practice?

Current Trenchless Procedures/Practices

>Utility procedures vary –

> Utility #1 –

- Trenchless technologies include horizontal directional drilling, punching, and plowing operations. The intent of the procedure is to safeguard against injury to people and property which may result from inadvertent contact with subsurface sewer and septic facilities.
- The primary focus of all survey and investigation work is to identify appropriate gas main installation locations and paths, including safe separations from other facilities such as sewer lines.
- Gas mains installed by directional drilling, punching, or plowing, when the clearance from known underground facilities is maintained at twelve (12) inches or greater. The clearance shall be determined based upon electronic means that locates the path and depth of the gas main (i.e., drill head beacon) and the underground facility must be visually or electronically located.

Current Trenchless Procedures/Practices

>Utility procedures vary –

>Utility #2 –

- All Work involving Trenchless Methods shall be done in such a manner as to not endanger
- The operator AND locator should visually inspect the proposed drill path just prior to proceeding with the drilling operation to ensure that everything is in order, all utilities have been identified and test-holed as required, and measures to avoid interfering with overhead electrical, telephone and cable lines have been made.
- Test hole location of other utilities if location is directly in the path of bore hole or exact location is not known.

Current Trenchless Procedures/Practices

>Utility procedures vary –

>Utility #3 –

- Maintain a 5-foot horizontal separation between underground facilities and the drill head when the route is parallel to such facilities.
- Expose underground facilities at least each 100 feet when the route is parallel to and less than five feet from such facilities.
- Expose all underground facilities that are being crossed by the drilling unit to ensure the initial drill path and pullback reamer do not jeopardize those facilities.

Current Trenchless Procedures/Practices

>Jurisdictional procedures vary –

- >Most are silent regarding the exposing of crossing or parallel utility facilities.
- >Others are more specific –
 - Positively identify (by potholing) all crossed utilities that are expected to be:
 - > above and within 5' of the proposed vertical alignment,
 - > below and within 3' of the proposed vertical alignment.
 - Positively identify (by potholing) all parallel utilities at the beginning and ending of all bores and
 - > every 200' if it is within 5' of the proposed alignment,
 - > every 50' if it is within 3' of the proposed alignment.