

the Energy to Lead

Keyhole Technology Consortium Program

Spring 2013 Meeting

- > April 24 & 25, 2013
- > GTI
 - Des Plaines, IL

Keyhole Technology Program

> Sign-in Sheet

> Confidentiality Statement

- The individuals, and the entities that they are representing, agree that all information which they receive from any other participant at the meeting will be held in confidence, will not be published in any form, and will not be discussed with or disseminated to any other individual or organization outside of this meeting, except for those with a need to know in their own organization.

> Antitrust Guidelines

- You must avoid any discussions or conduct that might violate the antitrust laws or even raise an appearance of impropriety.

Keyhole Technology Program

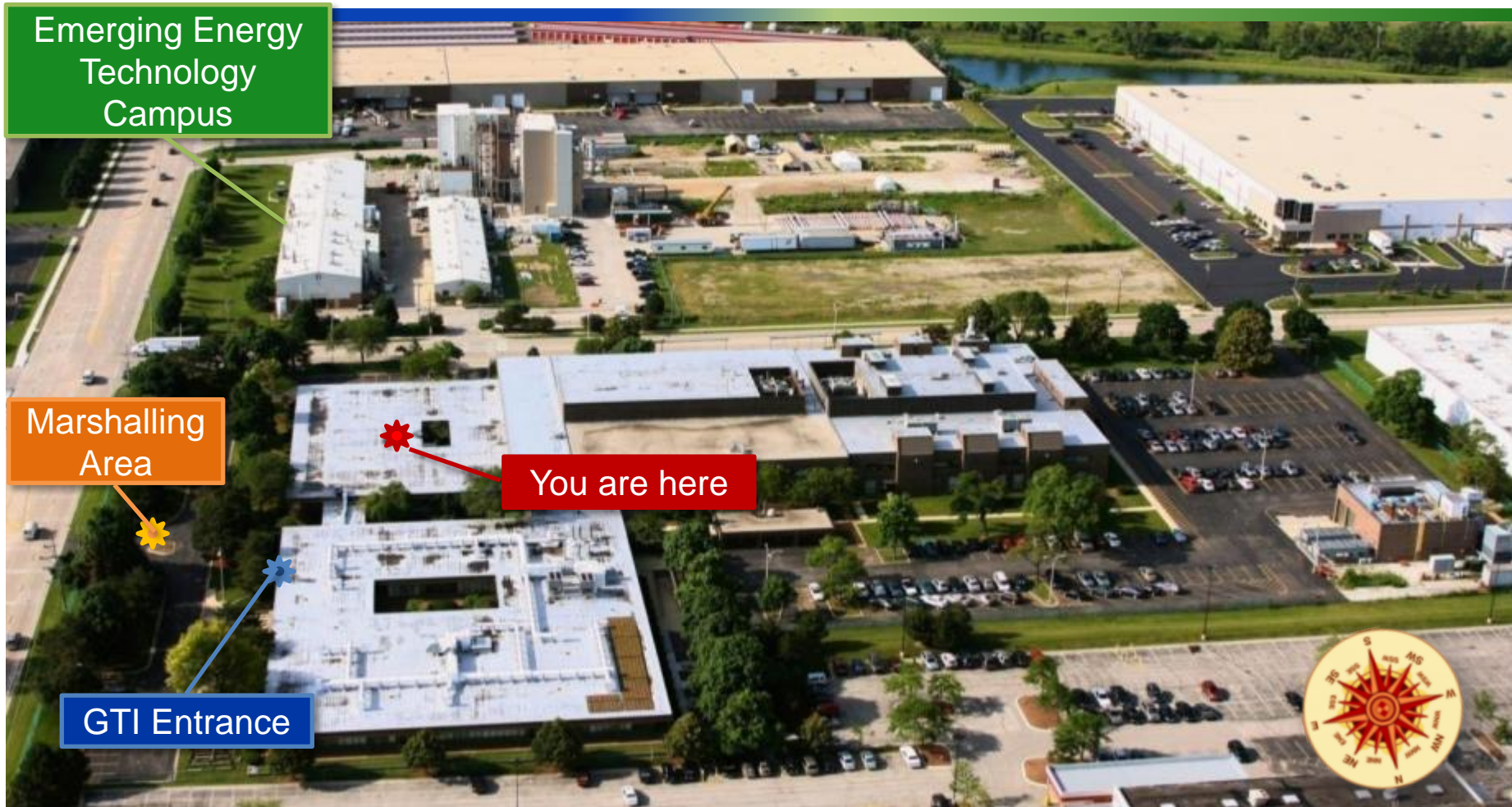
> Welcome and Introductions

- Overview of facilities

- > Guests include: Rabine Paving and Vermeer

- Sign-in sheet

Safety at GTI: Campus Map



Keyhole Technology Program

> Welcome and Introductions

— Member introductions

- > Your name and company
- > What activities and/or interests do you have in the area of keyhole?
- > What actions or knowledge are you looking to take from this meeting?
 - May include addressing issues, needs, the sharing of information, etc.

Keyhole Technology Program

> Review Agenda

- Any comments on agenda?
- Any additions to agenda?

Keyhole Meeting Spring 2012

> Discuss times and transportation for dinner

**Gino's East Phone (773) 444-2244
8725 W Higgins Rd.
Chicago, IL**



**Meet at Residence Inn for happy hour at 6 pm
Travel to Dinner no later than 7 pm!**

> Transportation for airport and to and from mtg.

Keyhole Meeting Spring 2012

> **Your Participation** is critical to making both the meeting and the keyhole program efforts a success!



This



Not this!

Keyhole Program Mission & Priorities

> Program Vision

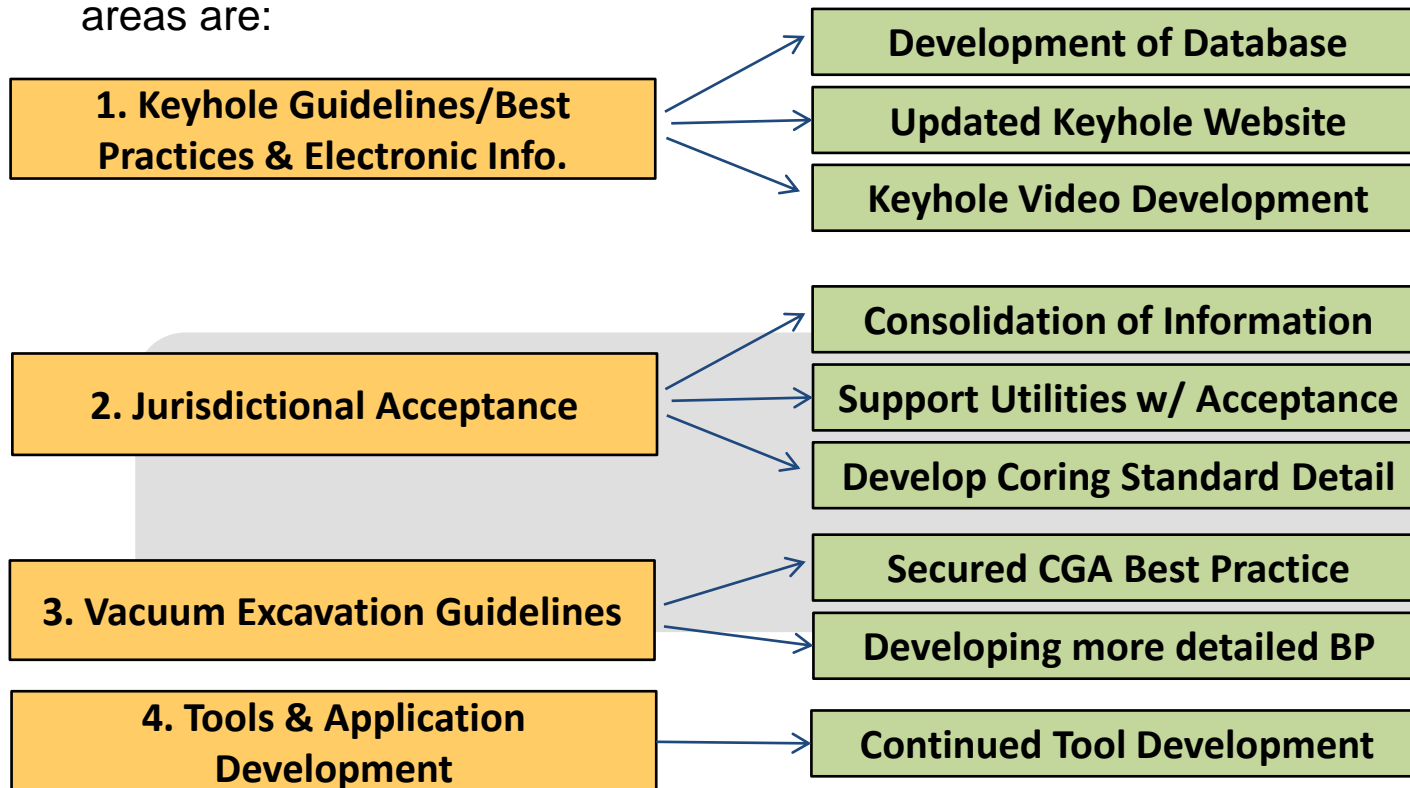
The program goals are to continue to provide value and share ideas with the stakeholders and to contribute to the acceptance and advancement of keyhole technology through:

- **Focus on customer needs:** Build strategy teams from the participating utilities, industry, and GTI to define the research and development needs and to guide the development and activities of the program focus areas.
- **Promote the use of the technology:** Establish and document procedures and gain acceptance by various jurisdictions (owners of the ROW).
- **Marketing and Implementation:** Provide training and establish guidelines and best practices for these applications.
- **Provide technical solutions:** Develop tools and new applications for various gas operations and maintenance work.

GTI Keyhole Program Focus Areas

> Priorities

The program has targeted four focus areas that have been identified from current research and through surveying the industry and participating utilities. These focus areas are:



Communication Tools

The following list contains the email addresses that have been created. In order to communicate with any of the groups, all you need to do is to type in the email address of the group with whom you wish to communicate and press send.

group@gtikeyhole.com

Sends email to all members of the keyhole program

utility@gtikeyhole.com

Sends email to all utility members of the keyhole program

manuf@gtikeyhole.com

Sends email to all non-utility members of the keyhole program

Other Electronic Information

> www.gtikeyhole.com

- > Various keyhole related information is available on this site. Most of this is public information to assist in advancing the technology.
- > Websites of manufacturers and other associations.

Avista Aldyl-A Steel Tee Remediation Program



Implementation – Keys to Success

- > Involve your staff and as much of the organization as possible
 - Important to get involvement as soon as possible.
 - You may be excited about the new technology but your staff may be quite anxious.
- > Create excitement
 - Plan a kick-off meeting which includes:
 - > Technology overview
 - > Benefits (don't forget what is in it for me)
 - > Preparation activities
 - > Training plan
 - > Timeline
- > Training
 - Training prior to and throughout the effort
 - Repetition is important – hands on both simulated and actual field jobs

What is Needed for Successful New Technology Implementations?

Technology

Champion

Mgt. Commitment

Resources

Procedures

Training

Implementation

Measure

- > **While change is difficult, properly preparing your staff for the change by providing good communications, training, and support are key to a successful implementation.**
- > From your experiences...
 - What works?
 - What does not work?
 - What is needed?

Training & Education

> Review Training Needs

- Who is the audience?
- What are the training needs for the various audiences?
- What types of training is needed?
- What are the vehicles / channels of training?

> Discussion on Training

> Group Brainstorming on Training (who, what, where, how, etc.)

Training & Education (continued)

- > Review Brainstorming items
- > Group to Identify Training Initiatives
- > Next Steps?

Keyhole Outreach Efforts

> Recent Keyhole Presentations

- UCT Conference & Exhibit – Jan. 2013 (GTI, Utilicor, Miller Pipeline)
- NASTT – March 2013 (GTI, Utilicor, HDR Engineering)

> Upcoming Keyhole Presentations

- AGA Operations Conference – May 2013
- APWA Congress – August 2013

> Various articles and local efforts

Keyhole Outreach Efforts (continued)

> ASTM – Standard Practice – Sewer Cleanout

- LMK - Vacuum Inserted Sewer Clean-Out VAC-A-TEE®



> Water Research Foundation –

- Demonstration of on-destructive examination (NDE) methods for assessing small-diameter water mains.

> Other opportunities to increase knowledge, acceptance, and use of keyhole technologies?

Online and Digital Media

- > GTI and manufacturers have been working to provide more awareness and information through online sources
 - Websites
 - YouTube videos
 - LinkedIn
 - Others
- > Email blasts (newsletters)
 - GTI, Utilicor, others
 - Will need input and content from all of you!
- > Discuss additional media needs & actions to take.

Keyhole “how to” Videos

- > GTI has been developing various keyhole “how to” videos to assist with the understanding and implementation of the technology.
- > Review some of the videos throughout the duration of the meeting.
 - What else do you want to see?
 - New Video ideas?

Coating and Wrapping in Keyholes

> Evaluation update and discussions



Various Manufacturer & Utility Presentations and Demonstrations

- > Indoor and outdoor presentations and demos
 - Tellus Underground
 - Utilicor
 - TT Technology
 - Trenton
 - Jameson – locating unlocatable PE pipe
 - Kravitch Machine
 - Utility Updates
 - Others

Keyhole Group Dinner

Group Dinner:

**Gino's East Phone (773) 444-2244
8725 W Higgins Rd.
Chicago, IL**

- Meet at Residence Inn for happy hour at 6 pm**
- Travel to Dinner no later than 7 pm!**

Utility Only meeting to start the day on Thursday (non-utility members can sit in café) – should only last until 8:30 am

Keyhole Meeting – Day 2

- > Utility only round table discussions
- > Review Day 1 activities

DIMP Related Topics and Keyhole

- > Water Research Foundation – Pipe Integrity Evaluation of Water pipe in L.A.
 - This is a tailored-collaboration project, sponsored by the Water Research Foundation, LA Dept. of Water & Power, Denver Water, Seattle Public Utilities, Fairfax Water and DC Water.
 - 1st Phase in LA. – Evaluation of a 6” cast iron water main
 - 2nd Phase will also occur at each of the sponsoring utilities.

- > The NDT companies who are participating:
 - Rock Solid will demonstrate an in-line inspection pig as well as the keyhole scanning tool.
 - Echologics will demonstrate their acoustic velocity method of pipe wall thickness assessment.
 - Wachs will be demonstrating their push-in CCTV with leak detection.
 - PICA (Russell Tech) will be demonstrating their in-line scanning tool (“See Snake”).

DIMP Related Topics and Keyhole

- > Aldyl A pipe evaluations through keyholes?
 - Possible coupon extraction of PE material
 - Allow for microscopic examination of material
 - Can coupons be removed from PE mains through keyholes?

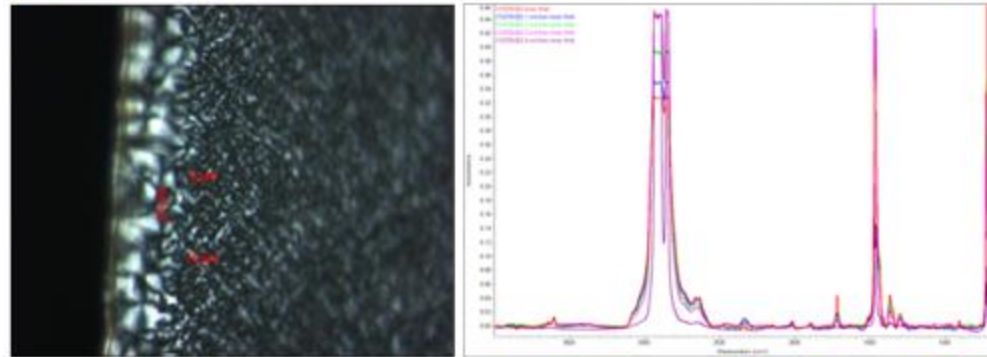
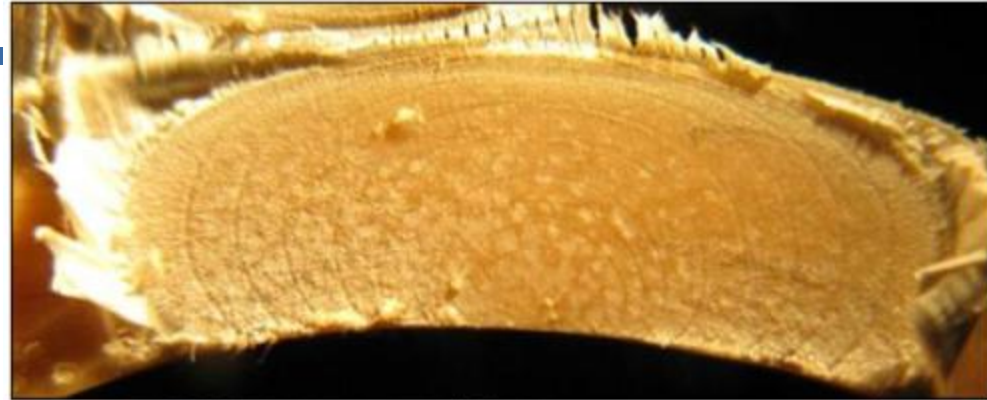


Figure 9 – SCG caused by surface oxidation and large inner bore spherulites

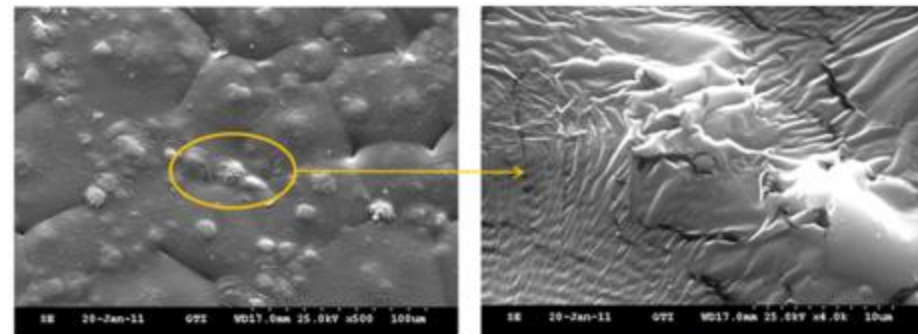


Figure 10 – SCG caused by large inner bore spherulites

DIMP Related Topics and Keyhole

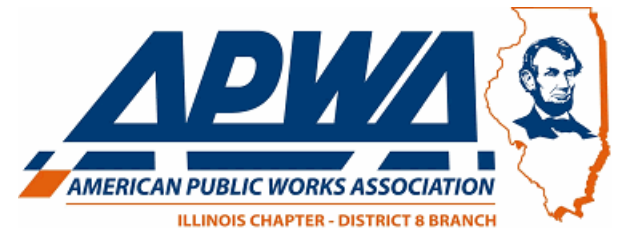
- > Cygnus gauge through keyholes to determine metallic pipe wall thickness.
- > Camera's to determine:
 - Material type
 - Location of facilities
 - Other internal investigation
- > Other opportunities for keyhole to support utility integrity management needs?

Jurisdictional Approval / Support

- > Status of Municipality support of keyhole coring?
- > Any recent acceptance wins or issues?
- > GIROW Update
- > Presentations at local APWA and state One Call meetings
- > Third Party Damage from traditional & trenchless
 - Potholing to verify utility locations
 - Laws requiring this?
 - Recent incidents

Jurisdictional Approval / Support

- > Presentations at local APWA and state One Call meetings



Keyhole to Support Trenchless Technologies

- > Recent incidents have highlighted the need for better practices and better damage prevention rules
 - JJ's Restaurant in Kansas City, MO – Feb 19, 2013
 - Royal Oaks, MI – Feb 27, 2013
 - Louisville, KY – Feb 19, 2013



Consumers Energy crews working to replace a natural gas main in Royal Oak on Feb. 27 failed to follow state and federal gas safety regulations and expose the areas where their horizontal drilling passed existing underground service lines.

Here is how horizontal drilling works and where the safety step called potholing was left out.

1 GETTING STARTED: A guided boring machine pushes a spinning drill bit into the ground, starting a path for a new gas pipe.

2. GUIDING THE BORE

The drill head sends positioning signals to workers at the surface who guide the drill around obstacles.

3. MISSING STEP

Hand-digging where the bore passes underground lines, known as potholing, is required in order to allow crews to see that their rotating drill bit is passing safely. This was not done properly on Cooper Avenue on Feb. 27, according to Consumers Energy officials.

4. DAMAGED PIPE

A steel natural gas service line at 4232 Cooper Ave. was damaged, causing gas to migrate into the nearby home and leading to an explosion that killed its owner.

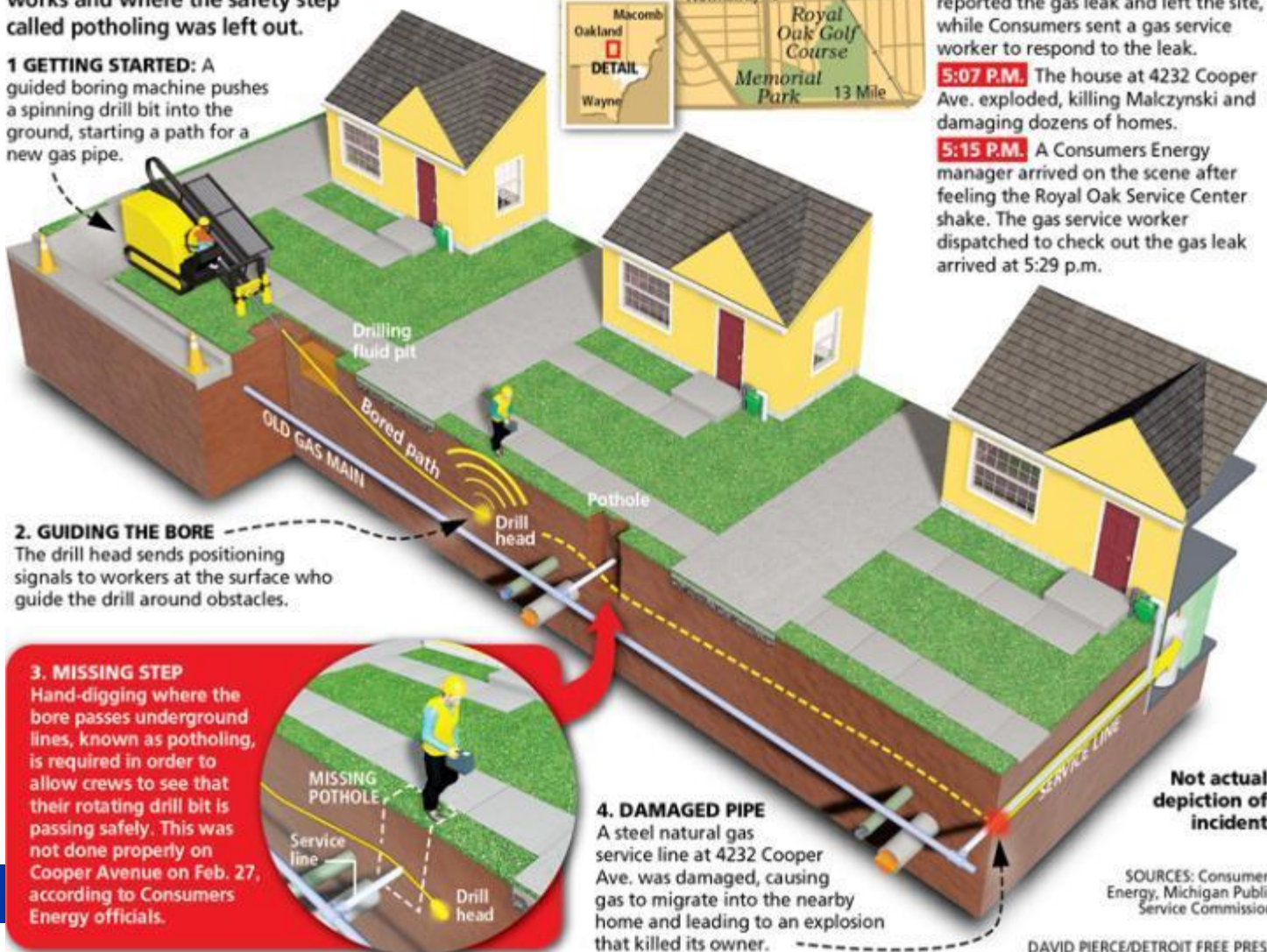


These are the events that led to the house explosion and death of Daniel Malczynski, 58, according to the report.

4:30 P.M. Consumers Energy crew members working to install a new gas main smelled natural gas and knocked on the front door of the nearest home, where Malczynski lived. There was no answer. The seven-person crew reported the gas leak and left the site, while Consumers sent a gas service worker to respond to the leak.

5:07 P.M. The house at 4232 Cooper Ave. exploded, killing Malczynski and damaging dozens of homes.

5:15 P.M. A Consumers Energy manager arrived on the scene after feeling the Royal Oak Service Center shake. The gas service worker dispatched to check out the gas leak arrived at 5:29 p.m.



SOURCES: Consumers Energy, Michigan Public Service Commission

DAVID PIERCE/DETROIT FREE PRESS

Keyhole to Support Trenchless Technologies

- > One call laws for potholing crossing and/or parallel utilities vary by state.
- > **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.
- > 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.
- > Utility procedures vary -
 - 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.

Soil Compaction Supervisor III

- > SCS is most commonly used with keyholes
- > A need exists to update the SCS as technology has advanced and as utilities needs have changed.
- > Utilities are collecting more and more data on their systems and the SCS data collection needs to be enhanced to make the data collection easier and integrated into utilities current systems.



Mitigating Residual Gas in the Ground

- > Various practices & technologies are used today
 - Air movers
 - Vacuum excavation equipment
 - Vapor Extraction Unit (VEU)
 - Venting
 - Combustion engine?
 - Others

- > Discuss issues and practices



Keyhole Technology & Contractors

- > Partnering with Contractors
- > What are the issues?
- > What is needed to continue the implementation of keyhole coring with our contractors?

AEM Vacuum Safety Video

- > Purpose:
 - > To provide best practices and training to reduce potential misuse and accidents that can occur during all applications and operations of vacuum excavation equipment.
- > Scope:
 - > The video is to address the potential hazards specific to vacuum excavation.
 - > Vacuum excavation is defined as a means of soil extraction through vacuum when using pressurized water or air for breaking ground.
 - > Resources include:
 - > CGA Best Practices
 - > Equipment Operator's Manuals
 - > WJTA Recommended Practices
 - > GTI Studies and research materials
 - > Industry standards and regulations
- > Audience: Owners, management, supervisors, trainers, operators, and users of vacuum excavator equipment.
- > Status: Videos to be captured May or June 2013 at Staking University

Round Table Discussions

- > Group Discussions and Brainstorming
 - What are you doing in the area of keyhole?
 - What are your needs or issues?
 - Your recent accomplishments / success stories
 - New tooling and equipment?
 - Etc.

Development of Future Initiatives

- > Brainstorming and discussions
 - Keyhole Outreach/Promotion
 - > Case Studies, additional markets, and other awareness efforts
 - Identify needs and issues to address
 - Support/Develop Equipment and Tooling
 - > To support service/main installations and renewals
 - > Other needed keyhole activities

Keyhole Technology Program

- > Upcoming Events
- > Next meeting planning

Keyhole Technology Program

**Thank you all for you input and
discussion points!**

