



the Energy to Lead

Keyhole Technology Consortium Program

Fall 2013 Meeting

- > November 13 & 14, 2013
- > GTI
 - Location: NGRID
Worcester, MA

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that all information which they receive from any other participant at the meeting will be held in confidence, will not be published in any form, and will not be discussed with or disseminated to any other individual or organization outside of this meeting, except for those with a need to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: PG&E, Upsco, Elster Perfection, PLCS, Liberty Utilities, and Felton

- Sign-in sheet

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 – Fall 2013

> Discuss times and transportation for dinner

Chuck's Steakhouse
10 Prospect St.
Auburn, MA
508-832-2553



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

> Thank you McLaughlin for co-sponsoring tonight's group dinner!



Keyhole Meeting – Fall 2013

- > **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

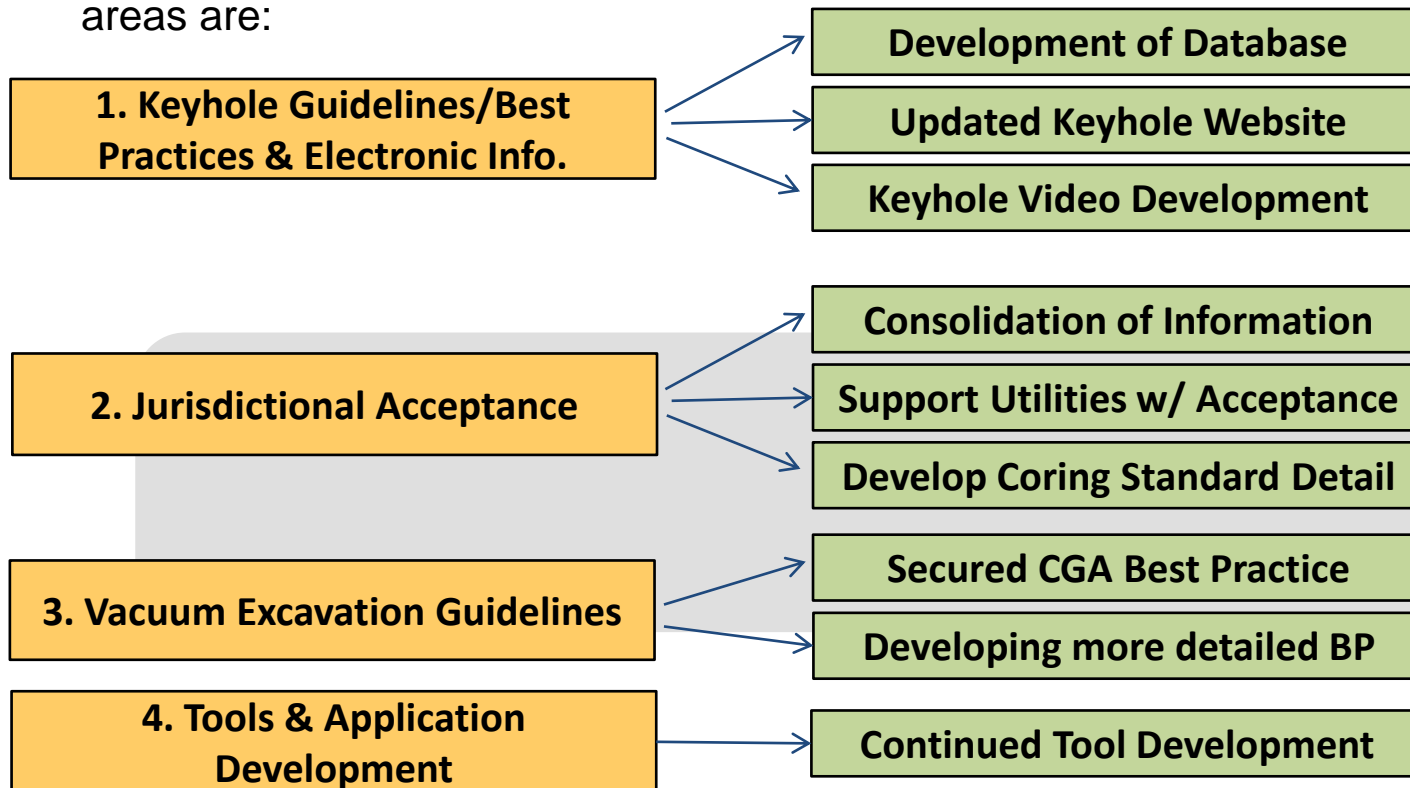
The program goals are to continue to provide value and share ideas with the stakeholders and to contribute to the acceptance and advancement of keyhole technology through:

- **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.

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?

Pavement Coring and Restoration



Cold Weather Reinstatement



Pavement Thickness



Valve Box Installation



Quality of the Restoration

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

- > Initial Training Pilot Effort – July 2013
- > Training Needs – Moving Forward...
 - 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?
 - Training topics
 - Train the trainer
- > Discussion on Training

Vacuum Excavation Best Practices

FINAL

VACUUM EXCAVATION BEST PRACTICE & GUIDELINE GENERAL DOCUMENT



Gas Technology Institute
1700 S. Mount Prospect Rd.
Des Plaines, Illinois 60018
www.gastechnology.org

Vacuum Excavation Best Practices

- > Review existing guidelines document
- > Discuss current issues and needs
- > AEM Safety Video
 - > Show intro video



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 available this month (November 2013)

Coring and Vacuum Excavation Safety

- > Review recent safety inquiry
- > Review some of the feedback and safety measure implemented by users
- > Group discussions



Round Table Discussions

- > Group Discussions and Brainstorming
 - What are your needs or issues?
 - Your recent accomplishments / success stories
 - New tooling and equipment?
 - Etc.

- > Summarize and identify action items



Coating and Wrapping in Keyholes

> Evaluation update and discussions



Various Manufacturer & Utility Presentations and Demonstrations

> Indoor and outdoor presentations and demos

- Flash Fire Video
- SW Gas Service Line Camera developments
- PLCS No Blow tooling and encapsulation technologies
- Accoustic Pipe Locator (APL)
- Tellus Underground – service abandonment and more
- Utilicor – latest coring technologies and practices
- TT Technology – HDD and Pipe splitting updates
- Timberline Tool – tooling updates
- Kravitch Machine – latest tooling developments
- Aldyl A service tee repair options
- Kleiss Bag Stopping system
- Utility Updates
- Others

Keyhole Group Dinner

Group Dinner:

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10 Prospect St.
Auburn, MA
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Utility Only meeting to start the day on Thursday (non-utility members can arrive at 9:00 am) – should only last until 9:15 am

Keyhole Meeting – Day 2

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

Keyhole Outreach Efforts

- > Support for members in gas industry
- > Outreach to other industries
- > Forms of outreach include:
 - Webinars, Presentations, Online, etc.
- > 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?

Keyhole Outreach Efforts

> Recent Keyhole Presentations

- UCT Conference & Exhibit – Jan. 2013 (GTI, Utilicor, Miller Pipeline)
- NASTT – March 2013 (GTI, Utilicor, HDR Engineering)
- AGA Operations Conference – May 2013
- APWA – Annual Congress – August 2013

> Upcoming Keyhole Presentations

- UCT – January 2014
- AGA Operations Conference – May 2014

> Various articles and local efforts

Water Research Foundation – LA Demo

> Water RF – Pipe Integrity Evaluation & Keyhole Demo

- 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.



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

Keyhole Technology & Contractors

- > Partnering with Contractors
- > What are the benefits?
- > What are the issues and hurdles?
- > What is needed to continue the implementation of keyhole coring with our contractors?
- > Discuss current success stories...
 - WGL
 - Avista
 - Others

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

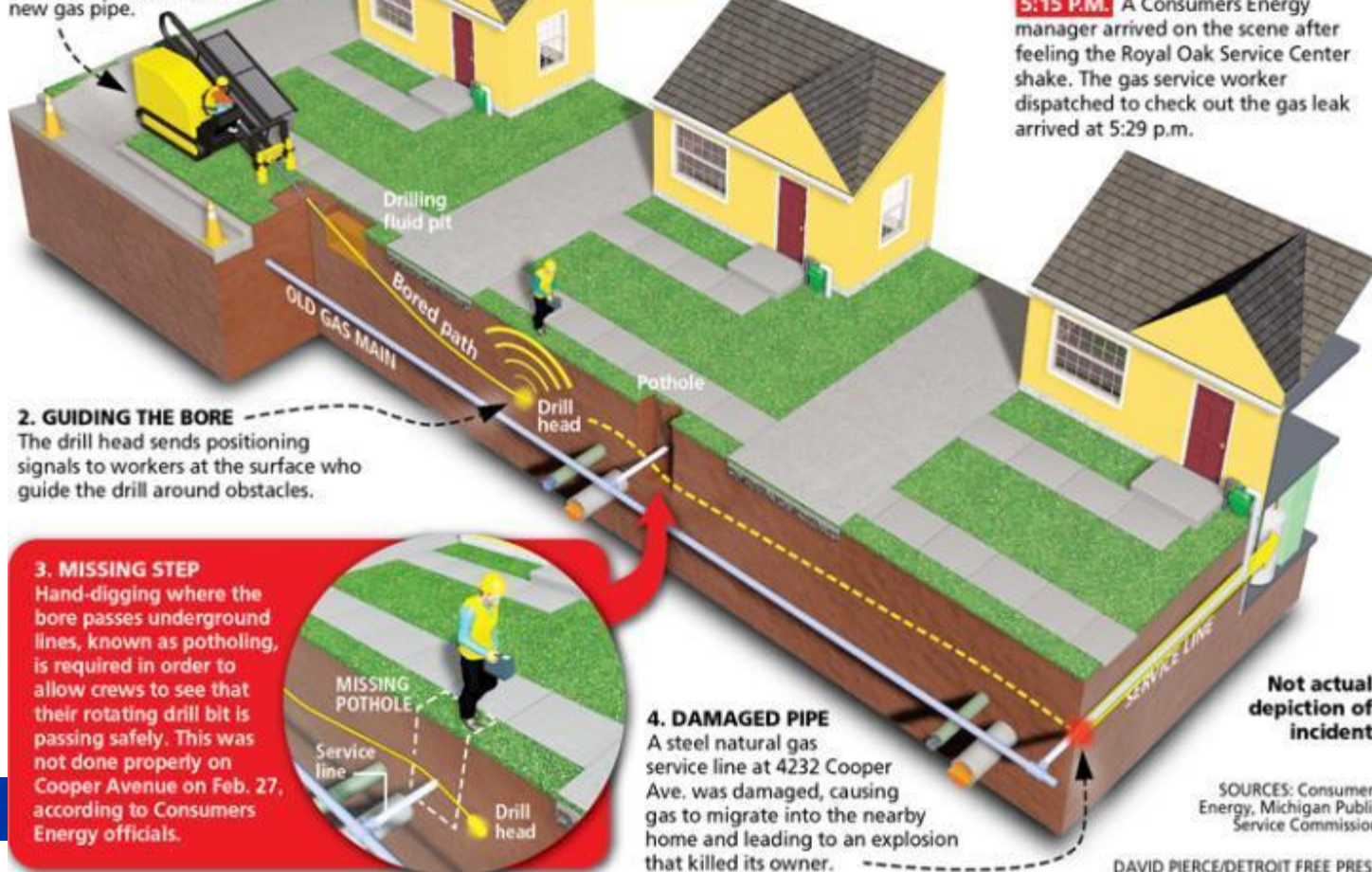


FATAL ERROR

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.



HOW EVENTS UNFOLDED

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.

Not actual depiction of incident

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.

Keyhole to Support Trenchless Technologies

Conventional Excavation & Repair



Keyhole to Support Trenchless Technologies

Keyhole Technology



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.



Keyhole Technology Program

- > Upcoming Events
- > Next meeting planning

Keyhole Technology Program

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

