



Keyhole / Low-Dig Technology Program Meeting

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GTI
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Keyhole / Low-Dig 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that all information which they receive from any other participant at the meeting will be held in confidence, will not be published in any form, and will not be discussed with or disseminated to any other individual or organization outside of this meeting, except for those with a need to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 / Low-Dig Program

- Welcome and Introductions
 - Member introductions
 - Your name and company
 - What interests do you have in the area of keyhole / Low-Dig?
 - What actions or knowledge are you looking to take from this meeting?
- Review meeting agenda and solicit additional items to add to agenda
- Circulate roster; update members' contact information

Keyhole / Low-Dig 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 and other low-dig technologies 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.

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.

Thank You to Our Dinner Sponsors



Outside Demonstration Review

- Kravitch Machine – Various tooling for gas operations
- Vacuum Excavation
 - Ditch Witch HX50
 - Ox Equipment – MTS system
 - TRUVAC Paradigm vacuum excavator
- Utilicor/Ditch Witch – Skid Steer Coring Unit
- Ditch Witch JT10 HDD
- Subsite Electronics – Locating system
- HammerHead - Winch/Plastic Pipe Slitting

Utility / Contractor – Implementation

- > Spire and Southern Directional –
 - Keyhole initiatives in Alabama
- > Peoples Gas
 - Keyhole initiatives in Chicago with their alliance partners
- > Nicor Gas
 - Keyhole initiatives in Illinois – company & contractor crews
- > MEADE –
 - Keyhole efforts to support customers needs
- > Avista Utilities
 - Keyhole initiatives in the State of Washington

Utility / Contractor – Roundtable Discussions

- Utilities and their alliance partners (contractors) are working together to implement keyhole and other low-dig construction practices
 - Methods and Best Practices
 - Advantages / Disadvantages
 - Input and discussion from Utilities
 - Input and discussion from Contractors/Vendors



Vacuum Excavation

- Dry Vac Excavation
 - TRUVAC
 - Ox
 - Others
- Wet Vac Excavation
 - Ditch Witch
 - Others

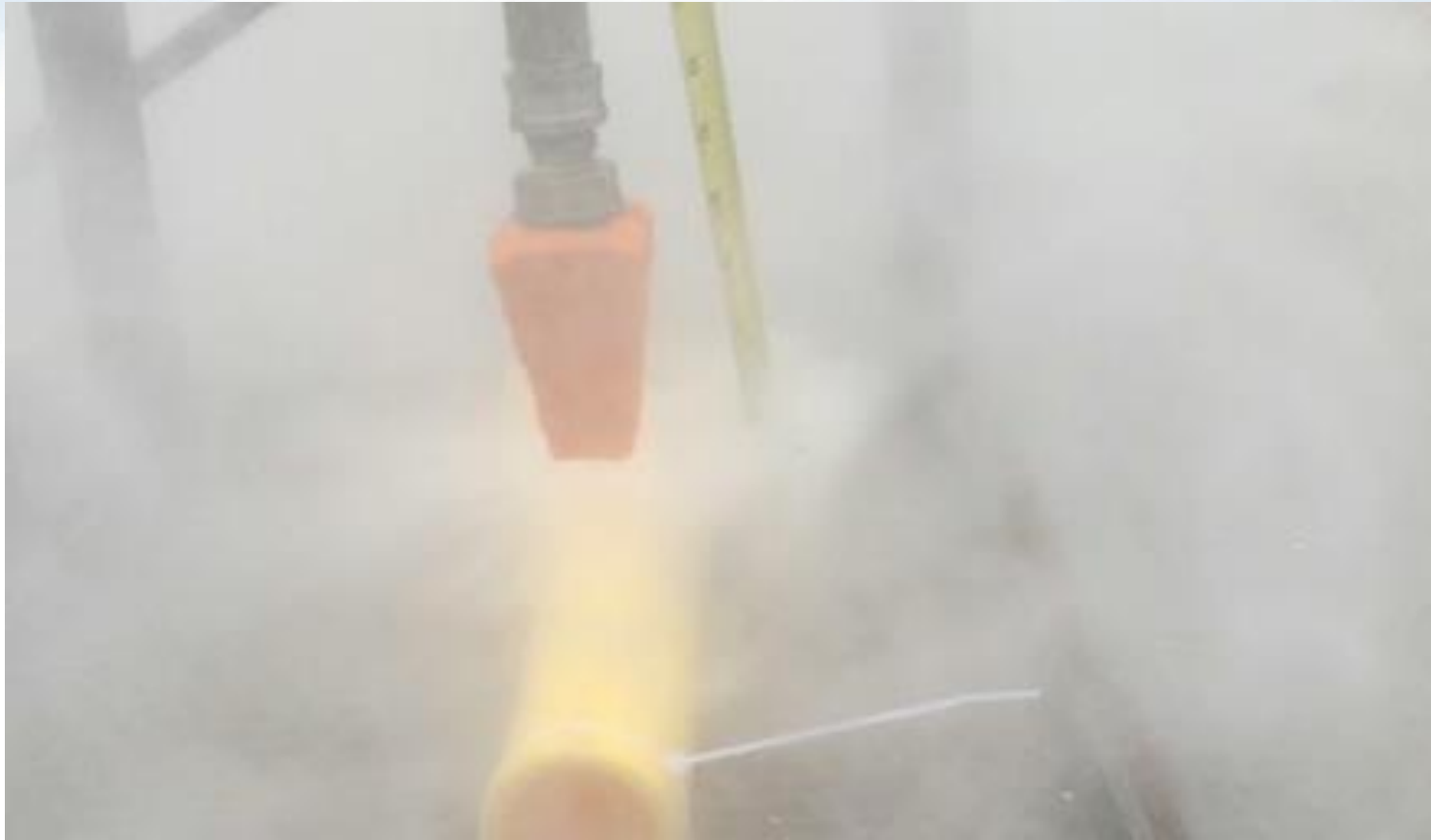
Vacuum Excavation – Group Discussions

- Vacuum Excavation Issues/Concerns
 - Disposal of wet spoils
 - Overweight trucks
 - Best practices
 - Alternatives?



Vacuum Excavation – OTD Project Update

- Vacuum Excavation Effectiveness
 - Comparison of wet and dry vacuum excavation



Vacuum Excavation – Best Practices

- Data supporting the update to current best practices and guidelines?

New Technologies / Manufacturer Updates

- Kobus
 - Service line pipe extraction
- Tellus Underground
 - Vacuum Excavation / Coring – Combo unit
- Ditch Witch
 - Micro trenching
- HammerHead
 - Pipe slitting

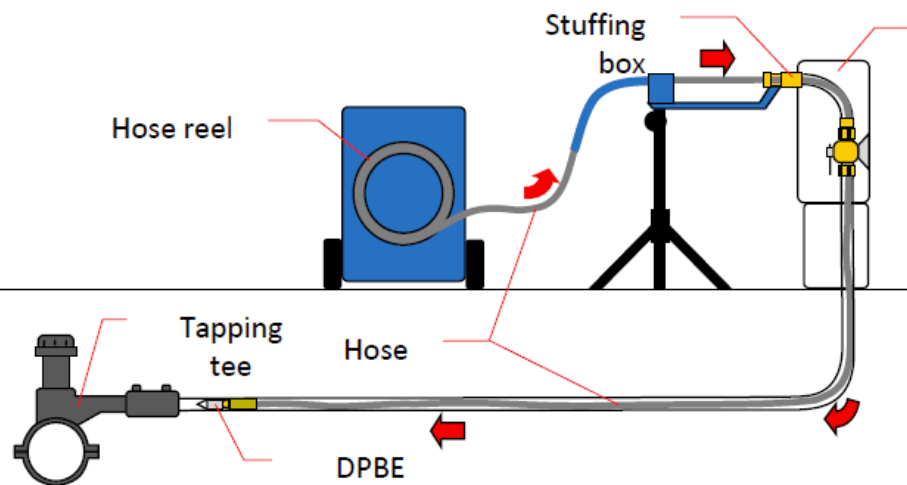
New Technologies / Manufacturer Updates

- Kravitch Machine
 - Keyhole and utility tooling and equipment
- Other Manufacturer Updates



OTD Project Updates – Keyhole / Low-Dig

- EFV De-icer / Anti-freeze up applicator
- EFV Installations thru Small Excavations
- Insertable Excess Flow Valves



Keyhole Outreach Efforts / Next Mtg.

- Support for members in gas industry
- Outreach to other industries
- Forms of outreach include:
 - Webinars, Presentations, Online, etc.
- AGA Operations Conference
 - Keyhole and Low-Dig presentations
- Discuss future meetings

Keyhole / Low-Dig Program

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

Roundtable Discussion Questions

- How many crews do you have performing keyholing activities?
 - Contractor / In-house / Both types of crews?
- What type of work do you perform via keyholing?
- What was the primary motivator to invest in and start keyholing activities?
- What are the challenges with initiating and maintaining the keyhole work?
- What type of training is provided to crews performing this work? How long is the training?
- Any special agreements with (i.e., long term contracts) with the contractor/utility?
- Pro's / Con's of implementing and maintaining keyhole construction work?
 - Utility?
 - Contractor?

Roundtable Discussions Questions (continued)

- Are you increasing your investment in keyholing equipment and personnel, or has it remained constant?
- What are your lessons learned from starting keyholing (i.e., equipment, tooling, personnel, customers, etc.)?
- What type of keyholing equipment or tooling are you in need of and currently is not available?
- Are keyholing work requests increasing with LDC's?
- Is keyholing being requested and/or supported by municipalities?
- Do you have an estimated dollar value of reduced restoration expenses over the past few years?
- Do you have an estimated dollar value savings of reduced labor expense performing keyholing activities?