



the Energy to Lead

Keyhole Technology Consortium Program

Fall 2017 Meeting

> Nov 8th & 9th, 2017

PG&E Training Facility

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that all information which they receive from any other participant at the meeting will be held in confidence, will not be published in any form, and will not be discussed with or disseminated to any other individual or organization outside of this meeting, except for those with a need to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

- Member introductions

- > Your name and company

- > What interests do you have in the area of keyhole?

- > 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 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.

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

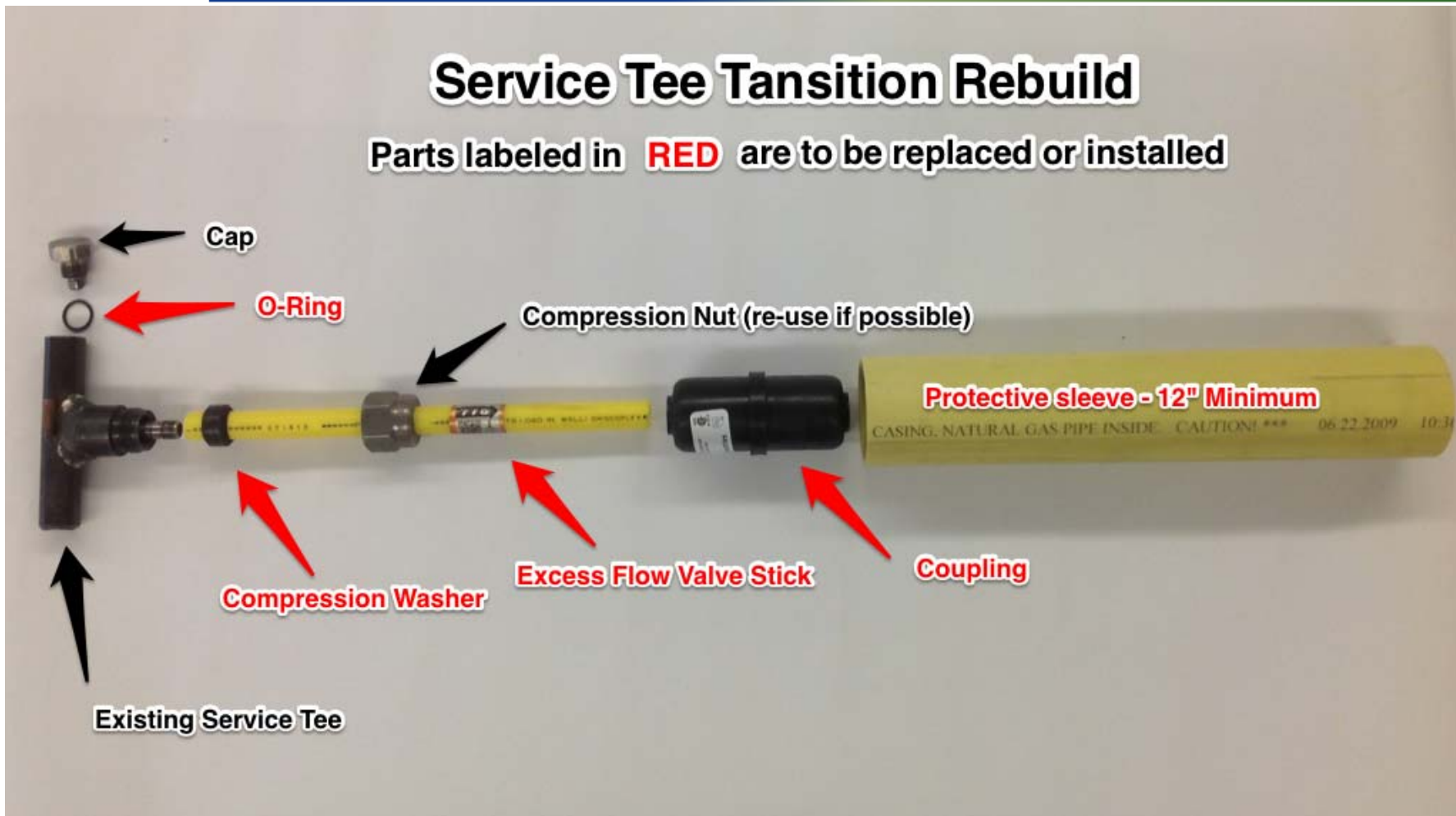
> www.gtikeyhole.com

- > 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.

Plastic Cap Replacements – PG&E



Review of Service Tee Transition Rebuild Program - Avista



Use of Coring/Keyhole in Large Urban Cities

- > People's Gas Update – Dennis Jarnecke
- > Keyhole work with National Grid – Andrew Pollock

Keyhole Successes at Alagasco (Spire)

> Bryan Rottenberry

Using Expandable Foam for Main Abandonment – Specialty Products, Inc.

Filling Abandoned Steel Gas Mains

Procedures – Abandoning – All Material Types

All Pressure Systems

1.0 PRELIMINARY WORK

- 1.1 Based on pipe condition, diameter and access points, determine the average and maximum pipe section that can be grouted, not to exceed 2 city blocks or 1320 feet.
- 1.2 Layout injection points and vent points. Install 2" male NPT adapter at each injection and vent location at or above ground level.
- 1.3 Calculate anticipated volume for each pipe run based on pipe diameter and length.

Abandoning Distribution and Transmission Facilities

Procedures – Abandoning – All Material Types

6" and larger—when there are other gas facilities in the area, divide abandoned pipelines into sections as convenient, but no longer than a city block (approximately 660'), by plugging or capping as in Paragraph 2.2.1.2 above.

Core Reinstatement – Tips and Tricks - Utilicor

> Andrew Pollock - Utilicor

Manufacturer Updates

- > Hammerhead
- > Utilicor/Ditch Witch
- > Kravitch
- > Tellus Underground
- > Vacmasters
- > Ox-Equipment/BTI

Demonstrations

- > Specialty Products, Inc.
- > Vacmasters
- > Utilicor/Ditch Witch

Demonstrations

- > Specialty Products, Inc.
- > Vacmasters
- > Utilicor/Ditch Witch
- > Group Dinner 6pm
 - Fuso Italian Restaurant
 - 535-A Main Street
 - Vacaville, CA 95687
 - Ph.: 707-447-5560

> Sponsored by:



Utility Only Session

- > Only utility members will meet in morning (starting at 8:00 am)
- > Entire group will get back together around 9:00am

Utility/Contractor Alliance Discussion

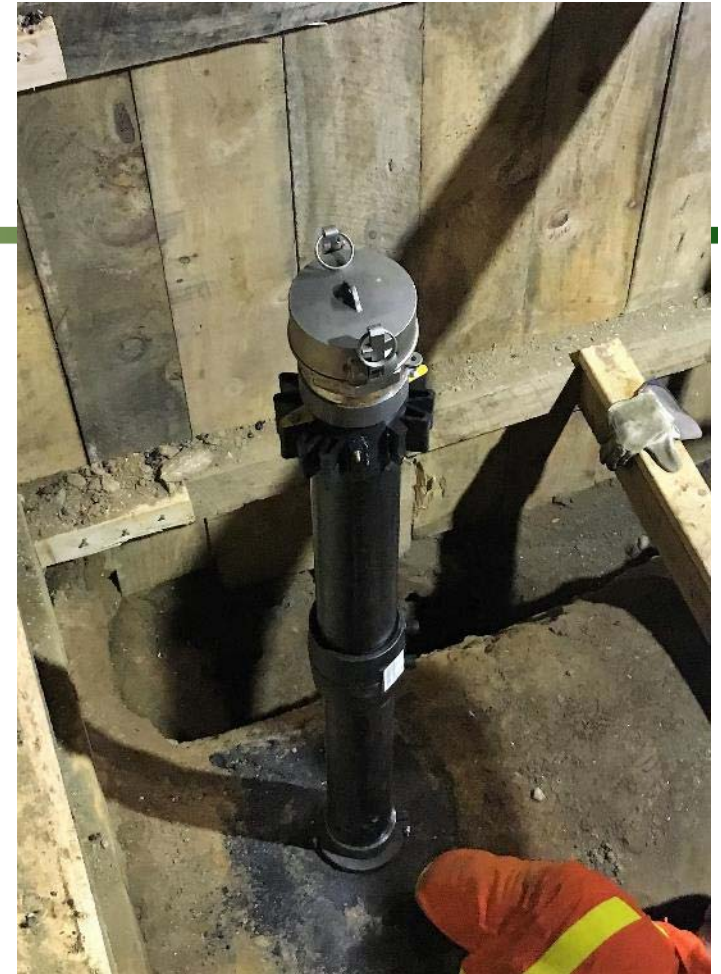
- > How utilities and contractors are working together to implement keyhole construction practices
- > Methods and Best Practices
- > Input and discussion from Utilities
- > Input and discussion from Contractors/Vendors

New Technologies

- > EMSOS – Emergency Main Stop off Station
- > People's Gas Service Abandonment
- > ORFEUS – Look Ahead HDD
- > Locatable Plastic Pipe

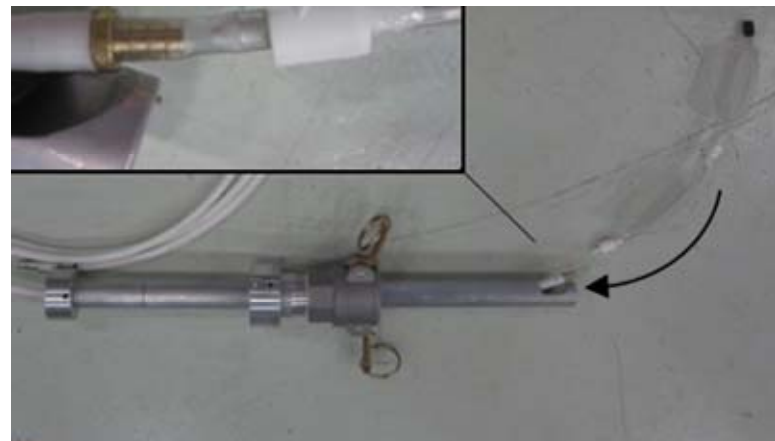
Emergency Main Stop-Off Station

- > **Value:** Create the capability to achieve a rapid shutdown of gas flow in large diameter, low-pressure mains in the event of an emergency at a fraction of the cost of installing large diameter valves.
- > **Project Summary:** Develop a double-block and bleed bag stop system with permanent, quick-entry tap for 16" – 36" piping systems.
- > **Status:** Prototype systems complete – Field installations at ConEd in NYC – October of 2017.



People's Gas – Service Abandonment

- > Process and tools used to avoid creating additional openings for service abandonment.
- > Crews use the tool to “bag and stop” the service line from inside the customer’s premise using the double bag assembly.
- > The procedure takes about five minutes.
- > After the gas flow is stopped, the inside piping can be disassembled and the service line can be plugged and capped.

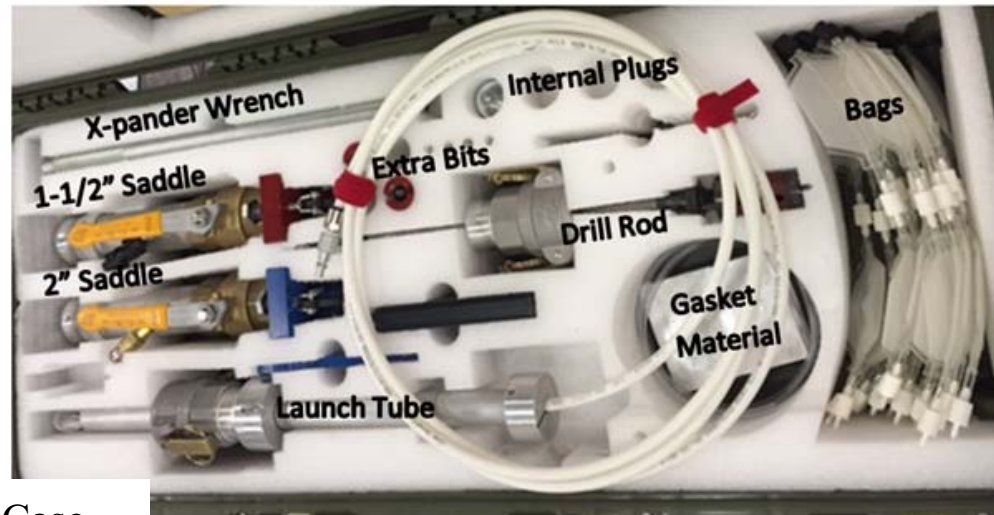


People's Gas – Service Abandonment



Tool Case

Tool Bucket



Locatable Plastic Pipe – OTD/3M/PHMSA

Locatable Plastic Pipe

Addresses a critical pain point for gas industry

- Significant improvement to worker & area safety
- Higher life expectancy
- Higher productivity in installation

Robust

- **Continuity not required**, if a cluster of tags is removed, the other sections continue to function uninterrupted.
- **Does not provide a path for lightning**
- Corrosion resistant, maintenance free

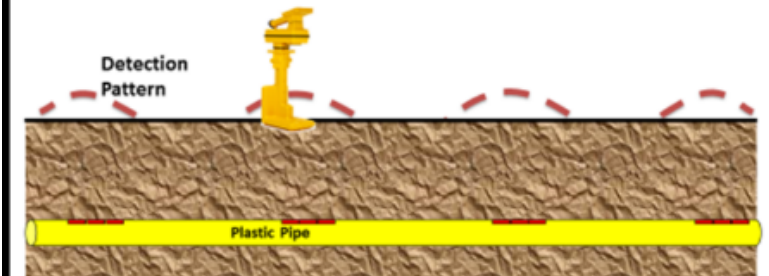
Simple

- **Replaces tracer wire, access points and connections**
- Reduced complexity of locate – **No transmitter connection** needed
- **Utility identification by frequency**

On Pipe Attachment

An Intrinsically Locatable Plastic Pipe – System Concept

- A 53.9kHz passive, flexible, rugged & stable resonant magneto-mechanical electronic marking system for Gas plastic pipe.
- Markers attached to outside of plastic pipe at 8ft spacing, give unique detection pattern and positive identification of utility.
- Independent Marker-Locator system provides high accuracy and long life.
- Eliminates Tracer Wire (eliminates related installation, splicing and access)



Locatable Plastic Pipe – OTD/3M/PHMSA



ORFEUS – Look Ahead HDD Technology

- > OTD project to evaluate the ORFEUS technology
 - GPR technology developed in Europe.
 - Demonstrations in Germany, France, Slovenia, PG&E
 - GTI PHMSA proposal
- <http://orfeus.org/>



Vacuum Excavation

- > Vac Group – Soil Transfer - Neil Costello
- > SAE Standard for Safety Requirements of Vacuum Excavation – Susan Harmon
- > Issues/Concerns – PG&E and others to review issues
 - Disposal of wet spoils when using hydrovacs
 - Overweight trucks
 - Alternatives
 - Best Practices

Vacuum Excavation

- > Environmental Reports and Studies
 - Documentation of Environmental Practices and Regs
 - Environmental Wins??
 - What documents are necessary for all to share and assemble
- > OTD project – minimizing the use of water
- > Group Discussions

Group Roundtable

- > Project ideas / needs for 2018 and beyond...
 - What projects should GTI and other program members work on in 2018?
- > Issues and needs?
- > Identify action items
- > Any R&D needs outside of Keyhole
- > Identification of Needs (each attendee to submit 3 needs/issues)

Keyhole Outreach Efforts / Next Mtg.

- > Support for members in gas industry
- > Outreach to other industries
- > Forms of outreach include:
 - Webinars, Presentations, Online, etc.
- > Discuss future meetings
 - Spring 2018

Keyhole Technology Program

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