

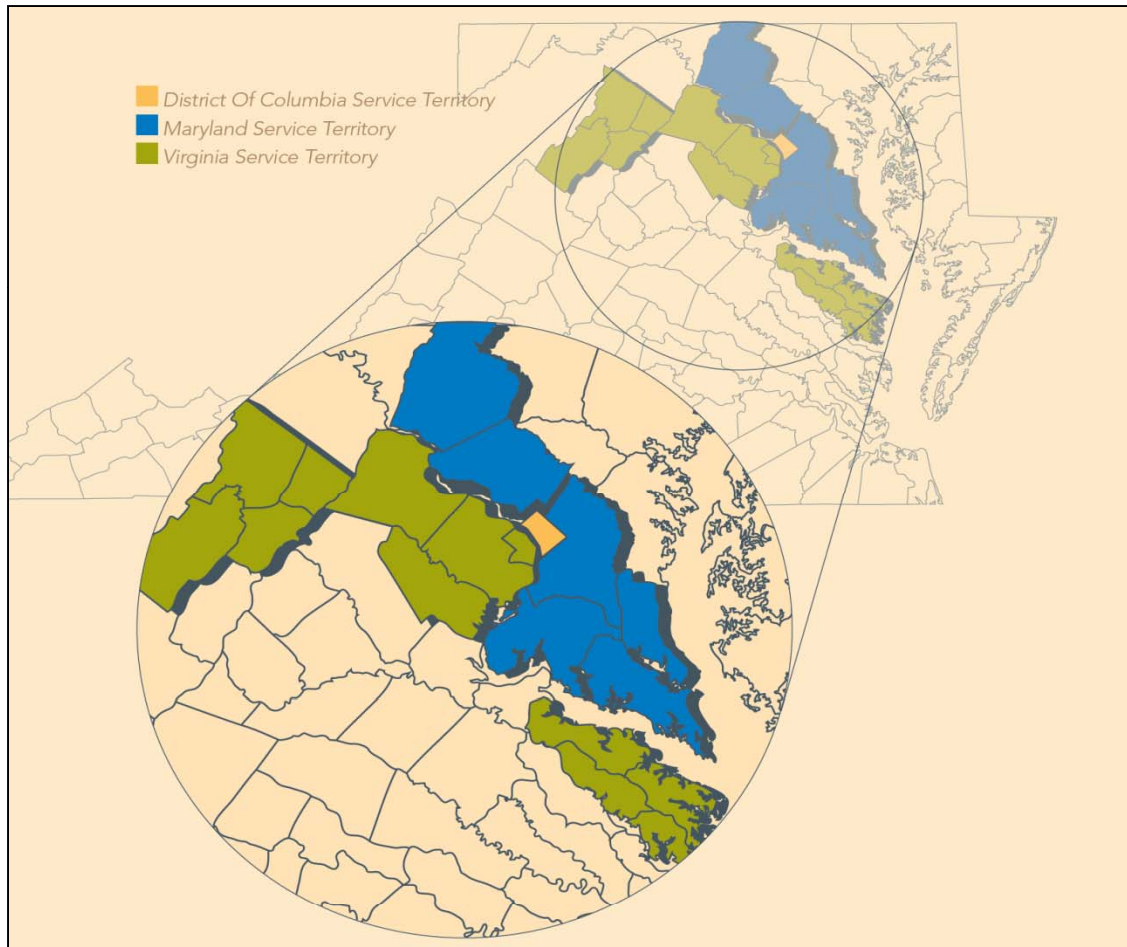


## GTI Keyhole

March 21, 2011

**James C. Munsey**  
Manager – Field Technologies

# Washington Gas – Overview



- Washington Gas' franchise area covers 6,213 square miles.
- Serving D.C. and adjoining areas in MD and VA
- Approximately 1.2M customers
- 22 gate stations, 2 peak shaving plants, and 1 storage field

- The use of Keyhole eliminates the Mill and Overlay requirement imposed by jurisdictions.
- Mill and Overlay typically is 40% of project cost.
- Less Disruption – Same day roadway restoration.



# Replacement Technology –Cost Savings



Type of Replacement	Cost Savings (Including Main, Service, and Paving)
Conventional (Open Trench or Insertion) w/o Keyhole	<b>Baseline</b>
Conventional (Open Trench or Insertion) w/ Keyhole	5%
Encapsulation w/o Keyhole	35%
Encapsulation w/ Keyhole	40%
Insertion w/ Keyhole	5%



# Replacement Technology - Keyhole



# Planned Projects for 2011

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To date we have used Keyhole to:

- Replace over 2,000 services; and
- Encapsulate 220 main couplings.



# Planned Projects 2011

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Proposed work for 2011:

- 2,200 main couplings; and
- 7,500 services - 75% to be done through keyhole.
- 500 Anode and Test Station Installations





## Other Replacement Technology – Camera Inspection

- Aries GasCam
- Spring Leg Centralizer System
- Push Reel Launch Tube
- Inspects Up to 460'
- Standard 3X5 or 4X6 excavation
  - Use of weld on launch fitting

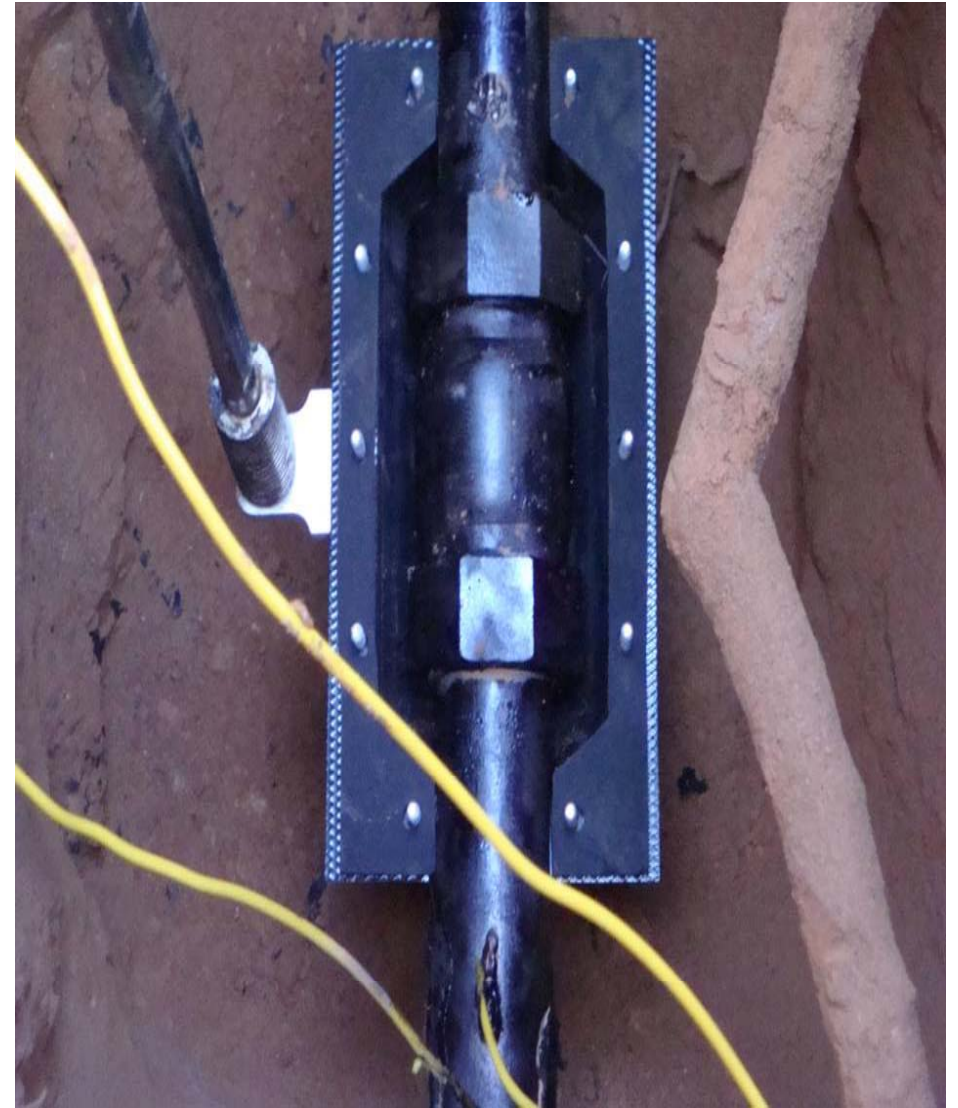
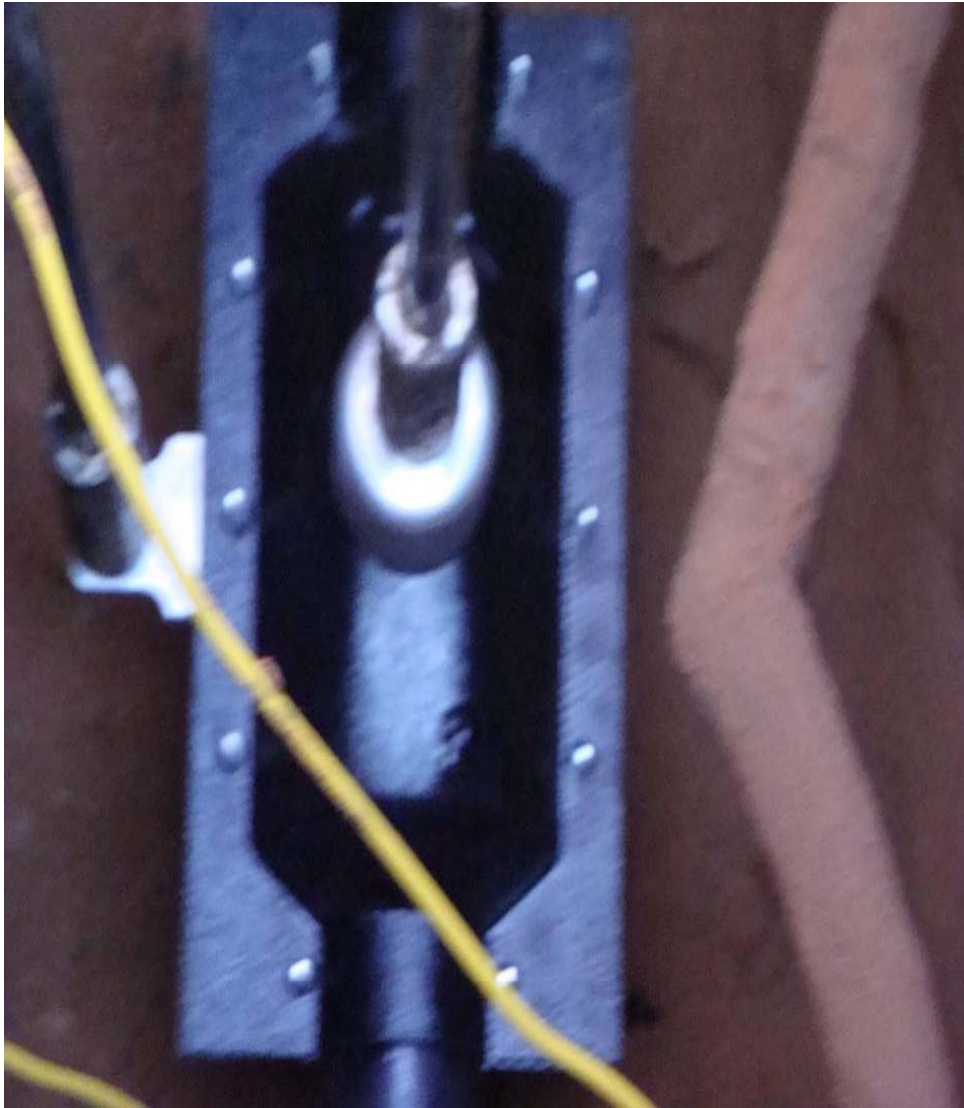




# Service Replacements

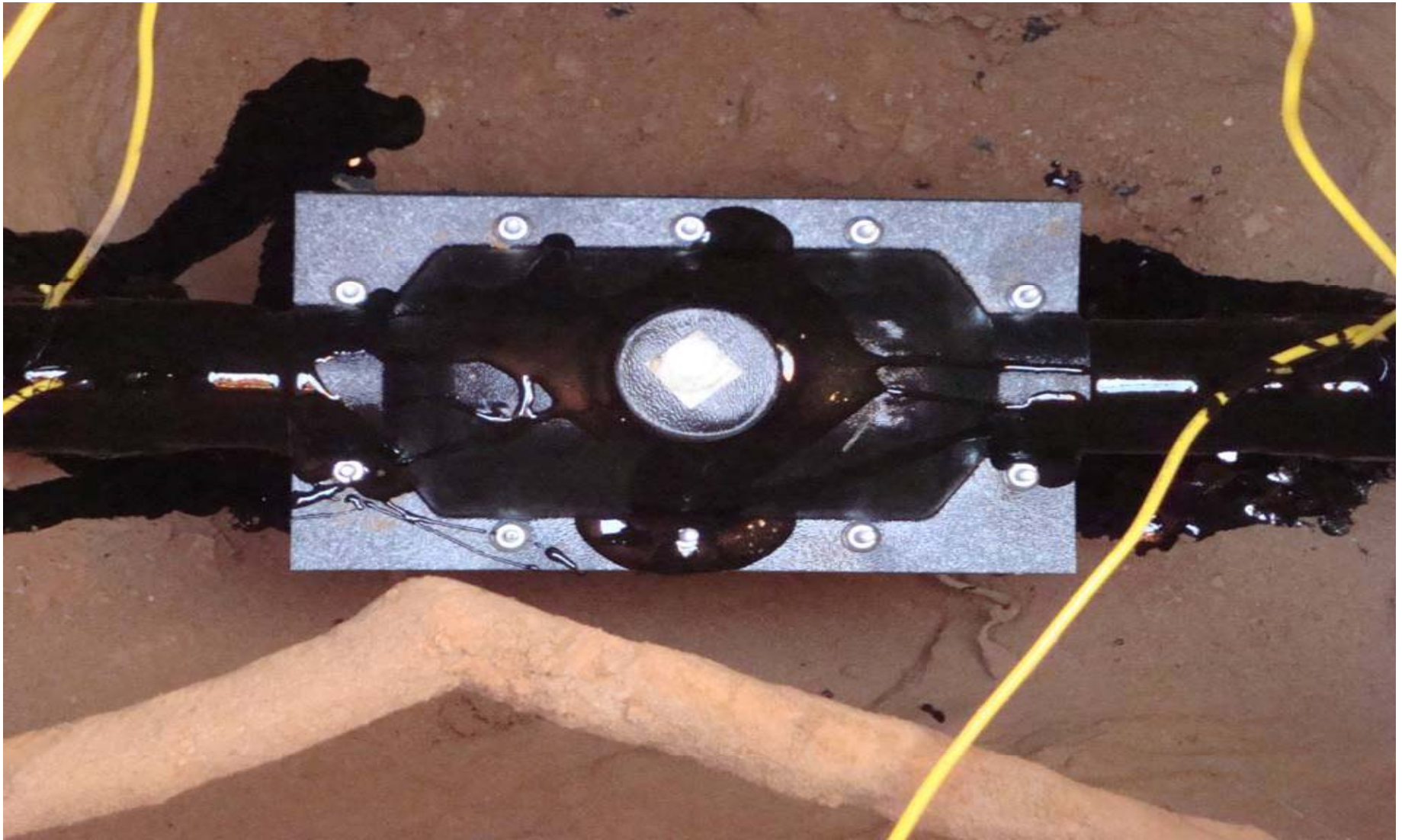


## Coupling Encapsulations – Setting the mold





## Encapsulation – Finished Product





Washington  
Gas

# Questions?