Operations at the Gas Company of the Future

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Gas Technology Institute

Independent non-profit R&D organization

Focus: Energy and environmental issues

Location: campus near Chicago, USA

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Background

- Purpose of this paper
- Past expectations of the future
- What will a gas company be?
- Speed of technology change
- Taking advantage of current technology
- Likely outcomes

Why consider the future?

- The value of R&D in the Gas Industry
- Importance of long term versus short term
- Less ability to fund R&D
- Potential increase in “integrity” regulation while decreasing commercial regulation

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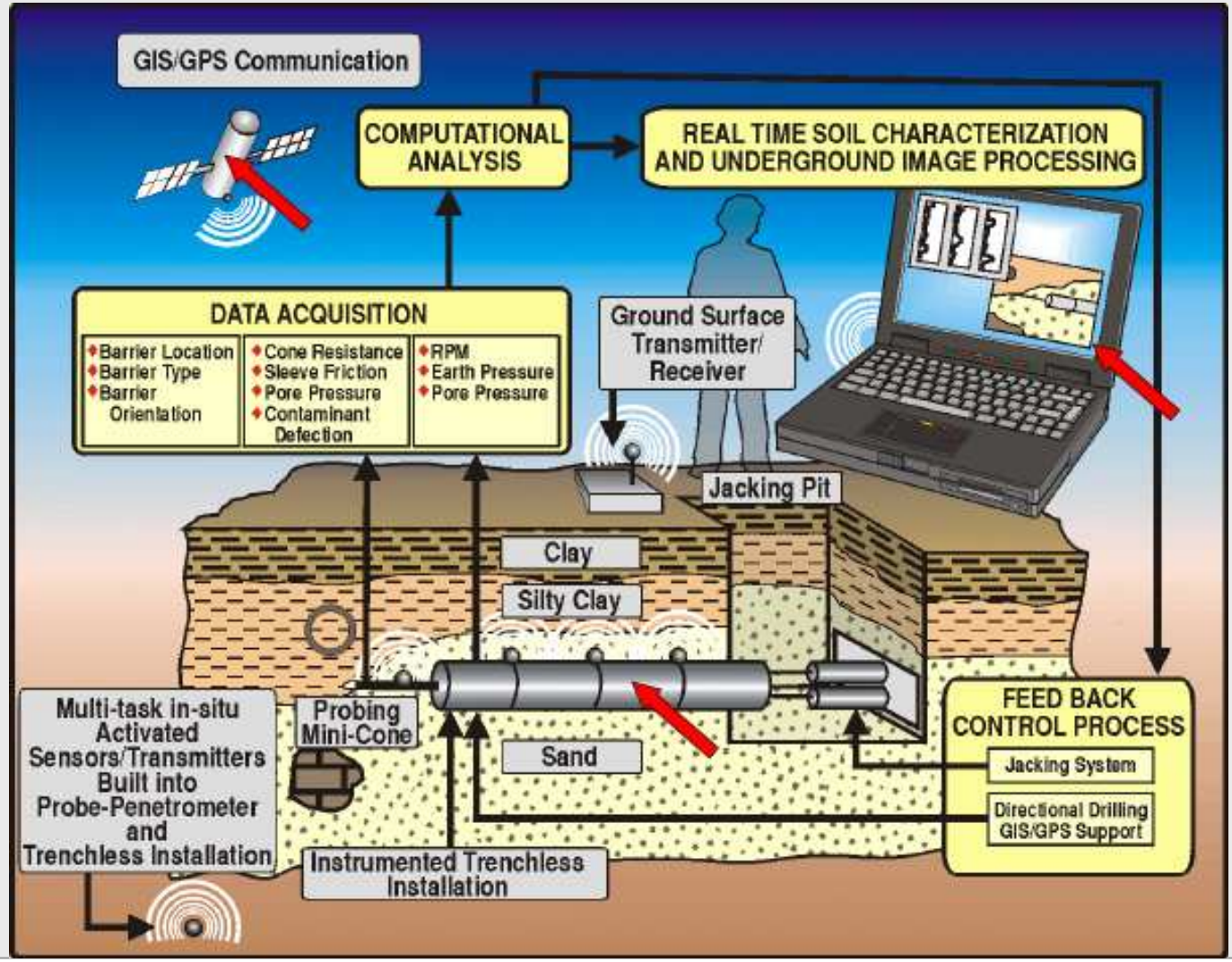
Why consider the future?

- More competition
- Speed of technology change
- New emerging technology
- Likely less people planned to perform work
- Less space available in crowded underground
- May be transporting gas with different constituents

Why consider the future?



Potential New Horizons

Transmission

- Composite materials
- Nano materials
- Gas quality management

Potential New Horizons

Distribution Construction

- Higher pressure non metallic materials
- Pipe may have new properties
- Installation from a skid mounted production unit
- Automated drilling with built in obstacle detection

Potential New Horizons

Distribution Maintenance and Repair

- One person response vehicles
- Independent employee/contractor operation
- Micro excavations
- Support systems
  - 3-D mapping
  - Leak imaging/airborne leak survey
  - Independent untethered “moles” to repair pipe
  - Equipment to prevent emissions of gas during operations

Potential New Horizons

Other functions

- Office and field integrated systems
  - Time of day tariffs
  - New information gathering paths
    - Real time usage information for utilities
    - Real time usage information for customers for each appliance
    - Payment options
      - Internet pay as you go
      - Automatic charging
  - Intelligent piping systems for data streaming

Potential New Horizons

- Cyber Security
  - Because of the dependence on data, highly secure systems are needed.

Crystal Ball

- Example of potential operations
  - New lining materials
  - Self locatable pipe
  - Self-healing pipe
  - Micro excavations
  - Ergonomically designed tools
  - “smart” gas streams
  - Automated Excavation equipment
  - Zero person crews
  - Un-metered customers
  - Materials delivery
  - Training

Conclusions

No one has a crystal ball, but we can anticipate developments.

Education and training of employees or contractors will be an important issue

The gas industry needs to explore how to efficiently operate a system by developing new technologies. Success will be the ensuring of the continued use of natural gas as an energy source.

Thank you

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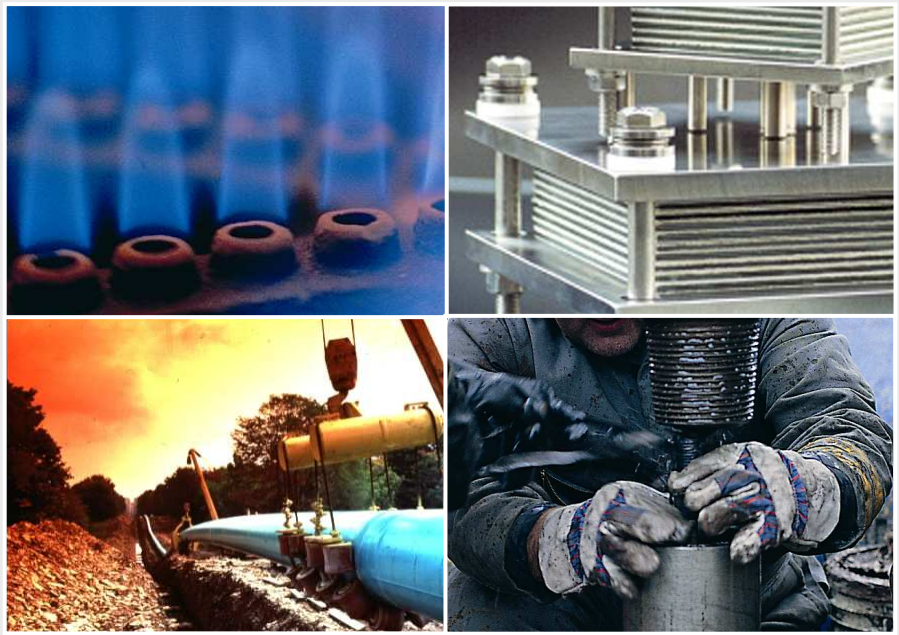

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