

Pipeline Research Council International

Technology Transfer and Adoption



LEADING PIPELINE RESEARCH

Cliff Johnson

President

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Pipeline Research Council International is...

PIPELINE

- Natural gas
- Crude oil & petroleum products
- Biofuels
- Hydrogen/renewable natural gas
- CO₂
- Related facilities

COUNCIL

- Forum for ideas & opportunities
- Peer-based
- Industry-driven
- Source of research inventory

PRCITM



RESEARCH

- Knowledge
- Technology
- Deployment & transfer
- Innovation

INTERNATIONAL

- Asia
- Australia
- Europe
- Middle East
- North America

Our Mission

To collaboratively deliver relevant and innovative applied research to continually improve the global energy pipeline systems.



Our Vision

Develop innovative solutions that provide for the safest, cleanest, and most efficient transportation and storage of energy via global pipeline systems.

Our Members

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- **Worldwide Research Organization**
 - 45 North American Companies (U.S. & Canada)
 - 25 Non-NA (Australia, Brazil, China, Europe, India, Japan, & Saudi Arabia)
- **33 Energy Pipeline Operating Companies**
 - 15 Natural Gas Transmission
 - 10 Liquid
 - 8 Liquid/Natural Gas
- **3 Pipeline Industry Organization (PIO) Members**
 - American Petroleum Institute (API)
 - Liquid Energy Pipelines Association (LEPA)
 - Operations Technology Development (OTD)
- **30 Associate Members & Technical Program Associate Members**
 - Australia, Canada, China, Europe, Japan, U.S.

Australia
 Canada
 China
 France
 Germany
 India
 Ireland
 Japan
 Netherlands
 Norway
 Saudi Arabia
 United Kingdom
 United States



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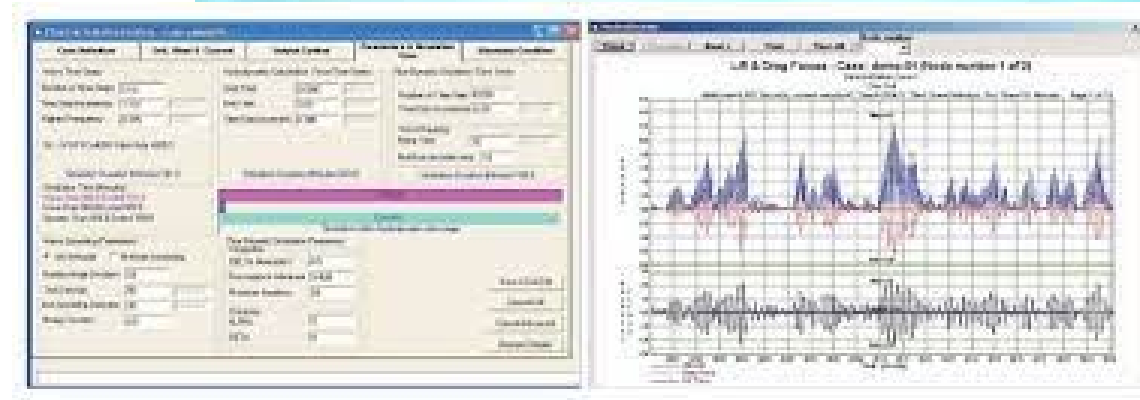
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Success Stories

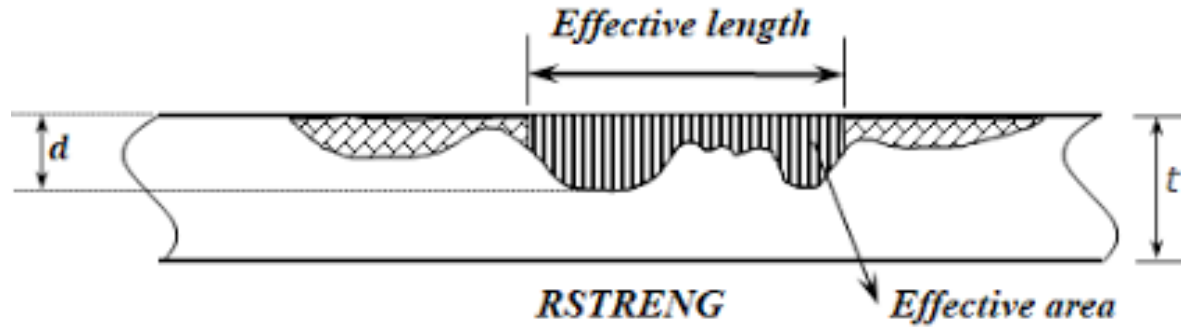
On-Bottom Stability Software

Features include:

- Calculation of kinematics from 3-D irregular waves
- Hydrodynamic force models
- Models for partial burial non-linear, time dependent interaction between pipeline and soil
- Non-linear pipeline material properties (for boundary elements)



RSTRENG



- A Modified Criterion for Evaluating the Remaining Strength of Corroded Pipe
- Industry Standard
- Referenced by PHMSA



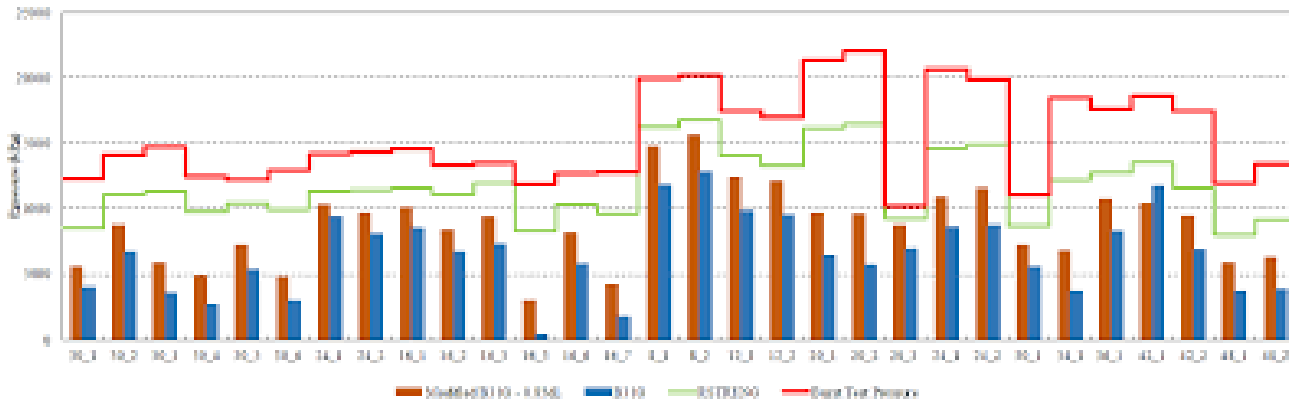
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Opportunity for Adoption

PSQR

- Advances RSTRENG
- Enhances Pipeline Safety
- Enables More Efficient Pipeline Digs



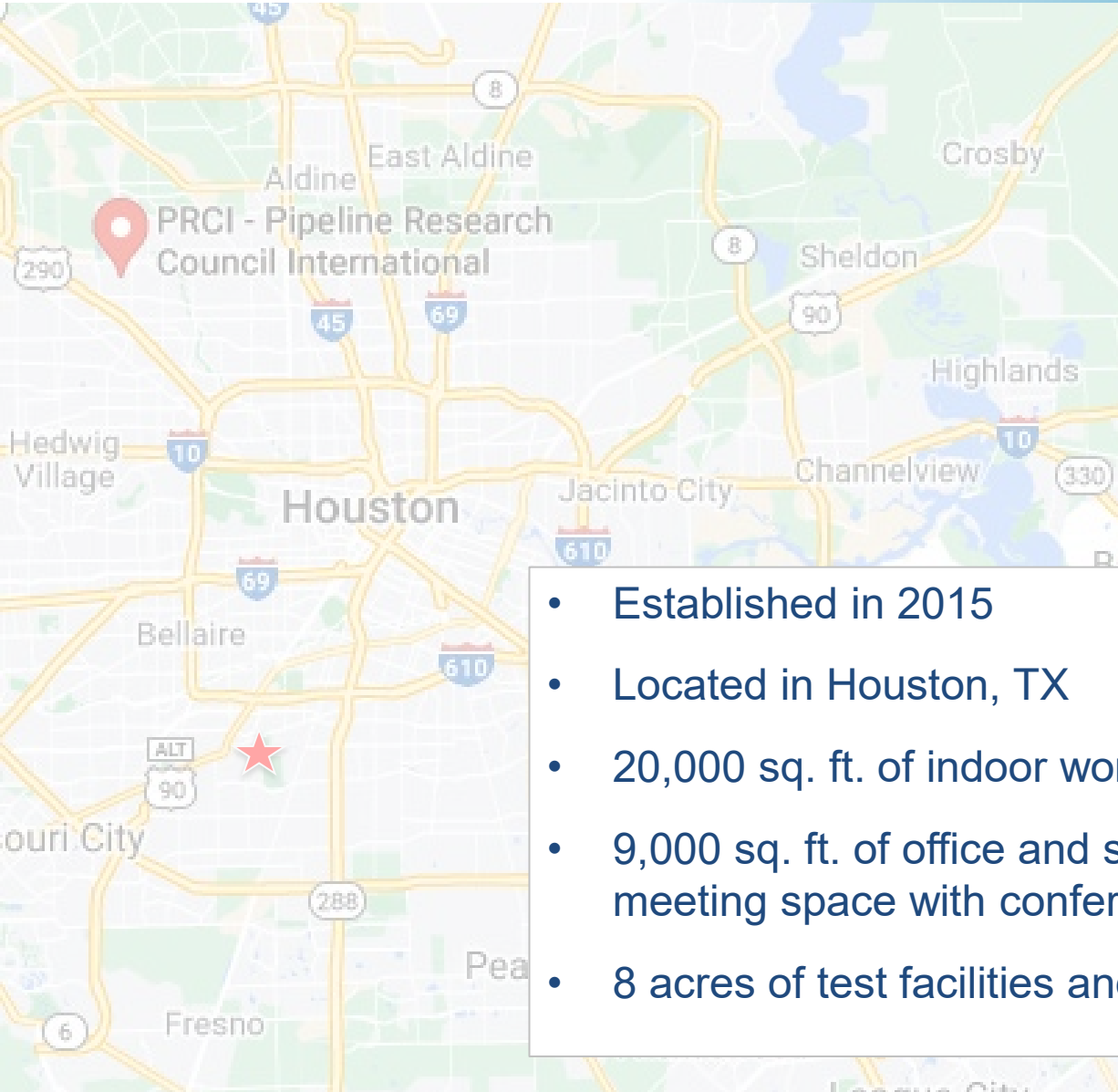


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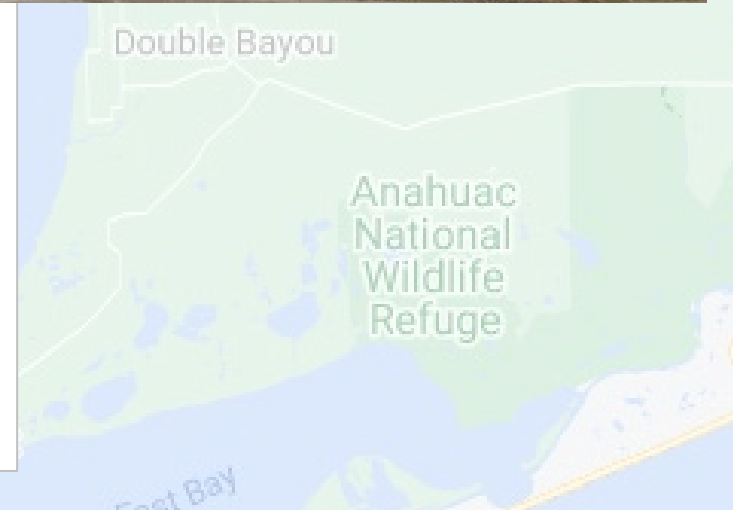
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Changing the Paradigm

Technology Development Center



- Established in 2015
- Located in Houston, TX
- 20,000 sq. ft. of indoor workshop space
- 9,000 sq. ft. of office and state-of-the-art meeting space with conferencing capabilities
- 8 acres of test facilities and pipe storage



Pipe Sample Library



- Over 1,500 pipe samples & coupons with various real & manufactured defect types & dimensions from 6" and up to 40' in length.
- Samples and coupons can be crated and shipped directly to you.
- Work at the TDC and construct pipe strings for pull or flow loop testing.
- Third party pipe surface preparation, welding, cutting & moving services available upon request.
- Over 20,000 square feet of indoor warehouse space to conduct testing, NDE evaluations & storage.



PRCI Virtual Technology Development Center

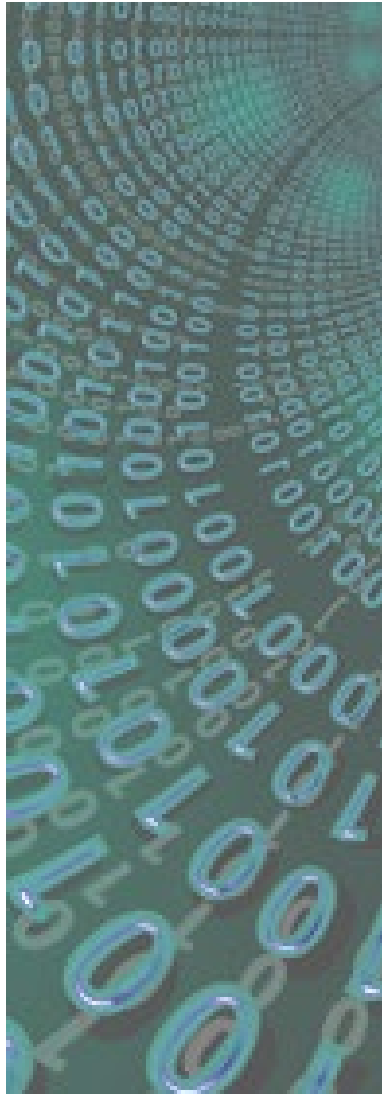
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Data Sharing

- Third party data collection
- Data normalization
- Data structure
- Blinding of Data

Benefits for the Industry

- Validation of tools for crack inspection
- Greater understanding of how to use data for tool enhancement
- Specifications have tightened and enhanced by the vendors



Industry and Government Collaboration

- Safety is the #1 priority
- Increased sharing of learnings and knowledge
- Collaborative approach
- Developing common testing protocols
- Using data to advance the story



Safety

Thank you



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Cliff Johnson
President

1-703-205-1600 Ext. 114

cjohnson@prci.org