



# HPIR Class Composite Pipeline System

Prevention First – 24 October 2012

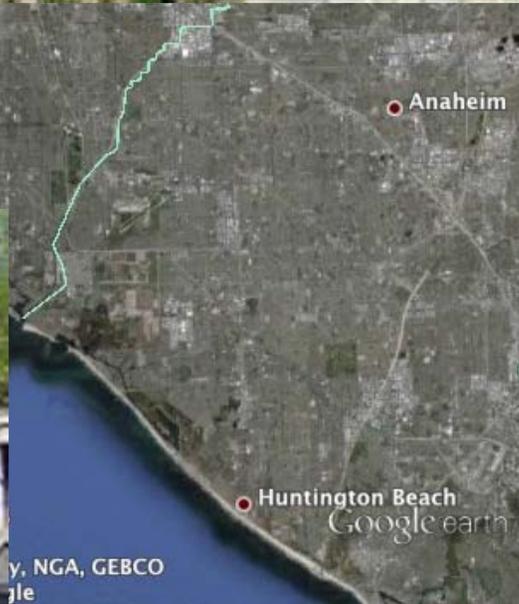
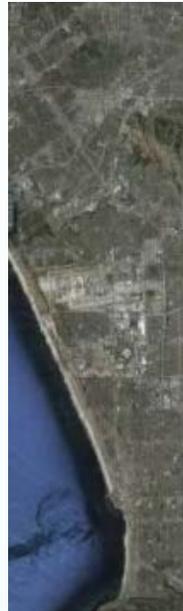


## Today's Discussion Points

- Traditional Pipeline Replacement Issues
  - Rural & Urban Locations
  - Environmental Impact
  
- Latest Development in Composite Pipe Technology
  - Environmental and Safety Benefits
  - Smart Pipe®
  - Examples



# Urban Impact





# Urban Safety





## Rural Impact





## Resource Intensive

- Permitting
  - inc. Environmental Impact Studies
- Labor & Equipment
- Scheduling
- Costs
  - Engineering
  - Labor & Equipment
  - Operational Downtime
  - Trenching



## HPIR Class Composite Pipeline Development

- Robust R&D Program
- Extensive Testing
- ASTM F2896-11
  
- Specifically to address issues associated with replacing old/corroded pipelines in difficult or impossible to access locations, including DoT Class 3 & 4 Pipelines



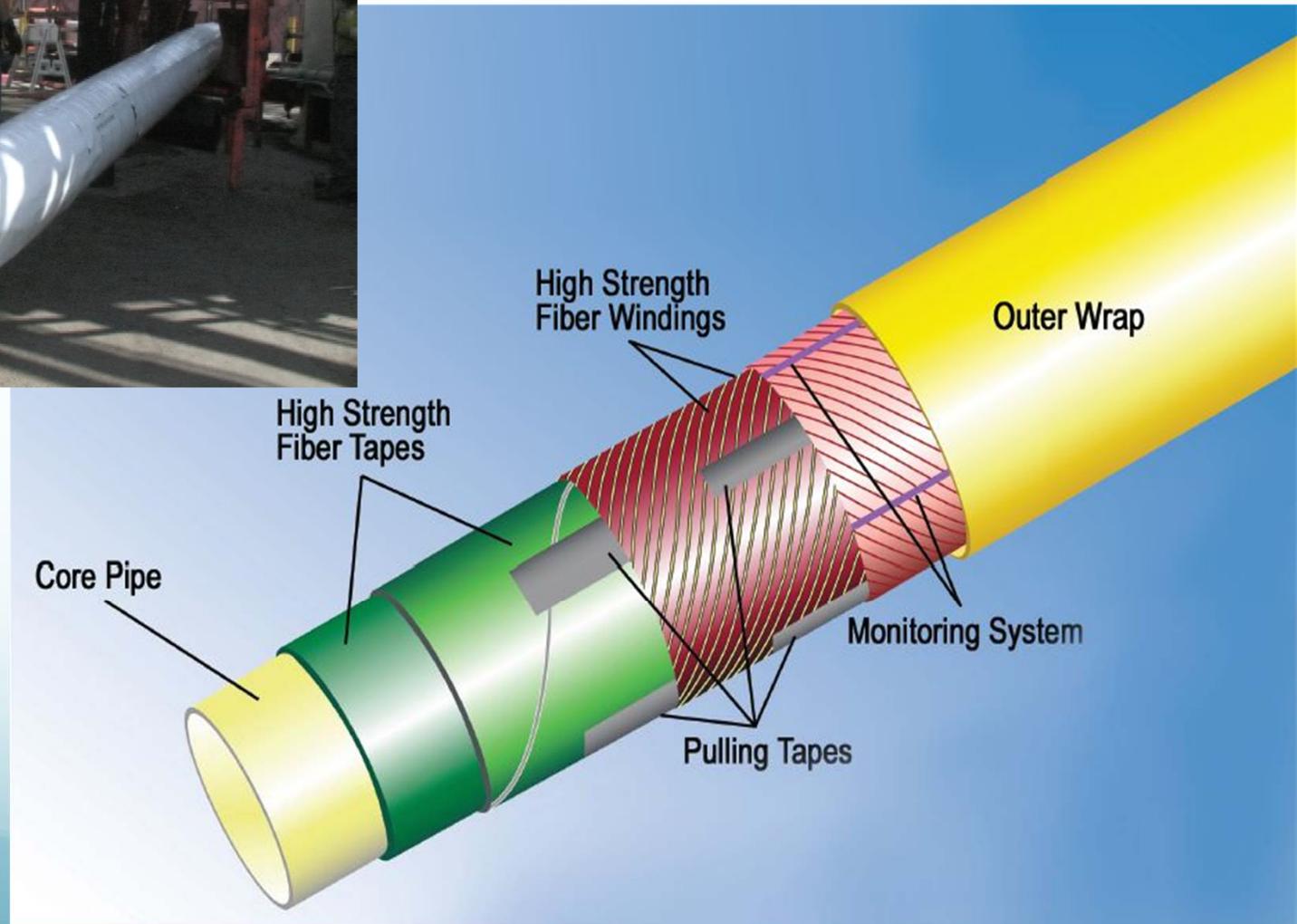


## Additional Benefits of Composite Trenchless Technology

- Superior properties compared to steel
- Less maintenance costs (non-metallic)
- Less frequent cleaning
- Higher resistance to 3<sup>rd</sup> party damage & earthquakes
- Increased through-put as a result of higher operating pressures and reduced friction
- Shorter project turnaround time



# Smart Pipe<sup>®</sup> HPIR Class Pipeline Overview





XPL-300<sup>®</sup>





## HPIR Class Composite Pipeline Development

- Large Diameter Pipelines
  - >6" (Currently up to 16" in long continuous segments)
- High Pressures
  - up to 1,000 psi
- Long Replacement Lengths
  - up to several miles in one continuous segment

### Additional Features

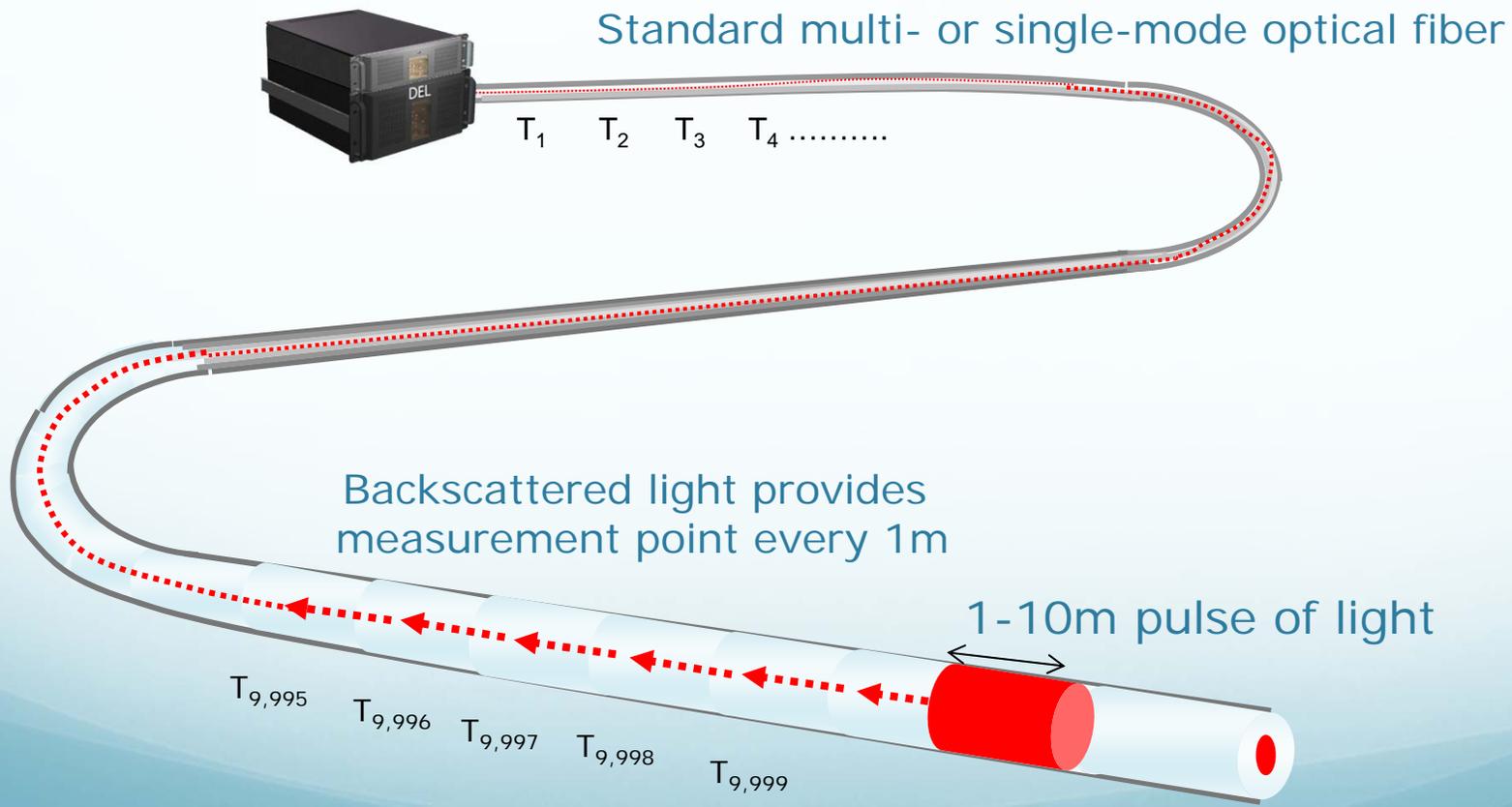
- Portable Factory
- Integrated Fiber Optics for Real Time Leak Detection and Movement Monitoring



# HPIR-View<sup>®</sup> Monitoring System

The fiber *is* the sensor

Measurements all along a 10km fiber = 10,000 sensors





# Smart Pipe<sup>®</sup> Portable Factory





# ASTM Standard

Standard F2896-11 Issued November 2011

*“STANDARD SPECIFICATION FOR REINFORCED  
POLYETHYLENE COMPOSITE PIPE FOR THE TRANSPORT  
OF OIL AND GAS AND HAZARDOUS LIQUIDS”*



# Issued State Waivers

STATE OF ILLINOIS  
ILLINOIS COMMERCE COMMISSION

Northern Illinois Gas Company d/b/a :  
Nicor Gas Company : 11-0252

Application for Waiver of 49 CFR Sections :  
192.53(c), 192.121, 192.123, and 192.619(a) :

**FINAL ORDER**

**By the Commission:**

**I. Introduction**

On March 14, 2011, Northern Illinois Gas Company d/b/a ("Nicor Gas" or the "Company") filed its Application for Waiver of 192.121, 192.123, and 192.619(a) of the federal Rules governing which commenced this proceeding. On May 31, 2011, Nicor Gas Application for Waiver (the "Application") with the Illinois Cor ("Commission") seeking an order granting Nicor Gas a waiver of 192.53(c), 192.121, 192.123, and 192.619(a) to permit the inst non-metallic, composite, reinforced thermoplastic pipe ("RTP Smart Pipe®" ("Smart Pipe®") for rehabilitation of up to four 6-in steel intrastate gas distribution pipeline segments that cross u River approximately one mile southeast of Ottawa, Illinois. On Commission entered an Interim Order (the "Interim Order"), provided, in relevant part, the Chief Clerk to forward the Assoc of the Department of Transportation, with a copy to the Assoc Pipeline Safety for the Pipeline and Hazardous Materials S ("PHMSA") and to the Regional Director of PHMSA's Central Reg allow the Secretary to review and object to the waiver, pursuant On or before September 30, 2011. Jeffrey D. Wiese, Associ PHMSA, timely provided the Commission with a letter (the "Letter" did not object to the waiver, provided certain additional condit December 9, 2011 Staff of the Illinois Commerce Commission ("I filed an Agreement and Stipulation with the Commission, indicat Gas nor Staff object to the additional conditions proposed by PHM:

**II. Applicable Rules and Company's Position**

The Commission has adopted the standards for pipelin 49 CFR Sections 191.23, 192, 193 and 199, including the Se subject of Nicor Gas' Application, as its minimum safety

Illinois

SEP-02-2009 13:05 From:PHM99C 7145494410 To:FWK P.1/2

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY

**CAL FIRE**  
OFFICE OF THE STATE FIRE MARSHAL  
Pipeline Safety Division  
DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
3801 Paramount Blvd #210  
Lakewood, CA 90712  
Phone: (952) 487-9100  
Website: [www.sfs.ca.gov](http://www.sfs.ca.gov)

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

August 24, 2009

Mr. Charles P. Plant  
Vice President, Production  
THUMS Long Beach Company  
111 West Ocean Boulevard, Suite 800  
Long Beach, California 90801-2900

**RE: PETITION FOR WAIVER FOR REPLACEMENT OF OIL PIPE (SMART PIPE)**

Dear Mr. Plant:

This letter is in response to your petition of March 12, 2009 requer an existing pipeline constructed of material other than steel. We utilizing reinforced thermoplastic pipe (RTP) as described in your unduly hazardous and is therefore permitted for installation and o

You also asked for a waiver of 49 CFR §195.406(a), §195.452(c)

- 49 CFR §195.406(a) addresses establishing a maximum o on internal design pressure and pressure testing for steel c substitute 49 CFR § 192.513 testing requirements for plast MOP as a more appropriate code requirement. We will ac 125% of the minimum test pressure established by the Par conducted prior to initial startup.
- 49 CFR §195.452(c)(i)(B) requires pressure testing to be c with 49 CFR 195 Subpart E. As stated above you are ask under 49 CFR § 192.513 requirements. This request is del the pipeline to be initially tested as prescribed 49 CFR Par
- 49 CFR §195.452(f)(2) requires a baseline assessment pi requirements of §195.452(c). You are again asking for a v pressure test according to 195 Subpart E. We grant you th

CONSERVATION IS WISE-KEEP CALIFORNIA GREEN AND GO

California

MICHAEL L. WILLIAMS, CHAIRMAN  
VICTOR G. GABRILO, COMMISSIONER  
ELIZABETH A. JONES, COMMISSIONER

**RAILROAD COMMISSION OF TEXAS**  
OFFICE OF GENERAL COUNSEL  
April 21, 2010

**RECEIVED**  
APR 26 2010

Joe Mills  
Director - Operations & Engineering  
Monument Pipeline, LP  
5847 San Felipe, Ste 1910  
Houston TX 77057

**Re: GAS SERVICES DOCKET NO. 09888; APPLICATION OF MONUMENT PIPELINE, L.P. FOR WAIVER OF CFR §§192.53(c), 192.121, 192.123, AND 192.619(a) FOR INSTALLATION OF COMPOSITE THERMOPLASTIC PIPE FOR PILOT INSTALLATION TEST PROJECT AT ITS INTRASTATE NATURAL GAS PIPELINE FACILITY LOCATED IN MISSOURI CITY, TEXAS; FINAL ORDER**

To the Parties:

The Railroad Commission of Texas has acted upon the above-referenced case. Please refer to the attached Final Order for the terms and date of such action.

This order will not be final and effective until at least 23 days after the date of this letter. If a Motion for Rehearing is timely filed, this order will not be final and effective until such Motion is overruled. A Motion for Rehearing should state the reasons you believe a rehearing should be granted, including any errors that you believe exist in the Commission's order. If the Motion is granted, the order will be set aside and the case will be subject to further action by the Commission at that time or at a later date.

To be timely, a Motion for Rehearing must be received by the Commission's Docket Services (see letterhead address) no later than 5:00 p.m. on the 20th day after you are notified of the entry of this order. You will be presumed to have been notified of this order three days after the date of this letter. This deadline cannot be extended because it is set by law. Fax transmissions will not be accepted without prior approval from the hearings examiner. ORIGINAL PLUS THIRTEEN COPIES of the Motion for Rehearing shall be submitted to the hearings examiner. PLEASE DO NOT STAPLE COPIES. One copy must be sent to each party. In addition, if practicable, parties are requested to provide the examiners with a copy of the Motion for Rehearing on a diskette in Word or WordPerfect format. The diskette should be labeled with the docket number, the title of the document, and the format of the document.

Sincerely,  
  
Mark J. Hammeller  
Hearing Examiner

MJH/cic  
Attachment

cc: Bill Grise - RRC, Austin  
Mary McDaniel - RRC, Austin

5TH NORTH CONGRESS AVENUE \* PO BOX 1207 \* AUSTIN, TEXAS 78768-2907 \* PHONE: 512/963-0200 \* FAX: 512/963-0900

Texas



# Pilot Installation in Texas XPL-312-800



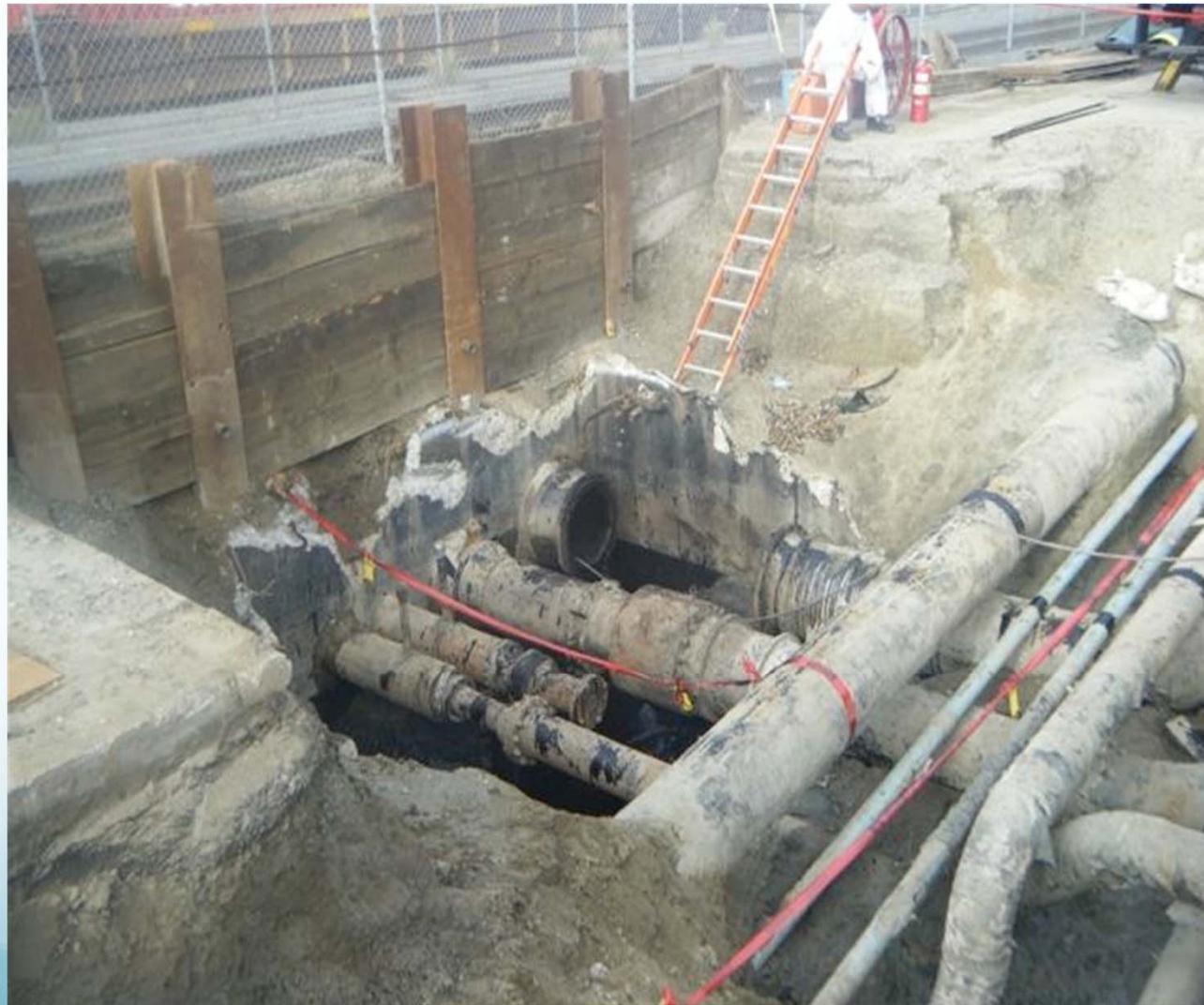


# Four River Crossings XPL-306-245





# Difficult Excavation Points





## Conclusion

HPIR Class composite pipelines offer a better alternative to steel for replacing old/corroded lines due to their:

- Superior performance properties
- Less maintenance costs due to corrosion
- Ability to be inserted into old pipelines in long lengths
- Minimal environmental impact along pipeline right-of-way
- Ability to address high pressure, large diameter applications
- Ability to continually monitor the pipeline for leaks, damage, etc.



## Environmental Security

IN AREAS OF EXTREME ENVIRONMENTAL SENSITIVITY, SMART PIPE® SHOULD BE CONSIDERED TO PROVIDE A “DOUBLE BARRIER” IN EXISTING OR NEW PIPELINES CROSSING RIVERS, BAYS, BEACHES, ETC.

“PREVENTION FIRST”



Smart Pipe Company, Inc.

Robin McIntosh

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