New Orleans Water Main Replaced With Compression-Fit HDPE

Wallace C. Drennan, Inc

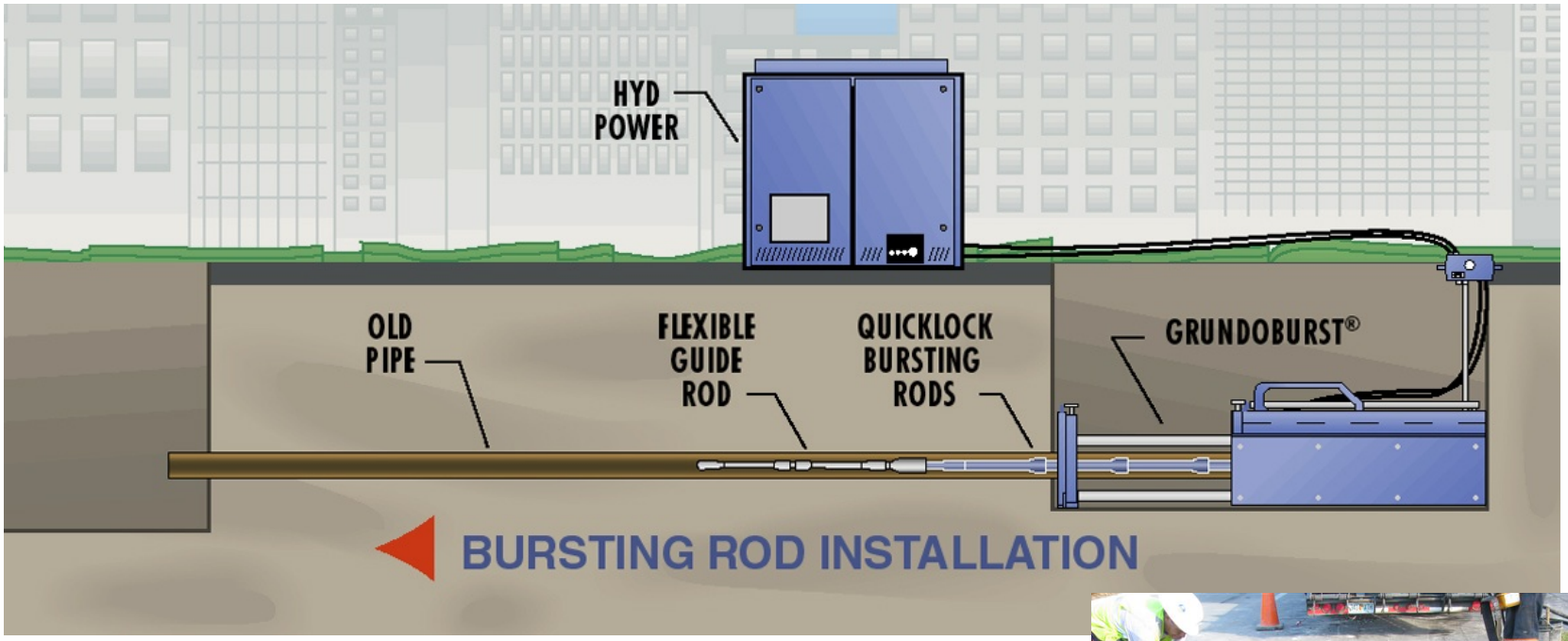
MPC Murphy Pipeline Contractors, Inc.

SEWERAGE & WATER BOARD CRESCENT BOX WATER METER NEW ORLEANS, LA. FORD METER BOX CO. WABASH, INC.

United Kingdom – British Gas

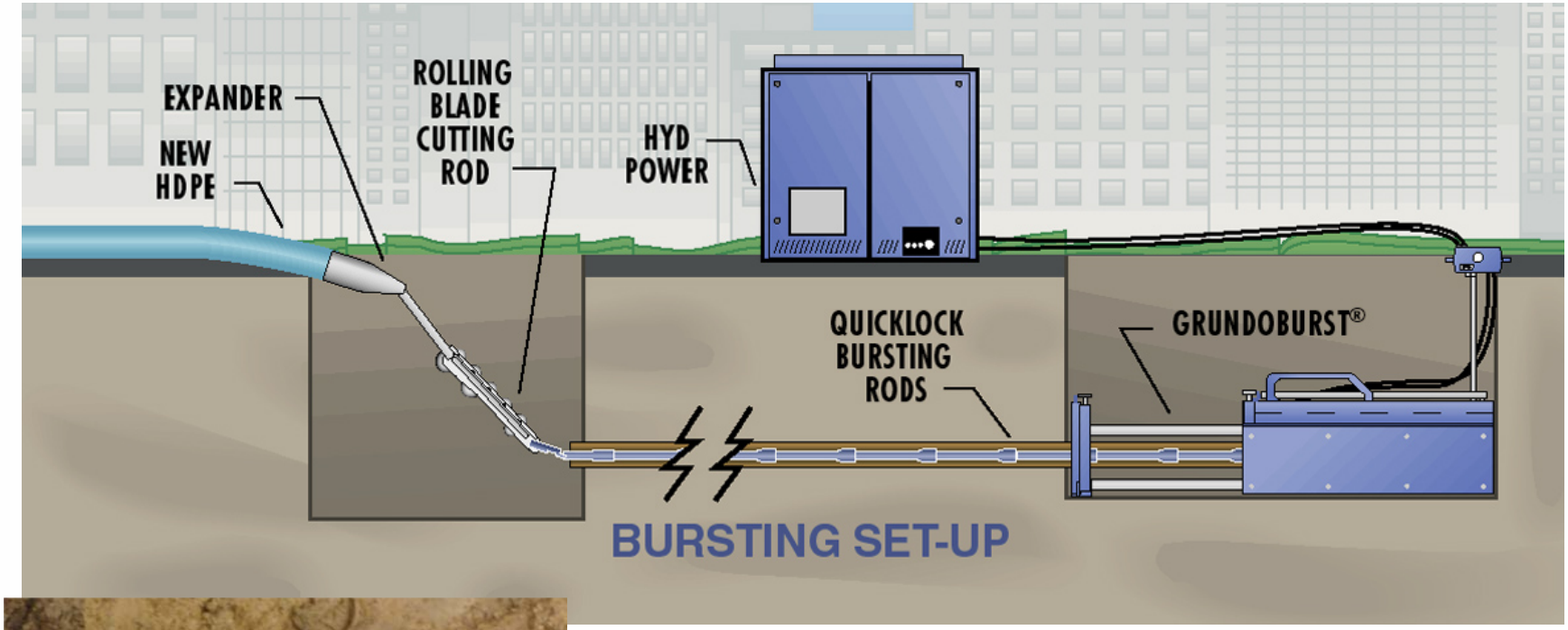
Development of Swagelining & Pipe bursting in 1970's

Static Pipe Bursting – Push out rod

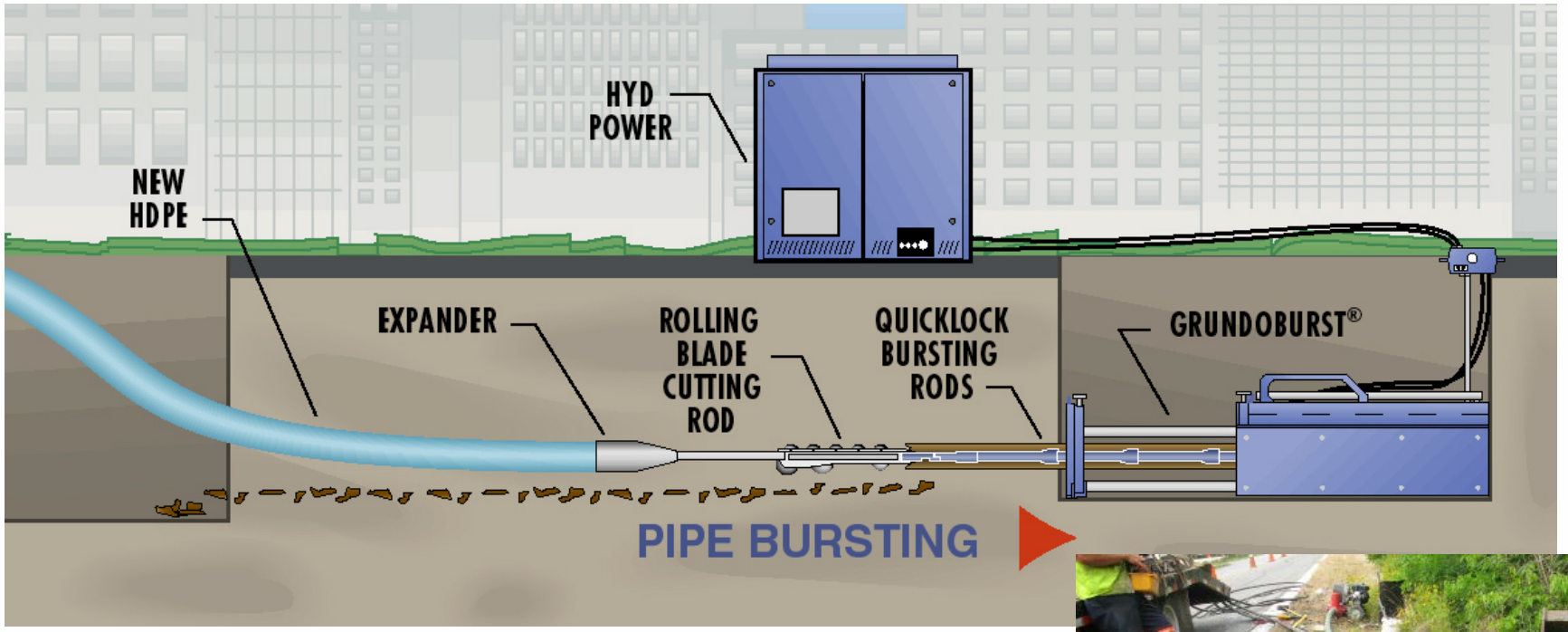


Static Pipe Bursting – Push out rod

Pipe Bursting Setup – Attach tooling and pipe

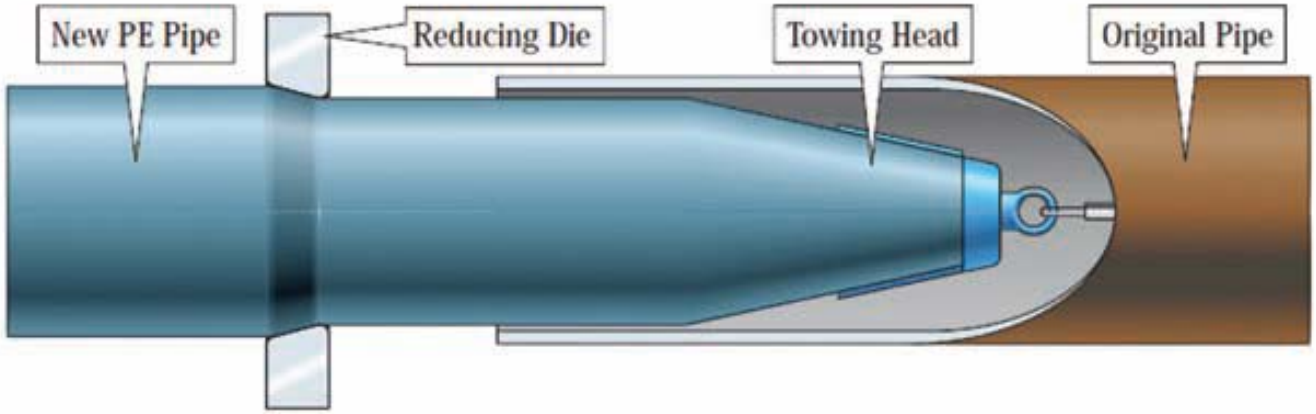


Pipe Bursting Setup – Pull back



Pipe Bursting Process – Pull back

Compression Fit HDPE pipe lining Process



Swagelining Video

Swagelining Engineering Value

- Follows path of existing utility
- Maintains or slightly increases flow
- Install HDPE pipe that is Solution to the Problem
  - Fully structural HDPE (Class IV plus)
    - Design for both Internal Pressures and External Loading
    - Full “Stand-Alone” Capability
  - Semi structural HDPE
  - Thin walled HDPE

Swagelining Construction Overview

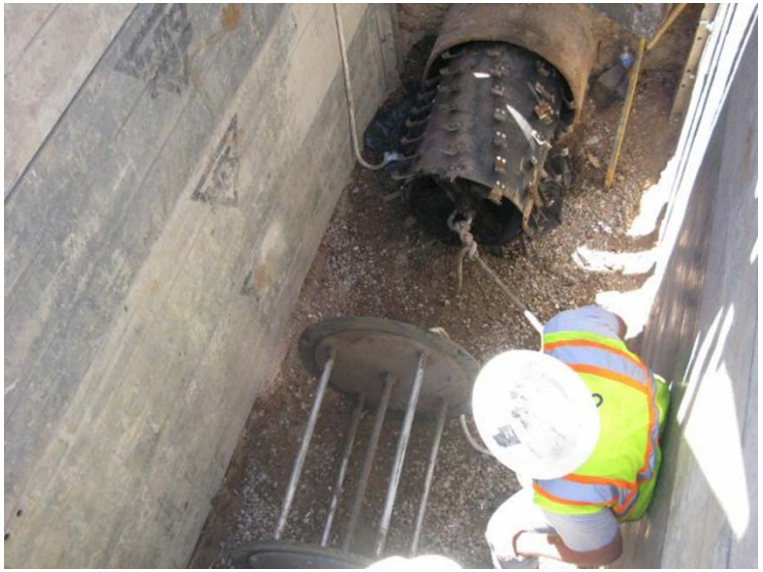
- Insertion lengths up to 5,000 feet
- Pipe sizes of 4” through 78”
  - Static Pipe Bursting most suitable 4” through 16”
  - Water Transmission & Sewer Force Mains most suitable 16” through 78”
- Negotiates field bends
- Surgical excavations of 92% less than open cut
- Environmentally sensitive
- Undertake projects year round
- Social costs reduced

HDPE Pipe Value

- Ultra long term design life of 100 plus years by third party testing (Jana Laboratories, 2009; AWWA Journal and EPRI)
- Corrosion & Chemical Resistance
- Leak Free, Fully Restrained Joints
- Handles surge events 2 times operating pressure (ASTM F714, ASTM D3035 and AWWA C901/C906/M55)
- Unmatched Fatigue Resistance
- Hydraulically Efficient
- Temperature Resistance
- Zero failures in past earthquakes in Chile, Japan and Christchurch (per Water RF)
- Lowest failure rate among water piping systems (UKWIR)
- Resistance to RCP

Swagelining Installation – Preparation of Host Pipe

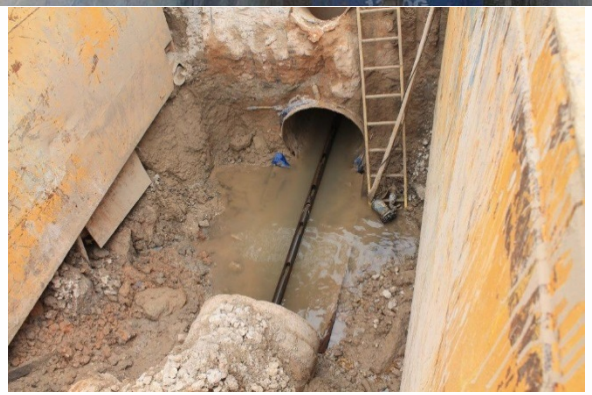
- Camera/man entry inspection
- Cleaning
- Proving pig sent through host pipe to ensure free bore path

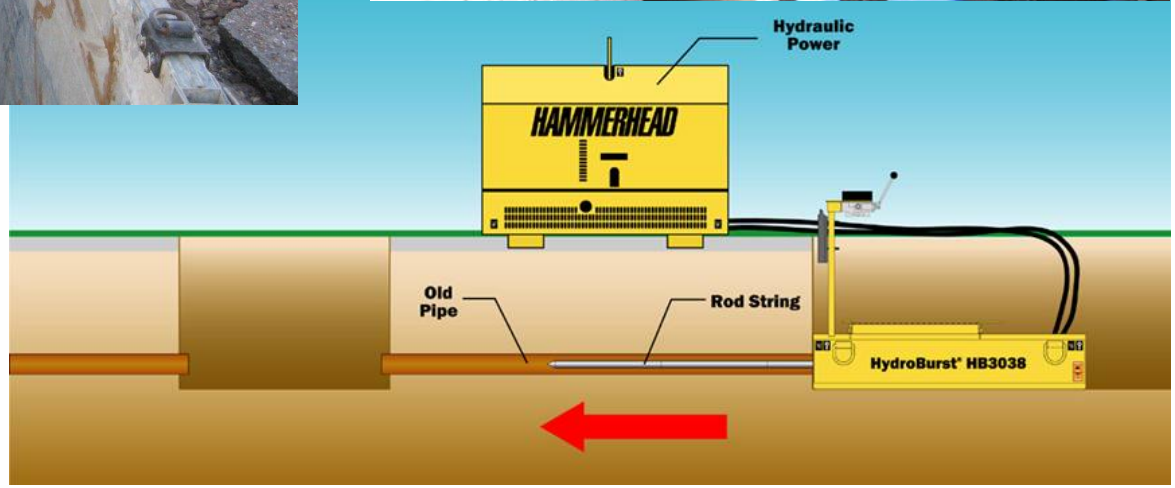


Swagelining Installation – Butt Fusion

- Sections of HDPE pipe are butt fused together
- External bead removed

Swagelining Installation -
Shuttle Rods through host pipe

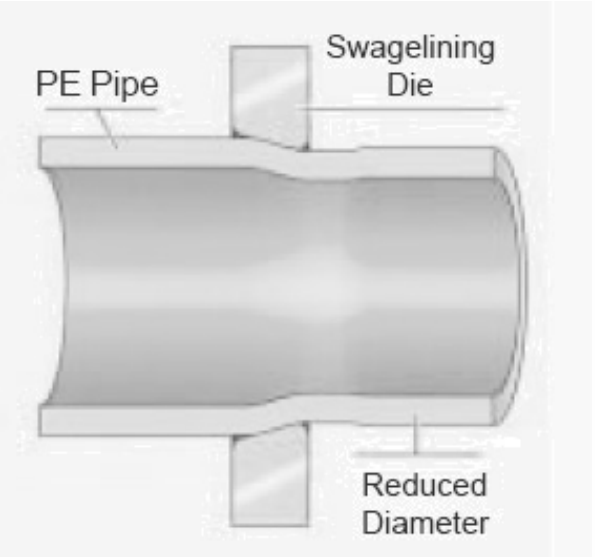


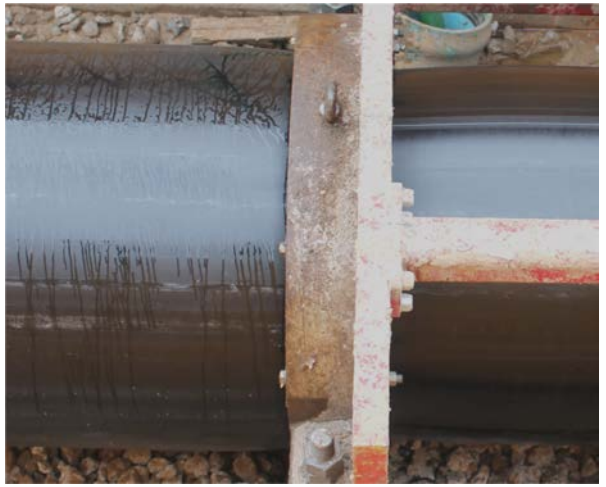


Swagelining Installation –
Attach pipe once rods reach entry pit

Swagelining Installation – Reducing Die

- HDPE pipe has an OD slightly larger than the ID of the pipe to be renewed
- Pipe is pulled through a reduction die which temporarily reduces its diameter





Swagelining Installation –
Rods recovered at exit pit

- Rods are removed from the exit pit as pipe is pulled into place
- For the next pull the exit pit becomes new entry pit

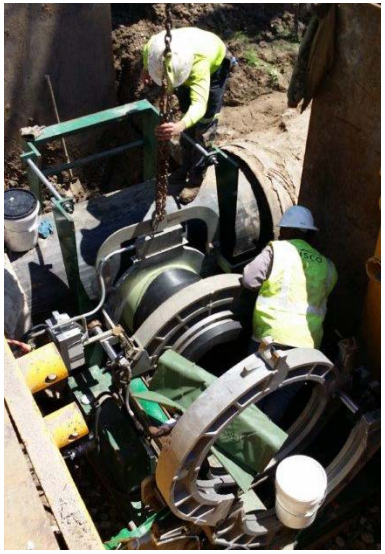
Swagelining Installation – HDPE enters receiving pit

- Pulling force removed
- Natural relaxation of HDPE
- 90% of reversion occurs in 2 hours
- Remaining reversion occurs overnight

Swagelining Process – Results

- No gaps - all annular space is eliminated
- Fully structural pipe
- Interactive pipe
- Thin walled liner

Swagelining Installation – Final Connections



Advanced Engineered Solution

- Follows exiting utility path
- Provides largest Internal Diameter possible
- Long pull lengths
- Rapid installation
- Cost effective
- Solution to problem
- Long term design life
- Rural areas – environmentally friendly
- Urban areas – reduced social costs

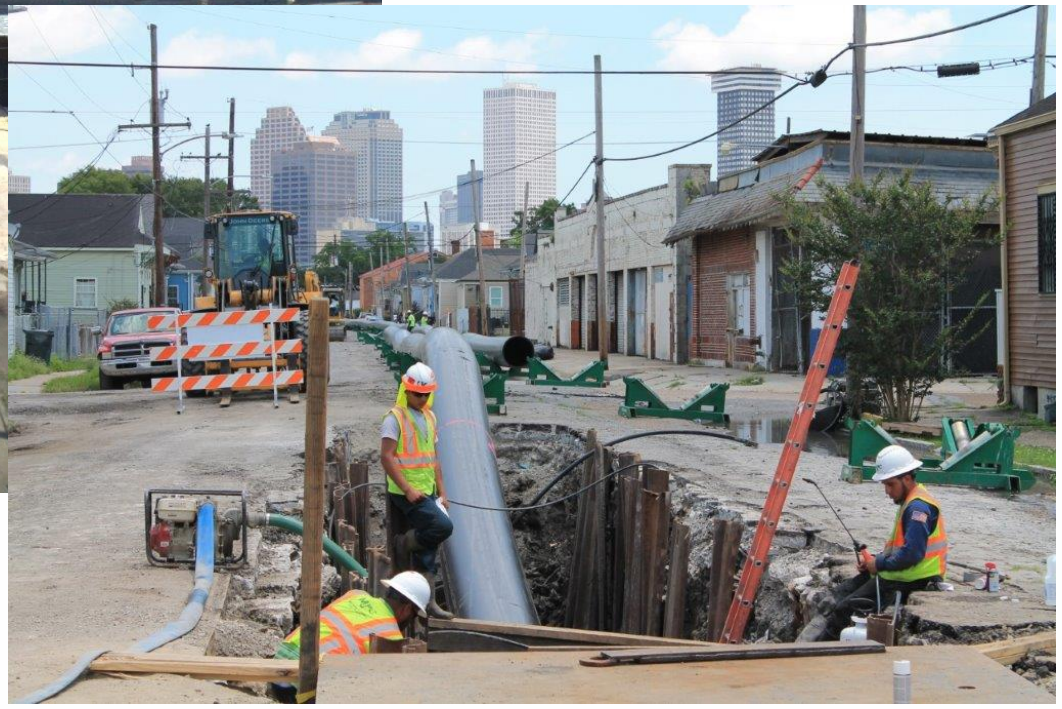
Case Study

New Orleans Sewerage & Water Board

- 3,100 feet of existing 16” Cast Iron Water Main replaced with Swagelining HDPE
- 1,800 feet of existing 30” Cast Iron Water Transmission Main replaced with Swagelining HDPE
- 1,300 feet of 12” Cast Iron Water Distribution Main replaced with 12” HDPE by pre-chlorinated pipe bursting

Case Study

New Orleans Sewerage & Water Board



Case Study

New Orleans Sewerage & Water Board

New Orleans Water Main Replaced With Compression-Fit HDPE

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