



# Getting a Pipeline Done - The Shreveport GM Project

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# Shreveport Project Presentation Overview

- Project History
- Pipeline
- Lessons Learned
- Questions

# Shreveport Project Project History

## ● Original Design

- “High Btu”
- First gas sales – Dec 1999
- Shutdown – Jan 2001

## ● Revised Design

- “Medium Btu” or direct use
- Boiler fuel at GM Assembly Plant
- First gas sales – Oct 2003

# Shreveport Project Medium Btu Facility



# Shreveport Project Compression and Drying



# Shreveport Project Pipeline Leaving LFG Facility



# Shreveport Project LFG Metering at GM



# Shreveport Project Pipeline

- Contracting Strategy
- Permitting
- Design Specifications
- Right-of-way
- Construction
- Cost
- Schedule

# Shreveport Project - Pipeline Map



# Shreveport Project Pipeline – Contracting Strategy

- Understand project roles
  - Owner v. project manager/general contractor
  - Legal implications
- Choose criteria for selecting project manager
  - Project experience
  - Breadth of services
  - Strong local presence
    - Subcontractors
    - ROW
- Consider breaking into multiple contracts
  - Supply materials
  - Union considerations

# Shreveport Project Pipeline – Construction



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# Shreveport Project Pipeline – Permitting

- Understand all applicable laws potentially affecting pipeline construction, operations, and maintenance
- Allow time for education of partners
  - Unfamiliar with LFG
  - Cautious

# Shreveport Project Pipeline – Design Specifications

## ● Specifications

- Designed to meet DOT Title 49 Part 192 specifications – Minimum Federal Gas Pipeline Safety Standards
- Pressure
  - Max. Allowable = 100 psig
  - Normal operating < 50 psig
- Must be able to “pig” the pipeline

# Shreveport Project Pipeline – Pressure Testing

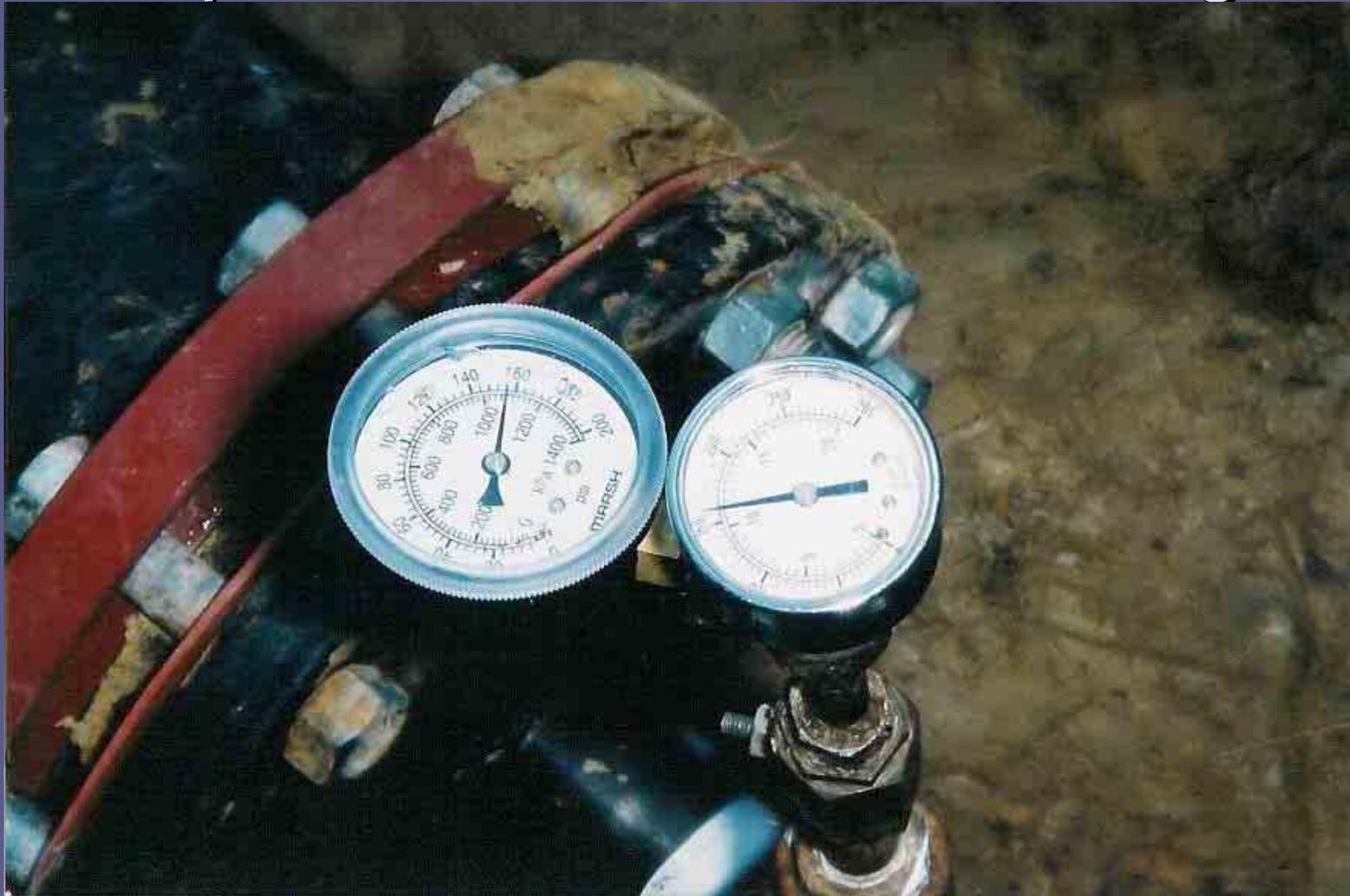


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# Shreveport Project Pipeline – Pressure Testing



# Shreveport Project Pipeline – Design Specifications

## ● Materials

- High-density polyethylene (PE 3408)
- Nominal 10-inch diameter, SDR 11
- Long-radius or “sweep” ells and full-port valves for pigging

# Shreveport Project Pipeline – Construction



# Shreveport Project Pipeline – Construction



# Shreveport Project Pipeline – Construction



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# Shreveport Project Pipeline – Construction



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# Shreveport Project Pipeline – Right-of-way

- Most critical element of successful pipeline project
- Negotiated v. “imminent domain”
- Carry multiple routing options
- Allow time for negotiations
- Consider using existing rights-of-way or easements
- Slightly over 7 pipeline miles to cover 6 direct miles

# Shreveport Project - Pipeline Map



# Shreveport Project Pipeline – Forested ROW



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# Shreveport Project Pipeline – Forested ROW



# Shreveport Project Pipeline – Transition to Parish ROW



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# Shreveport Project Pipeline – Parish ROW



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# Shreveport Project Pipeline – Construction near Landfill



# Shreveport Project Pipeline – Wet Construction Conditions



# Shreveport Project Pipeline – Backfilling



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# Shreveport Project Pipeline – Boring GM Boulevard



# Shreveport Project Pipeline – Boring under GM Plant



# Shreveport Project Pipeline – Pulling Pipe through Bore



# Shreveport Project Pipeline – Piping Strings for Pulling Bore



# Shreveport Project

## Pipeline – Installing Pipeline along Simpson Road



# Shreveport Project Pipeline – Entering GM Property



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# Shreveport Project

## Pipeline – Completed Construction near GM



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# Shreveport Project Pipeline – Cleaning Simpson Road



# Shreveport Project

## Pipeline – Erosion Control over Trenched Area



# Shreveport Project Pipeline – Bored Section near Residence



# Shreveport Project Pipeline – Cost

● Materials	\$0.3 mil
● Construction	\$0.8 mil
● ROW / Permits	\$0.2 mil
● Eng. / Project Mgmt.	<u>\$0.2 mil</u>
● <b>TOTAL</b>	<b>\$1.5 mil</b>

- Average Total Cost - \$39 / ft  
- \$20,000 / inch - mile

# Shreveport Project Pipeline – Schedule

- “High Btu” plant shut down Jan 2001
- “Med. Btu” contract executed (GM) Jan 2002
- CEPS selected as Project Manager Mar 2002
- ROW / Permits obtained Mar – Oct 2002
- Subcontracts awarded Nov 2002
- Pipeline construction Nov 2002 – Feb 2003
- Plant construction Mar – May 2003
- First LFG Sales Oct 2003

# Shreveport Project Lessons Learned

- Project management and contractor selection is critical
- Investigate permitting issues early
- Consider pipeline routing alternatives

# Shreveport Project

## Thanks to Project Partners

- City of Shreveport – Landfill Owner
- General Motors – LFG End-user
- Toromont Process Systems – Equipment
- Nicholas Consulting Group – Plant E&C
- CenterPoint Energy – Pipeline E&C
- SCS and AEGL – GCCS E&C
- Western National Bank – Project Financing

# Shreveport Project

# Questions ??



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