



## PRACTICAL MIDSTREAM AND PIPELINE SOLUTIONS

### WHO WE ARE?

Seasoned engineers and commercial specialists with diverse skill sets in oil & gas industry. We partner with industry experts to deliver best-in-class transaction and capital project solutions.

### WHAT WE DO?

From technical & commercial due diligence, expert witness for construction lawsuits, project development advisory, project engineering & management, to regulatory compliance, we bring practical solutions.

**TRANSACTION  
DUE DILIGENCE**

**PROJECT  
ADVISORY**

**PROJECT  
MANAGEMENT**

**EXPERT  
WITNESS**

**INTEGRITY  
MANAGEMENT**





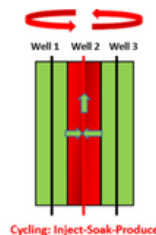
### LENDER DUE DILIGENCE

- Expert opinion on asset quality - 200MMcf/d gas, crude, water gathering, 140MMcf/d gas plant in Permian Basin
- Design/operations data review
- Gathering and processing contract review
- New project risk assessment
- Bottleneck analysis
- \$120M credit facility



### STARTUP ADVISORY

- Funding and market study for gas injection EOR startup in Eagleford Shale
- Evaluation of technology and commercial risk
- Development of business case and pitch deck for fund raising



		Huff-n-Puff Process		
		2 Complete Cycles shown		
Periods	Cum	Well 1	Well 2	Well 3
Days				
20	30	Monitor	Inject	Monitor
20	50	Inject	Soak	Monitor
20	70	Soak	Produce	Inject
20	90	Produce	Inject	Soak
20	110	Inject	Soak	Produce
20	130	Soak	Produce	Inject
20	150	Produce	Inject	Soak
20	170	Inject	Soak	Produce

Process cycle continues through testing period

### JOINT VENTURE DUE DILIGENCE

- Expert opinion on asset quality - 1150km pipeline in Western Canada
- Design/operations data review
- New project risk assessment - CAD\$7.4B
- Construction contracting strategy review
- Tolling analysis



### PROJECT ADVISORY

- Review of midstream design philosophy to support 1.4Bcf/d production
- Review of pipeline options to supply LNG
- Expert opinion on greenhouse gases disposal







## LITIGATION SUPPORT

- Expert witness for spill incident related to horizontal directional drill in Houston, TX
- Incident review and determination of driller's standard of care

*"Thank you for the excellent work you did and your report provided us with the ammunition we needed to obtain a favorable resolution."*  
Fred S.  
Attorney



## GAS PROCESSING AND GATHERING SYSTEM EXPANSION

- Development of scope and hydraulic models for gathering network to accommodate client's field development in Oklahoma
- Management of right-of-way and EPA permit acquisition
- Management of N<sub>2</sub> rejection and H<sub>2</sub>S treating equipment, compressors and pipeline installation



## SERVICE CONVERSION PROJECT PLANNING

- Development of regulatory compliance package for pipeline product change
- Project engineering for LPG to diesel/gasoline conversion



## HIGH-PRESSURE CO<sub>2</sub> PIPELINE FOR ENHANCED OIL RECOVERY

- Management of engineering, permitting, construction of 325-mile 24" pipeline in TX/LA
- Management of 110-mile pipeline take-up and disposal with asbestos coating
- Terrain included swamp, farmland, urban, major rivers, and shallow water (Galveston Bay)





## ECDA IMPLEMENTATION

- ECDA pre-assessment including tool selection and historical data integration
- ECDA post-assessment including defect classification and re-assessment interval



## CALIPER PIG DEBRIS MAPPING

- Design of pre-ILI debris mapping program using caliper pigs
- Program informed clients of pipeline cleanliness and readiness for ILI tools



## PIPELINE SYSTEMS RETROFIT

- Review of historical data to determine piggability in TN/GA
- Development and management of pipeline retrofit projects
- Development of flow interruption plans with client's operations, gas control, construction groups



## REHABILITATION AND INLINE INSPECTION

- Development of rehabilitation program for vintage 18" natgas pipeline in Mississippi
- Management of ILI, defect assessment, crack arrestors, valve and crossing replacements
- Re-establishment of MAOP and development of IMP for regulatory compliance



## PIPELINE SYSTEMS MAXIMUM OPERATING PRESSURE

- Review of design and operations data to establish MOP for 200-mile crude pipeline system of 6" through 16" in Rockies
- Construction of hydraulic and flow optimization models for various batch scenarios

