RPSEA & Environmentally Friendly Drilling Program sponsored Small Scale Field Trials to Optimize Treatment Methods of Produced Brines to Reduce Cost and Maximize Volume of Recycled Brine

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Texas A&M University – Our Bona Fides

1997 – First University Program Addressing Barnett Shale Productivity

2001 First Major University Research Program on Treatment of Produced Water

2005 First Functional Membrane Treatment Technology for Produced and Frac Flowback Brine

2005 First University Program Addressing Environmental Issues in Oil & Gas Drilling
Continued– Our Bona Fides

2007 First EFD “Scorecard” Proposed

2008 “Disappearing Roads” Program

2009 University/National Labs Alliance

2010 EFD A&M Marcellus Shale Pre-Treatment Field Demos

2010 EFD EU Program Started

2011 Frac Flowback Brine Analytical Technology Partnership
Two Programs Needing Sponsors

**EFD- Technology Integration Project**
Focus on Eagle Ford Shale
$50,000 Sponsorship and Field Site Access for Trials

**EFD- Advanced Analytics Roundtable**
RPSEA Advanced Field Monitoring Technologies, Air, Stray Gas Emissions and Water Quality
$10,000 membership
Eagleford Well -- We need a location and water to treat.

We are self-contained and stand alone

Environmental friendly we have the capability to handle any spill or problem in our setup

All water will be returned to the source back for the operators use.
EFD- Advanced Analytics Roundtable

• This is going to be a clearinghouse for new analytical hardware for use in the field
  – Equipment for monitoring BTEX emission, water composition, oil and grease, NORM and other compounds in the produced water
• The roundtable will use members who are specialists in specific topics such as NORM to review new technology and test it in actual conditions to prove concept for the roundtable
• Each member will either have a specialty in the analytical field or a need for results in their operations.
• Members can be from Academia, Industry or supplier of equipment or material that need verification
Current Projects
Field Trials

• Integrated approach for applying new technologies

Description

• Field Tests in the Eagle Ford
• Web sites for virtual gas developments
• Outreach/Technology Transfer
Eagle Ford Shale Development

**Deliverables**
- Identify optimal treatment techniques for ultra-high brine concentrations
- Provide information to community leaders

**Status**
- New TIP Program
- A&M Separation Sciences pilot testing new technology
- Creation of new Analytical Services Roundtable

*Courtesy Williams Bros. Company*
South Texas Frac Pond Treatment for Re-Use
Marcellus Shale Brine Re-Use

**Deliverables**
- Identify optimal treatment techniques for ultra-high brine concentrations
- Provide information to community leaders

**Status**
- Current field trials in New York
- A&M Separation Sciences pilot testing new technology
- Creation of new Analytical Services Roundtable
Floor Plan Layout for Mobile Trailer and Water Tanker (2010)
Low Pressure Media Filtration
High Pressure Membranes and On-Line Sensors
Analytical Equipment for BTEX Analysis on Site
GE Analytical TOC Analysis
South Texas Frac Pond Treatment for Re-Use
Before and After Frac Brine
Frac Pond Brine Before and After Treatment
Where to Go for More Information

A Group of Analytical Services Providers for O&G Operations

High level comprehensive analytical test programs are being established to address the needs of the upstream oil and gas industry. In cooperation with the Houston Advanced Research Center and Texas A&M University's Environmentally Friendly Drilling, the association provides specialized analytical techniques needed to monitor and manage oil field waste water systems.

The Association's charter members are:

- Texas A&M School of Rural Public Health (Analytical Services Section)
- Duke University - Nicholas Environmental
- GE Analytic Services
- Hach Company
- EFD
Thank You to
Our Supporting Agencies

Texas A&M GPRI HARC
Environmentally Friendly Drilling Systems

Acknowledging

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GPRI Sponsoring Companies
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U. S. Department of Energy
RPSEA- Independent Producers

Photographs Courtesy CMGC Foundation