



Technology Showcase – What’s Ahead?

September 19, 2012

Philadelphia, PA

US Seismic Systems, Inc.

Sensor system based on proprietary fiber optic technology to detect the microseismic fractures occurring during the hydraulic fracturing process. It is estimated that 50% of fracs are non-productive; at \$300K per frac, efficiency is critical to economics.

Contact: Jim Andersen, President

<http://www.ussensorsystems.com/index.html>

TM Filtration

GFC Coalescing Filter which removes solid contaminants and separates liquids from natural gas streams.

Contact: Ed Barthelmes, Sales and Marketing Manager

www.tmfiltration.com

Altela, Inc.

Patented low cost new evaporation technology for shale gas waste water (AltelaRain®) that utilizes a revolutionary new technology that purifies water without the need for energy intensive equipment, high temperatures, expensive membranes, or high pressures required by other technologies. Installing plants in Mckean and Clarion counties, PA. Previously received \$2 million from NETL.

Contact: Matthew Bruff, CEO

www.altelainc.com

New Logic Research, Inc.

Vibratory membrane filtration technology referred to as the Vibratory Shear Enhanced Process (VSEP) that produces a clear water permeate (about 95+% recovery) laden with disassociated salts and reduces fouling of membranes. PSU supported research.

Contact: Mark Galimberti, Sales Engineer

www.vsep.com

HydroConfidence

Well construction and integrity monitoring system that can detect well pad methane migration as well as monitor the freshwater casing and cap rock for mechanical integrity using microseismic sensors. PSU supported; CTC – partner.

Contact: Dan Hussain, CEO
www.HydroConfidence.com

PEPRO LLC

Pan & Tilt 300, Directional Antenna Mount for Drill Site Communications that provides speed, precision and reliability for positioning antennas used for wireless communications and backhaul. Ben Franklin investment.

Contact: Jeffrey S Kahle, Sales Manager
www.peprollc.com

Produced Water Absorbents, Inc.

Silica-based, swellable glass to capture dissolved and dispersed nonpolar organic compounds (Osorb®). Remove BTEX, hydrocarbons, and VOCs.

Contact: Gregory Hallahan, Director of Operations and Logistics
www.pwabsorbents.com

Arcadis US, Inc.

Mobile Emissions Measurement and Leak Detection Unit that consists of a rapid-response methane analyzer, GPS, and meteorological instrumentation for installation in a field vehicle.

Contact: Mark Modrak, Certified Project Manager
www.arcadis-us.com

Epiphany Solar Water Systems

Applying a two-stage process to treat shale gas well frac water onsite and create renewable products with virtually no residuals. Stage 1 uses PMC BioTec's biological conversion technology and Stage 2 uses concentrated solar power to flash distill the brine into distilled water and salt. CONSOL invested in technology; demonstrating at CONSOL site in Green County. Innovation Works provided funding. Fluid storage and natural gas backup power provide flexibility.

Contact: Ron Pettengill, Executive Vice President – Oil, Gas, Coal Group
<http://epiphanysws.com/>

Capstone Turbine Corporation

MicroTurbine system (“Clean Cycle 125 (CC125)”), which is an organic rankine cycle (ORC) system that can produce up to 125 kWe gross at 380-480V, 3 phase, 3 wire, 50/60hz. Low-grade waste heat generator. System costs approximately \$750K.

Contact: Jerry Todd, Senior Sales Engineer, Oil and Gas Division
www.capstoneturbine.com

Advanced Tech Materials, LLC

ATM provides polyurethane based foam compounds with outstanding insulating and structural properties from refined coal combustion by-products (ash). Uses include soil stabilization, pipeline coating, trench breakers and pipe support pads. Foam is fire resistant and non-toxic. Product can be applied with equipment or buckets and makes a good, fast curing, substitute for cement.

Contact: Francisco Torres-Aranda Jr., President
www.advancedtecmaterials.com

Eagle One

Use of Ferrate VI for shale gas wastewater treatment. Removed scale forming metals and acts as a coagulant to assist in the removal of suspended solids. No bi-product is left in solution. Ferrate production is now inexpensive – key to economics.

Contact: Dan Tranthan, Vice-President – Research & Development
<http://www.goeagleone.com/>