

SHALE PLAY

# WATER MANAGEMENT

Responsible Solutions for North America's Oil and Gas Industry

January / February 2016

ShalePlayWaterManagement.com

**INFRASTRUCTURE:**  
Better Water Management  
Means Better Profits

**Get the Most From Your  
Oilfield Filtration Process**

**Plus ...**

**Water Sourcing on Your Tablet**

**Content Year in Review—2015 Article Highlights**

**The Latest News Trends and More!**





### ► *The Benefits of Real-Time Automation for Your Water-Management Process*

**Authors:** Ted Wilke and Bobby Mason, SPOC Automation

**Highlights:**

- Well-planned automation systems help operators gain efficiencies in control, energy use and maintenance.
- Transfer-tank pump management is a labor-intensive function ripe for automation.
- Without distributed pump control, if a fuse is blown or the programmable logic controller (PLC) fails, the site is either down or running in hand, requiring constant intervention.
- The drive system itself also presents a maintenance challenge if it is custom built rather than pre-integrated.

### ► *Reclaiming Revenue: Water Planning and Sustainability Can Pay Off*

**Authors:** Richard Weatherly and Corrie Bondar, Freese and Nichols, Inc.

**Highlights:**

- Conducting a thorough analysis of water-management options—including the feasibility of comprehensive water-reclamation systems—can result in water-planning and management strategies that not only boost a company's bottom line, but also improve the future water supply for the oil and gas industry in Texas and elsewhere.
- Trucking costs can affect payback time frames far more extensively than oil prices.
- The project team developed a hydraulic model of the two proposed systems and used it to determine the produced-water line materials, pressure classes and sizes, the produced-water pumps, the reclaimed-water line materials, pressure classes and sizes required.
- The study found that a reclamation system could save the producer \$6.6 million over five years with a payback of 2.5 years.

## November/December

### ► *Using Produced and Flowback Water as Fracturing Fluid—A Review of Current Trends and Developments*

**Author:** Branden Ruyle, Weatherford

**Highlights:**

- Based on the national field-handling prices, use of produced water is an appealing option for saving significantly

on completions. Innovative approaches are making it a realistic approach for operators.

- The water flowed back and produced from each well after treatment contains many components that affect formation of traditional crosslinked fracturing fluids and can present major barriers to using that water again on an adjacent well.
- When produced water is used, particularly in gel-bearing treatment designs, filtration is an additional expenditure.
- Two new robust fracturing-fluid systems have been developed and tested that, when added to the produced water result in a clean, low-residue stimulation fluid.
- These materials are environmentally friendly gelling agents and crosslinkers unaffected by the remaining water content and can treat water that is high in salinity, TDS, multivalent ions and boron, at the same time providing excellent proppant transport and conductivity.

### ► *Membrane Technology Plays Key Role in Flowback and Produced Water Treatment*

**Author:** Dirk Martin, APATEQ

**Highlights:**

- This article describes an innovative system that is cost effective and requires no chemicals in the process.
- The portable OilPaq covers almost the entire treatment chain as a single device, reducing free and emulsified oil from 500-2,000 ppm down to 1-2 ppm, suspended solids from 500-1,000 ppm to 1-2 ppm.
- The system eliminates bacteria while not altering the raw-water chemistry.
- We are not talking about water with an oil layer floating on the surface, but dissolved hydrocarbon particles in the smallest sizes, free and emulsified oil, suspended solids, and numerous salt and mineral contaminants in the water.
- Organic and particulate removal is mostly required as a pretreatment step when desalination technologies must be used to treat produced water.

## No Water – No Problem

Trican's TriFrac-MLT™ is a high-performance hydraulic fracturing fluid system that enables operators to use 100-percent flowback and produced water. Formulated using conventional fracturing-fluid components enhanced with patent-pending chemistry, this crosslinked gelled water system offers these significant advantages to customers:

- Eliminates the need for fresh water
- Reduces wastewater injection volumes
- Extremely high tolerance to salt and other contaminants
- Eliminates the need for wastewater-treatment equipment

Reusing water produced along with oil and/or gas from a well eliminates the need to acquire fresh water and dispose of produced water, resulting in a significant cost advantage. TriFrac-MLT also operates at a broad range of temperatures and has a customizable breaker schedule for optimized viscosity.



### For More Information:

TricanWellService.com | sales@trican.ca  
281-716-9152



## Water Filter for Demanding Conditions

The Spiral Water® Automatic Filter was developed to address the specific challenges of difficult-to-treat waters and has proven itself in demanding oil-and-gas applications. The patented system provides 10-100-micron filtration, offering petroleum customers a uniquely efficient solution for their primary, pre-filtration or post-filtration applications. The filter contains a motor-driven, spiral-shaped brush that continuously cleans collected debris from inside the filter element so the solids may be expelled through an automated purge valve. The efficient one-pass system operates without high pressure and performs at a very low differential pressure (<1 psi). The revolutionary design is capable of filtering extremely dirty water while using only 10 percent of the energy.

### For More Information:

Sales@spiralwater.com | 844-2-SPIRAL

## Electrically Conductive Geomembranes

GSE Environmental is the leading manufacturer of geosynthetic products and the pioneer of conductive geomembranes. GSE Leak Location Liner is the next generation of electrically conductive geomembranes. It detects leaks with different electrical leak-location surveys on exposed applications and once the liner is covered with water or soil. When installed with the GSE IsoWedge weld attachment, it is the only geomembrane that thoroughly tests 100 percent of the liner surface for leaks across seams, over wrinkles, on slopes and in double-lined applications.

GSE's success manufacturing conductive-surface geomembranes has been documented through independent tests, case studies and technical notes.



### For More Information:

www.gseworld.com



## Green Flowback/Produced-Water Treatment System

APATEQ's OilPac system uses a green-process technology to reliably treat frac flowback and produced water for reuse purposes. The system is based on long-lasting membranes that efficiently separate hydrocarbons without using chemicals in the treatment process. Cost of ownership is estimated at less than \$1 per barrel, depending on the throughput of the installation. The system covers almost the entire treatment chain as a single device, reducing free and emulsified oil from 500–2,000 ppm down to 1–2 ppm; suspended solids from 500–1,000 ppm to 1–2 ppm. It also eliminates bacteria without altering the raw-water chemistry. The portable system can be built in standard shipping containers or rack mounted.

### For More Information:

[www.apateq.com](http://www.apateq.com) | [info@apateq.com](mailto:info@apateq.com)  
281-378-4772

## Munro 4" Cam Valve

Traditional butterfly valve to camlock assemblies are heavy, time consuming to assemble and difficult to use. Munro applied its engineering expertise and more than 40 years of field knowledge to design something better. Among the Munro Cam Valve advantages:

- Weighs only 12 lbs.
- No assembly required
- Reduces leak points by more than half
- All valves tested to 150-psi working pressure
- Proven and reliable

The four-handle design reduces egg-shaping and ensures 360-degree mating to dramatically reduce leaks. An NBR rubber lining increases the life of the valve, even when abrasives are present. A ductile-iron, electro-plated disk reduces abrasion and oxidation.



### For More Information:

[muco@munrocompanies.com](mailto:muco@munrocompanies.com)  
800-933-1290



## Hydraulic Diaphragm Metering Pump

The Orlita® Evolution meets the highest safety requirements as an extremely robust hydraulic diaphragm metering pump. Its PTFE multi-layer diaphragm with integral diaphragm-rupture warning system and unique diaphragm-position control makes it the most reliable chemical metering pump available. The modular construction offers excellent application flexibility.

The Orlita Evolution hydraulic diaphragm metering pumps form an integrated product range with stroke lengths of 15 to 40 mm. This covers the capacity range of 0.79 to 1,955 gph at pressures up to 5,800 psi. The Orlita Evolution product range is designed to comply with the latest API 675 standard, and offers numerous control and multiplexing options to adapt to a broad range of application requirements.

### For More Information:

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