

Recycle. Reuse. Results.

Environmentally responsible water treatment
solutions for the oil and gas industry.



HYDRÖZONIX®

hydrozonix.com



Performance with Passion...

Hydrozonix is dedicated to providing a cost-effective, common sense solution to one of the most daunting obstacles to long term domestic oil and gas production: water. Our company, from the top down, is passionate about the solution we offer and it reflects in our solid reputation for performance and customer service. Hydrozonix team members are among the most knowledgeable in the industry and our EF80 systems are on the cutting edge of water treatment technology.



The EF80 System Treats Water for: Bacteria, Scale, Organics, and Hydrogen Sulfide...

Hydrozonix provides a single point, mobile, fit-for-purpose, environmentally friendly water treatment system in a small footprint that enables exploration and production companies to recycle water economically and responsibly.

Our system employs an advanced oxidation process using ozone, hydrodynamic and acoustic cavitation, and electrochemistry to treat water. This technology provides the oil and gas E&P industry with numerous benefits, including:

- Closed loop water management.
- Recycling of flowback and produced fluid.
- Economical treatment with simplified logistics.
- Liquid-chemical free process - the only chemical used in our system is ozone.
- Elimination of certain chemicals used in the hydraulic fracturing process.
- Improved friction reducer compatibility.
- On-the-fly, on location, real time water treatment.
- Mobile system capable of the same rig up and rig down schedule as any frac crew.
- Elimination of waste streams - our system does not create a waste stream.
- Very high rate treatment - our EF80 units can treat 80 barrels (3,360 gallons) per minute per unit.



*Hydrozonix EF80
mobile water
treatment system.*

How it Works...



Our EF80 units can treat 80 barrels (3,360 gallons) per minute per unit.

Hydrodynamic Cavitation

Water travels through static mixers that homogenize the water and initiate hydrodynamic cavitation. Extremely high temperatures and pressures from bubble collapse cause thermochemical decomposition and produce highly reactive hydroxyl radicals.

Ozone Injection

Ozone is then injected into the fluid. Ozone is a highly reactive oxidant that kills bacteria and oxidizes heavy metals.

Electrochemistry

The passage of electricity through the water is the primary driver in precipitating hardness salts in the fluid. The electrical field also reacts with oxygen in the water to create more hydroxyl radicals which assist in further oxidation of bacteria.

Acoustic Cavitation

Ultrasonic transducers create cavitation, again generating thermochemical decomposition and hydroxyl radicals. Ultrasound breaks apart the precipitated solids into nano-sized suspended particles that will not cause scale.

Final Treatment

The water leaves the reactor traveling through another large section of static mixers and electrodes to further augment treatment. The water, now free of bacteria and scaling tendencies, is pumped out of the system, ready for use.





Applications...

The Ozonix® process used in our treatment systems employs a powerful, chemical-free combination of sciences that provide very high rate treatment for: Bacteria, Scale, Organics (oil, grease, volatiles), and Hydrogen Sulfide. The technology is scalable and modular, making it effective for a variety of applications.

Onsite Treatment

Onsite treatment provides chemical-free, on-the-fly pretreatment for frac fluid. This streamlined method of water treatment allows producers to eliminate biocide and scale inhibitor from the frac fluid matrix while simplifying the logistics associated with fluid recycling. Onsite systems treat for bacteria and scale at rates up to 80 barrels per minute per unit. The systems are designed to treat a blend of challenging waters including high-salinity produced fluids.

Offsite Treatment

Offsite treatment provides a mobile, near-field, environmentally-friendly method of treating flowback and produced fluid for reuse on fracs. Offsite treatment provides a cost-effective method of controlling bacteria, organics, and scale.

Impoundment Treatment

The Hydrozonix system can be used to treat stagnant pits, lined ponds, and impoundments for bacteria growth and aesthetics. Our extremely powerful and high-rate systems (80 barrels per minute) give us the ability to treat impoundments quickly and effectively and vitalize fluid in storage.



Results Driven...

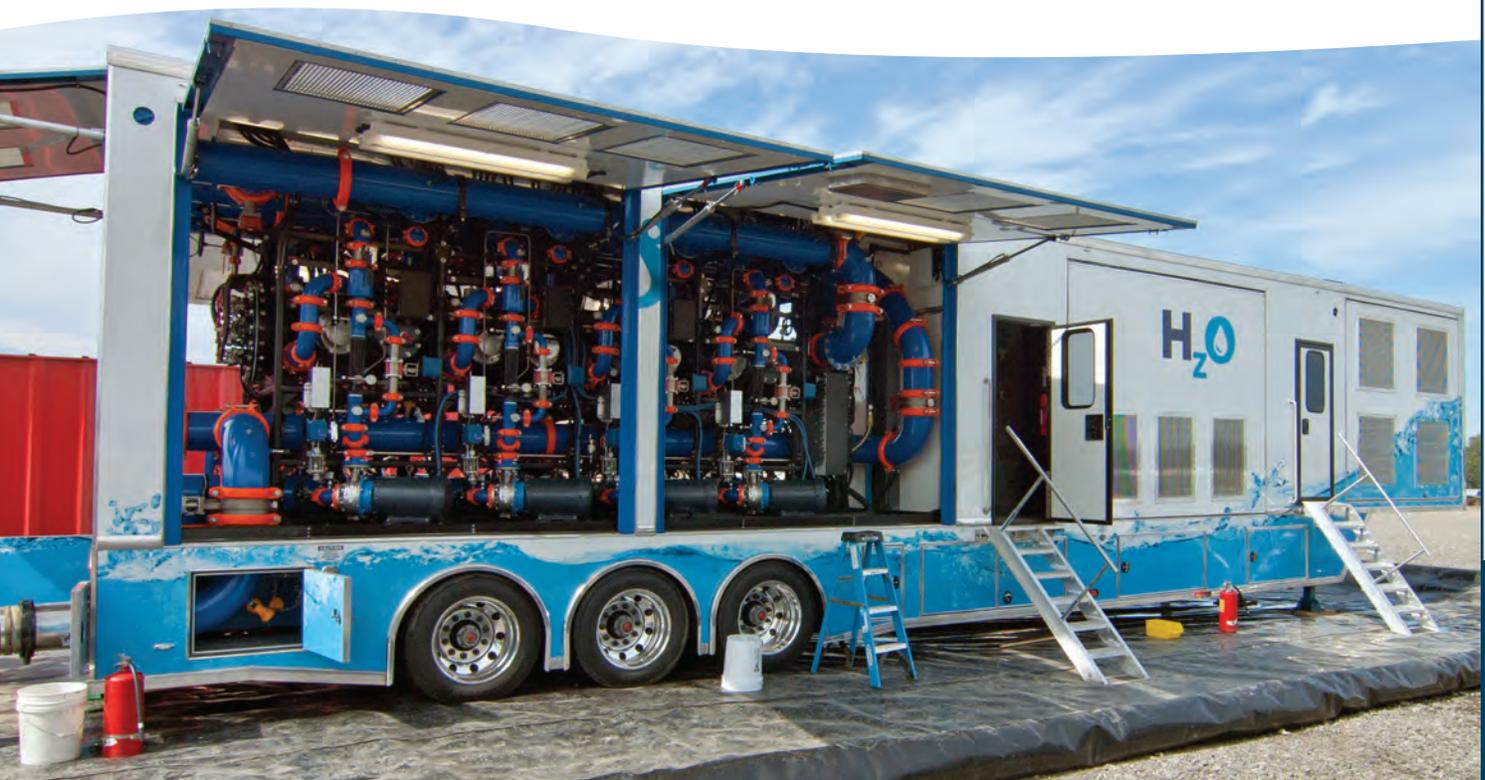
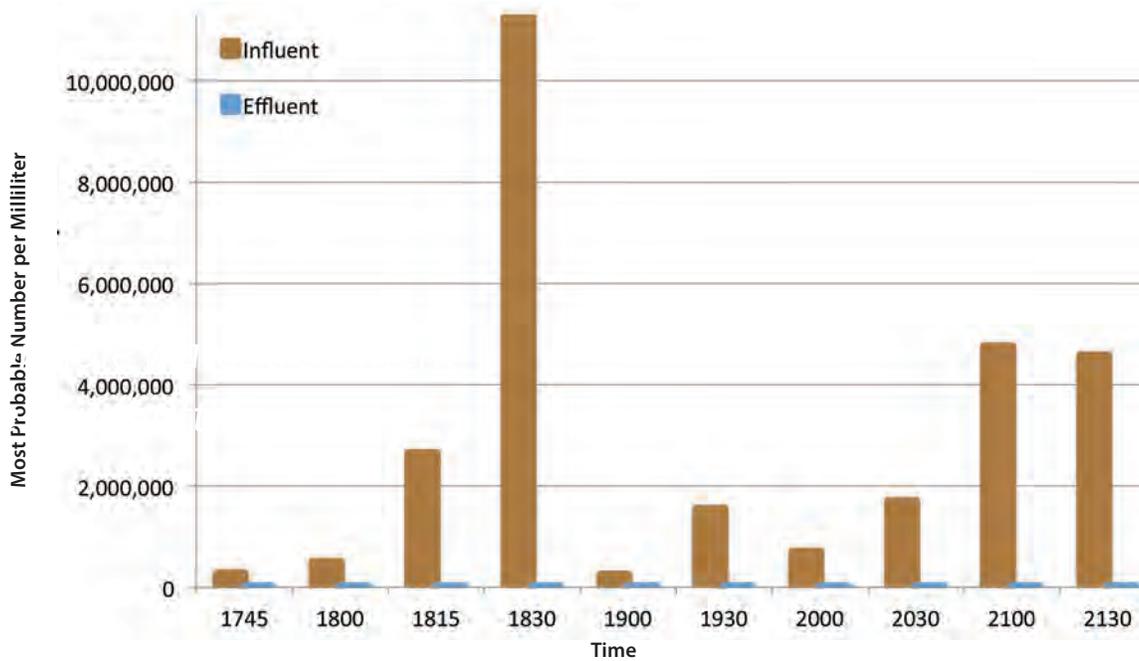
Our system treats water for: Bacteria, Scale, Organics (oil, grease, volatiles), and Hydrogen Sulfide. In addition, when treating any significant amount of recycled fluid that contains chlorides, our process generates chlorine that gives bacteria treatment staying power long after the water is treated by our system. The following tables show bacteria treatment, friction reduction, and tube blocking results on flowback water. These results are typical for our water treatment systems.



Samples taken before and after treatment of flowback water by the Hydrozonix EF80.

GHB, SRB, and APB Bacteria Treatment

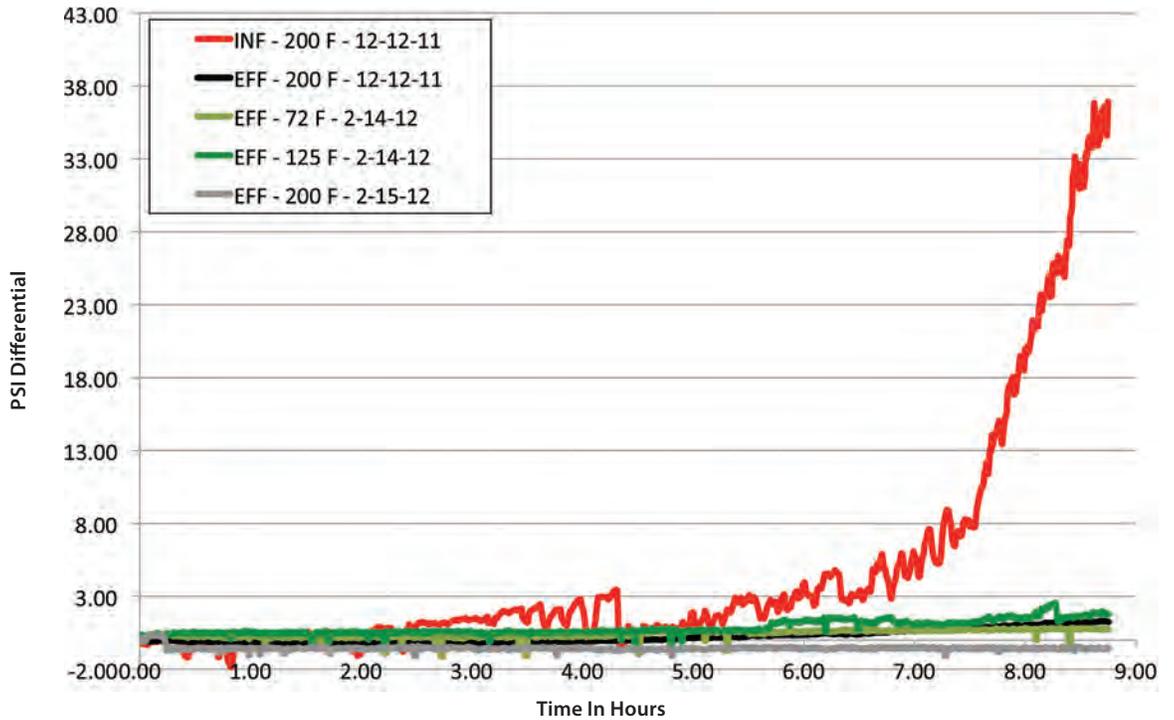
The graph below displays bacteria treatment results while processing 80 barrels per minute.



Tube Blocking Test Results (Marcellus Flowback)

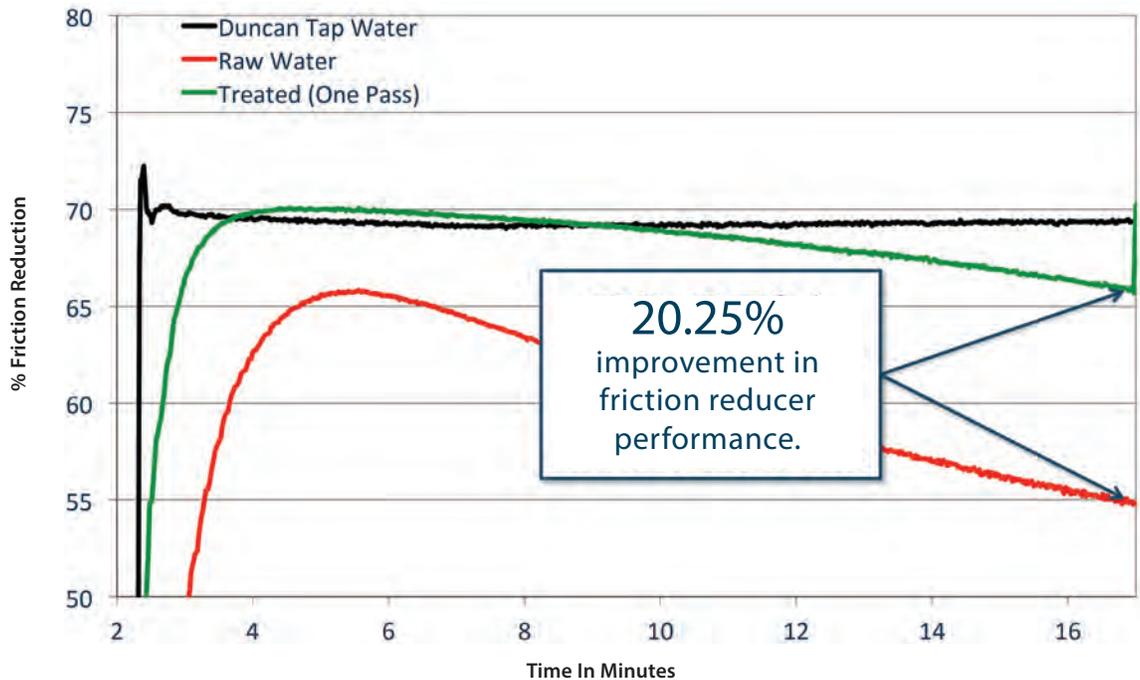
The graph below displays tube blocking test results over a two month period from 12.12.11 to 02.15.12.

The red line displays initial influent and the gray line displays effluent after **two months**.



Friction Loop Test Results

The graph below displays friction loop test results for 85,000 mg/L TDS Permian Basin flowback water. Tests were conducted using anionic friction reducer at 0.5 gallons per thousand on untreated water, water treated by Hydrozonix Technology, and tap water.



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