



# ADVANCED Hyper-Oxidation Technology

## The System

Aqua Pulsar technology is a mobile reactor that can be rapidly deployed to treat the most complicated water. Our patented electro-oxidation process eliminates all bacteria, H<sub>2</sub>S, and also reduces solids to micron level. The benefits translate to enormous cost savings. The operator will no longer need to treat for scaling, corrosion, solids management or H<sub>2</sub>S. This entire process is chemical free. One single machine can treat up to 35,000 barrels per day. The technology is based on an electro-oxidation process in which oxidation reactions occur by applying an electric current between proprietary non-sacrificial electrodes, generating multiple oxidants directly in the effluent for oxidation of organic and inorganic contaminants.

## Not EC, No Chemicals

Uses only Electricity (Electrons) to create powerful chemistry inside the treatment reactor. Treated effluent remain as a original bacteria free, soft brine. All frac chemicals work well since there is no interferences from any elements.

## FracReady™



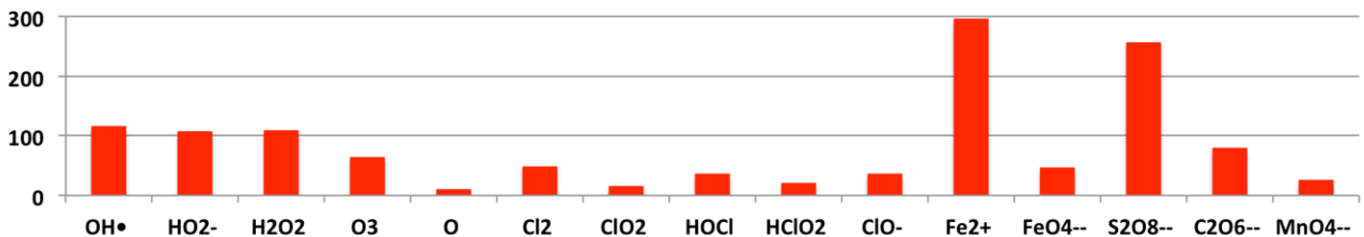
## Oil & Gas Applications:

- ✓ Hydraulic fracturing
- ✓ Water flooding
- ✓ Pit, pond and tank cleaning
- ✓ Pretreat

## AquaPulsar™ features:

- ✓ **CHEMICAL FREE PROCESS**
- ✓ **SPEED IN DEPLOYMENT**
- ✓ **SMALL FOOTPRINT- LARGE CAPACITY**
- ✓ **NO SOLIDS MANAGEMENT REQUIRED**
- ✓ **COMPLETE BACTERIA DISINFECTION**
- ✓ **OXIDATION & PRECIPITATION OF BORON AND OTHER DIVALENT CATIONS**
- ✓ **ELIMINATION OF SRB AND APB BACTERIA.**
- ✓ **MULTIPLE OXIDANTS ELIMINATES IMMUNITY AND ASSURES COMPLETE KILL**
- ✓ **SOFTENED WATER HAS FURTHER REACH INTO FORMATION**

## Multi-Oxidants Created



*With AquaPulsar™ you can achieve immediate recycling of your flowback and produced water, while reducing costs*

Contact Information:  
2600 E. Southlake Blvd.. Suite 120-387  
Southlake, Texas 76092  
(214) 906-0330

**FracReady Today!**

[www.petroh2o.com](http://www.petroh2o.com)

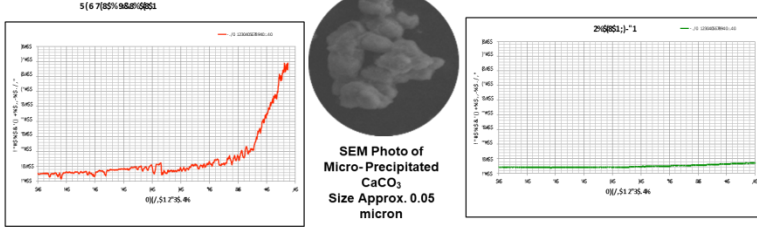




# Precipitation & Disinfection

## Micro-Precipitation:

Cathode ( Negatively charged electrode) attracts all divalent cations and precipitate them on the surface of the electrode in the form of carbonates and sulfates thus making treated effluent soft and non scaling.



Treated Water exhibits insignificant scaling tendency based on tube blocking tests and is ideal for re-use in hydraulic fracturing and water flooding.

*If the Micro-Precipitants represents the tip of a needle (approx. 1230 Micron)*

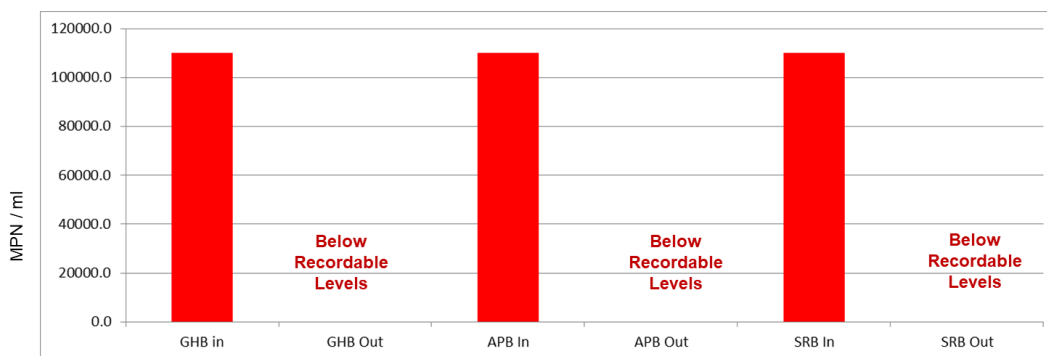
|   |   |  |
|---|---|--|
| 1230 Micron represents the micro-precipitant particle | The size of 100 mesh sand particle would be 1.21ft diameter | The size of 40 mesh sand particle would be 3.43ft diameter |
|---|---|--|



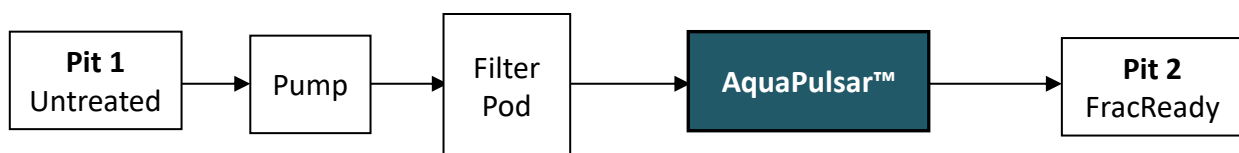
## Bacteria Disinfection

Multiple oxidants generated during the treatment process go after bacteria colonies. AquaPulsar maintains 1-5 ppm of left over oxidants in the treated water to confirm the complete disinfection process and also ensuring there is no regrowth of bacteria in treated water. Totally eliminated oilfield bacteria present in the untreated water.

- ✓ General heterotrophic bacteria (GHB) reduced to "zero"
- ✓ Acid producing bacteria (APB) reduced to "zero"
- ✓ Sulfur reducing bacteria (SRB) reduced to "zero"
- ✓ Free chlorine residual persisted for over 3-days with samples in transit



## Typical Process Flow



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