

# Produced Water Treatment – Midland Basin

## CASE STUDY



Location	West Texas
Client	Confidential
Year	2018 - 2020
Industry	Oil & Gas Production
Application	Produced Water Treatment
Contaminants	Oil in Water, TSS, Turbidity, Iron, pH
Solution	Pipe Flocculator, DAF, Peroxide, Media Filtration

## Cost-Effective Produced Water Treatment

WaterTectonics has been providing state-of-the-art water treatment technologies to the oil and gas industry for more than a decade. During this time, WaterTectonics has designed, built and operated systems in South America, the Middle East, Canada and all major U.S. shale plays.

In early 2019, WaterTectonics was contracted by a major operator in the Midland Basin to supply a turn-key 25,000 BPD produced water recycling plant. In addition to designing, fabrication and start-up, WaterTectonics also operated the facility on 24/7 basis. While the initial design was for 25,000 BPD, WaterTectonics was asked to make adjustments to the system so it could operate at 32,000 BPD. In addition to meeting this challenge, the plant continued to produce results consistent with the defined KPI's, <8% waste and >98% system uptime.

### DESIGN & ENGINEERING

Based on laboratory testing performed at our facility, our scientists and engineers were able to design a modular system that minimized installation time and provided operational flexibility for constantly changing conditions. The system design also had to withstand ambient environmental conditions in West Texas including severe weather, winds and extreme temperature variations.

### OPERATIONS & COMMUNICATION

The system was staffed by qualified WaterTectonics technicians and supported 24/7. Advanced system controls and monitoring provided insights to key operation activities and maintenance routines. Remote system operations viewing, reporting and update capabilities with alert/alarm notifications gave peace of mind. Simplified electronic performance reports and communication with the O&G Operator regarding changing conditions was paramount to maintaining uptime and eliminating upsets. All preventative and scheduled maintenance activities were communicated and agreed to by both WaterTectonics and the O&G Operator to maximize critical treatment objectives.

### TREATMENT SOLUTION

After successfully performing treatability studies on the produced water, WaterTectonics was able to scale the important data into a fully operational system capable of processing a range of flows from 10K – 32K BPD. Treatment steps included filtration, polymer addition, separation (DAF), pH adjustment and H<sub>2</sub>O<sub>2</sub> injection.

RESULTS: Produced Water Reuse (Permian)		HISTORICAL DATA: 7,478,350 bbl's Treated Plant Up-Time – 99%		
Parameter	Units	Influent (Avg.)	Target	Result (Avg.)
Oil in Water	mg/l	82	<5	<4
pH	su	6.8	6.5 - 7.5	6.6
Iron	mg/l	81.2	<10	0.7
Turbidity	NTU	246	<5	3.7
ORP	mv	-92.3	200-400	281