

CASE HISTORY

A deeper look into how Gradiant Energy Services' Selective Chemical Extraction (SCE™) technology tackled the Permian Basin's toughest water challenges

SUCCESS SNAPSHOT

BENEFITS OF SCE™

- Designed to handle varying water quality
- Specific chemistry plan
- Patented chemical dosages developed through algorithm
- Clarifier to manage solids control
- Consistent effluent water quality
- Manned system
- Focused HSE program and award winning record
- Modular 15,000 and 30,000 bpd systems

BACKGROUND & CHALLENGES

- Executed a continuous mobile treatment solution with zero liquid waste
- Centralized location in attempt to reduce trucking costs
- Minimized footprint for location setup

GES SOLUTION & RESULTS

- Analyzed produced water and suggested GES's SCE™ technology
- SCE™ technology provided high-volume treatment rates while cleaning water only to the needed level – and sometimes beyond
- GES successfully treated over 3.1MM bbls while meeting KPIs
- Minimized trucking by creating a centralized location
- Provided a new water source for fracturing program

GRADIANT ENERGY SERVICES (GES) IS DOING UNPRECEDENTED WORK IN THE PERMIAN BASIN. In 2015, GES began using its proprietary chemical precipitation technology, Selective Chemical Extraction (SCE™) to assist a client with its produced water treatment. The work began with a pilot program that consisted of one 10,000 bpd unit. During the pilot, GES successfully met the operator's produced water specifications, and the program then scaled, ultimately tripling capacity to 30,000 bpd. Today, the modular plants continue to deliver consistent volume throughput, and effluent water quality.

THE CHALLENGE

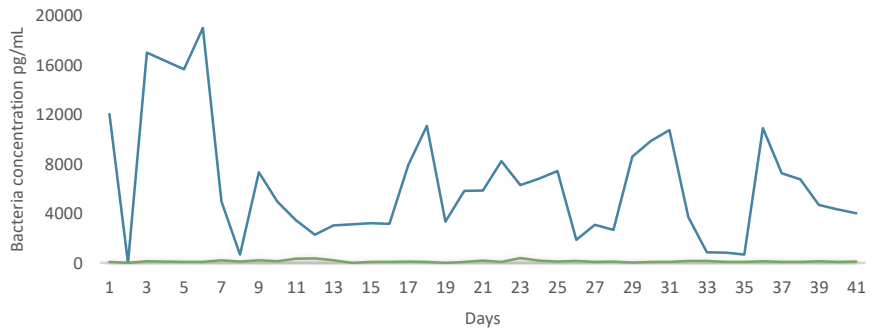
In 2015, GES' client faced a problem; its operations in the Permian Basin were producing large volumes of water that contained high concentrations of hydrocarbon and bacteria, originating from the producing wells. At the time, trucking the produced water to several different disposal wells while utilizing fresh water for fracturing operations was common practice, but it was not economical. Trucking costs were high, as was sourcing fresh water, and the client needed a new solution. A centralized recycling facility that could reduce trucking and provide high quality water consistently that could be used in fracturing operations would provide the operator with a true solution.

Treated Water Criteria		
	UNITS	
pH	6-8	none
Bacteria (cATP)	< 100	pg/mL
Iron	< 20	mg/L
H2S	< 1	mg/L
Total Suspended Solids (TSS)	< 20	mg/L

THE SOLUTION

Towards the end of 2015, GES entered into a partnership with the client to process produced water using Selective Chemical Extraction (SCE™). Using SCE™ technology, the client was able to centralize much of its water facilities, significantly cutting trucking costs. SCE™ technology allowed the client to set its own water quality specifications, and successfully handle the changing influent water, while providing consistent and clean product. GES not only executed technically but also from an HSE perspective. The client recognized GES in 2016 with an HSE award for the excellent safety and cleanliness of the plant. After four years, the partnership continues to thrive and expand. Since inception, GES has processed more than 3.1MM bbls of water through this client's plant. The success of the program laid the groundwork for consistent expansion and the premier service quality that GES continues to provide and execute on today.

BACTERIA



IRON

