

Onsite treatment of Cyclic Steam Stimulation produced water by OriginClear for reuse as steam generation feed.

Site Location	Bakersfield, CA
Installation Date	Feb-March 2015
Product	OriginClear EWS Petro

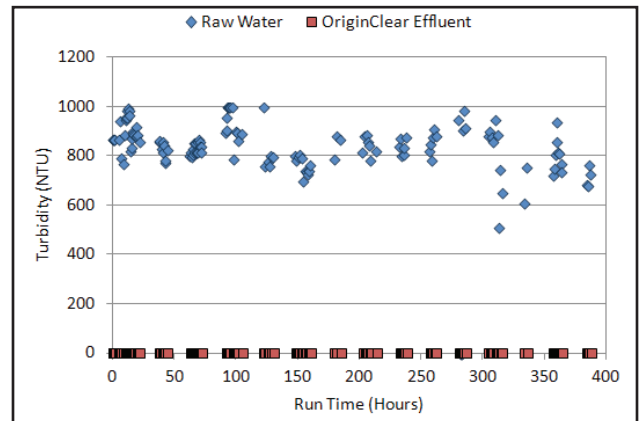
At a cyclic steam stimulation site in Bakersfield, CA, OriginClear™ successfully treated live feed water from a free water knockout for reuse as steam generation influent. An average turbidity reduction of 99.8% over the three months of operation was achieved with a Specific Energy Consumption of 0.22 kWhr/bbl for the complete treatment process.

Turbidity Reduction	Specific Energy (kWhr/bbl)
99.8%	0.217

Raw water was pulled directly from the production free water knockout and sent to an upfront self-cleaning filter for coarse suspended solids removal before entering the OriginClear Electro Water Separation (EWS) for Petro (EWS Petro) system. Within the EWS Petro system the influent emulsion was broken using the EWS Electro-Coagulation reactors before being fed to the Electro-Foatation (EF) section for dispersed oil and suspended solids removal.

The effluent from the electro-foatation was polished by ultrafiltration (UF) membrane and successfully met the producers steam feed softening systems requirements of an influent level of less than 1.0 mg/l Oil and Grease.

Range	Raw	EWS	Removal
C6-C12	0.28	N/D	COMPLETE
C12-C28	144	2.3	98.4%
C28-C35	139	N/D	COMPLETE
Total Hydrocarbon	283	2.3	99.2%



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