CETCO ENERGY SERVICES
A Minerals Technologies Company

Pipeline Fluid Management Services

SUCCESS STORY

CLEAR SOLUTIONS for complex fluids

Process for Hydrostatic Test Water Treatment – Houston

CHALLENGE

- To treat over 150,000 barrels of hydrotest water held for 7 years and meet all discharge requirements

SOLUTION

- Implementation of **CETCO ENERGY SERVICES, (CETCO)** process for solids removal of iron, contaminants, and water treatment ensuring discharge criteria were met

RESULTS

- Through the efficiency of CETCO equipment, personnel, and process mobility, discharge requirements were not just met for all 150,000 barrels of water treated, but exceeded the quality and measures for discharge

SUCCESS STORY

Process for Hydrostatic Test Water Treatment - Houston

CHALLENGE

CETCO was selected to treat and discharge approximately 150,000 barrels of hydrostatic test water in Houston, Texas. The water was treated and discharged into a nearby stream under a National Pollutant Discharge Elimination System (NPDES) permit from the State of Texas. The permit required the treated water to meet the following criteria:

Parameter	Discharge Criteria
Chemical Oxygen Demand (COD)	30 ppm
Total Organic Carbon (TOC)	85 ppm
Oil & Grease	15 ppm
pH	6.0 - 9.0

The permit also required that there be no discharge of floating solids or visible foam, no discharge of visible oil, and the discharge point to be above the stream's water level for aeration of the treated water.

CETCO SOLUTION

The hydrostatic test water was contained in three separate storage tanks located on a tank farm in east Houston. The hydrotest water contained among other contaminants, oil and grease, COD, TOC, and a yellow organic dye used during hydrostatic tests of pipelines. CETCO's equipment was set up onsite next to each storage tank. The discharge point was a stream that flowed through the facility's property and was located nearly 250 feet from the first tank. CETCO personnel constructed a pipeline to carry the clean water from the treatment equipment at each tank to the discharge point.

The first tank contained approximately 98,000 barrels of hydrotest water. The tank, now scheduled for repair, held the water for nearly 7 years prior to CETCO's arrival. The fluid was pumped directly from the storage tank to CETCO's onsite equipment for treatment. A unique challenge was encountered after initial treatment of the hydrotest water began. High levels of dissolved iron began to precipitate and plug CETCO's patented CrudeSorb® media vessels. CETCO's expertise in solids removal was needed to overcome this initial challenge.

After incorporating a process to remove the iron, CETCO treated the hydrotest water, on average, at a rate of 8 barrels per minute.

During treatment of the fluid in this tank, CETCO personnel continuously monitored the process and all water discharged to ensure all discharge criteria were met. The following table illustrates the effectiveness of CETCO's process:

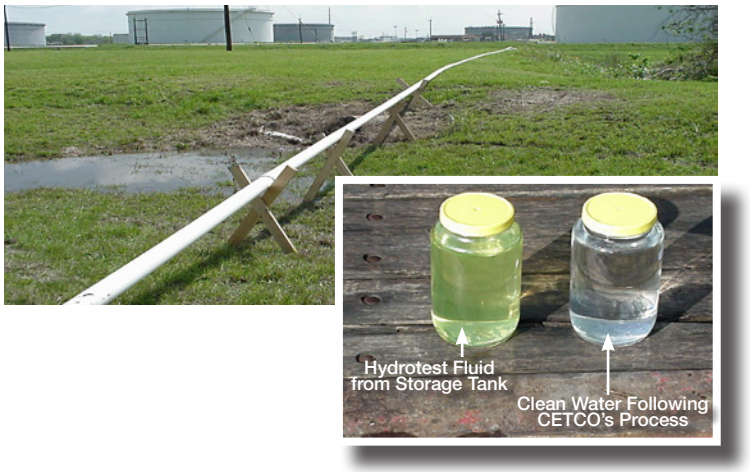
Parameter	Discharge Criteria	Average Effluent from CETCO
COD	250 ppm	14.5 ppm
TOC	85 ppm	2.3 ppm
Oil & Grease	1 5 ppm	< 5 ppm
pH	6.0 - 9.0	7
Benzene	*	< 5 ppb
Toluene	*	< 5 ppb
Ethly Benzene	*	< 5 ppb
Xylenes	*	< 10 ppb
Total BTEX	*	< 10 ppb

** No criteria specified*

Following completion of the first tank in nearly 3 weeks, CETCO's equipment was moved to a second tank containing approximately 35,000 barrels of hydrotest fluid. CETCO used the same process and treated all of the water in the tank in just one week, completing the tank dewatering by mid-April. The same process was used once again as CETCO treated and discharged another 20,000 barrels of fluid from a third tank located on the tank farm. The third tank was dewatered when the final permit is obtained.

RESULTS

This multi-week project demonstrates the mobility, flexibility, and efficiency of CETCO's equipment and processes while meeting NPDES permit requirements. All data was obtained using an independent laboratory specified by CETCO's customer.



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