CETCO ENERGY SERVICES

A Minerals Technologies Company

SUCCESS STORY

Permanent Process Equipment & Technologies

CLEAR SOLUTIONS

for complex fluids

Produced Water Interchangeable Polishing / Coalescer to cater for future anticipated mercury removal

CHALLENGE

- Meeting environmental discharge limits for produced water with characteristics which exceed the capabilities of convectional separation technologies

SOLUTION

- Custom engineered skidded package utilizing CETCO Energy Services (CETCO), patented Hi-Flow® Advanced Coalescing Technology and CrudeSorb® MR media technologies

RESULTS

- An easy to maintain produced water polishing package to meet and exceed environmental discharge limits

Produced Water Interchangeable Polishing / Coalescer to cater for future anticipated mercury removal

CHALLENGE

A platform in Western Australia required an upgrade to its produced water system to cater for saline formation water from upstream fields. Due to the presence of small oil droplets (up to 10 microns), a polishing package capable of reducing the Oil-In-Water (OIW) content to <29mg/Lm was required. Additional provision was needed to cater for mercury removal further down the field lifespan. The outlet of the convectional horizontal induced gas flotation vessel (which was only capable of reducing OIW to 50ppm) was to be routed to the polishing package to meet compliant environmental discharge limits.

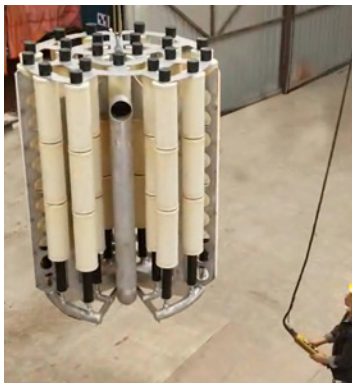
CETCO SOLUTION

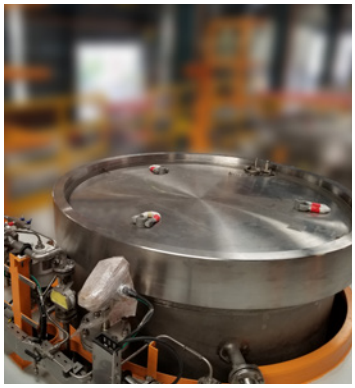
CETCO Process Equipment employed its patented Hi-Flow® unit and CrudeSorb® MR proprietary media with an inter-changable design to remove free, dispersed hydrocarbons and mercury from water by utilizing a combination of mechanisms. A skidded package was custom engineered to meet the client's specifications prior to being fabricated, delivered and commissioned. With a flowrate of 170m3/hr, the package consisted of 3 solid filters vessels and 3 interchangeable coalescer vessels with associated interconnecting piping and instrumentation.

The majority of the hydrocarbons are removed by coalescence by Hi-Flow® Advanced Coalescing Technology technology followed by gravity separation, but the elements also exhibit absorption and adsorption properties. Additionally, CrudeSorb® MR proprietary media based on resin, polymer and clay chemistry is extremely efficient at removing free oil, grease and soluble organics from water systems. This media is based on organoclay technology and has been heavily modified to enhance mercury and arsenic adsorption through both physical removal and chemical bonding. CrudeSorb® MR media is effective on most of the sources of mercury including the organic types, zero-valent element and mercury ions, both I and II valent.

RESULTS

With CETCO's patented Hi-Flow® Advanced Coalescing Technology and CrudeSorb® MR proprietary media being available in cartridge form, all sixty-nine (69) Hi-Flow® media cartridges or one hundred thirty-three (133) CrudeSorb® MR media cartridges (along with the internal header/distribution system) can be simultaneously removed from the vessel with an external hoist. A new complete spare bundle assembly, including the internal header/distribution system, pre-charged with new cartridges can then be installed within the vessel utilizing the external hoist. This bundle design significantly reduces manual handling. This concept minimizes material handling, reduce operator fatigue, improves the cartridge change-out duration thus minimizing down-time and also helps to mitigate safety risks associated with the typical manual handling of cartridges.





The coalescer vessels are designed to be interchangeable between Hi-Flow® media cartridges and CrudeSorb® MR media cartridges. Both type of canister utilizes the same perforated guide rods connected to the internal header at the bottom of the vessel. This allows the operator adequate flexibility in the event fluid characteristics change (presence of mercury) in the future to ensure environmental discharge limits without production disruptions and without any modifications/disruptions.

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