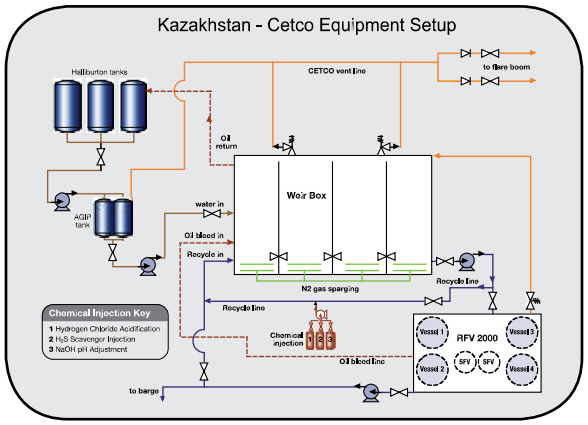
Case History:

H_2S Elimination in Well Test Fluids

- Safe removal of H_2S from 50,000 ppm to <7 ppm
- Oil in water separation to <2 ppm
- Safe transportation of fluid without H_2S liberation
- Produce pH neutral fluid
- Discharge compliant



Kazakhstan - Cetco Equipment Setup (above)
Weirbox and RFV 2000 on location (below)

Client: AGIP KCO - Kazakhstan

CETCO was approached by AGIP KCO and asked to propose a treatment package capable of Hydrogen Sulphide (H_2S) removal from aqueous fluid returns from well flow back and stimulation activities. These activities were planned for new well perforation flow backs and acid stimulations in the Caspian Sea off the coast of Kazakhstan. Here, production wells typically produce gas with extremely high concentrations of H_2S (>30%).

CETCO initially designed and mobilised a temporary equipment package for trial purposes. The temporary CETCO package supplied consisted of a 100 bbl capacity weirbox and a RFV 2000 skid containing the patented CrudeSorb® adsorption media. Liberated H_2S gas was routed to flare. A complex chemical treatment philosophy was also formulated in order to satisfy client requirements.

Operational success was demonstrated by CETCO throughout the trials as treatment methods were adapted to changing fluid and client requirements.

The final specifications for the treated water were given as:

Component	Limits
H2S	**<7 ppm detectable in vapour space**
Oil in Water	**< 20 mg/l**
pH range	**6 – 10**
pH stable	**The fluid must not release Hydrogen Sulphide gas as a result of further pH change***

*The solubility of Hydrogen Sulphide in solution is dependent on key factors including pH.

Fluid transfer, chemical injection, H_2S detection and analysis was performed by CETCO during each stage of treatment. CETCO successfully treated a total of approximately 2600 bbls of flow back fluids for subsequent disposal. The water was exported by CETCO to a standby barge for transportation to an offshore disposal site. In all cases zero H_2S was detectable in the treated water.

A permanent, purpose built, CETCO package has now been designed for future well test and flow back operations.

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