



US refinery decontaminated 1800 ppm of H₂S and pyrophoric material from a sour water tank in under 18-hours and generated no solids for disposal.

CHALLENGE

To remove the hazards of H₂S and pyrophoric material during clearing of a sour water tank.

SOLUTION

Use of FQE® H₂S Scavenger+ and FQE® Pyrophoric products mitigated the hazards.

RESULTS

- 18-hours after injection reactive sulfides were 4.4 ppm and H₂S level was <0.4 ppm
- 50% savings in chemical cost compared to competitive products
- No solids generated for disposal
- No instances of release of H₂S
- No indication of heat generated by pyrophoric material was noted during the treatment

PRODUCTS

FQE H₂S Scavenger+

FQE Pyrophoric

Sour water tanks contain multiple safety concerns during clearing

Sour water tanks receive sour water from across the refinery. They contain hydrocarbons, water, and solids – some of which are pyrophoric; both liquid phases and the vapor space will contain very high levels of H₂S. Because of the diverse contents, sour water tanks can be challenging to clean and can require considerable time and resources.

The client's sour water tank is 85 ft. in diameter with a floating roof that was set at 6 ft. The client wanted to start the treatment of the liquid at the 8 ft. level. Third-party laboratory analysis showed the liquid to have H₂S at 1800 ppm, and the "solids" layer was 45% solids with 1400 ppm of reactive solids. The client had minimal open space around the tank that would accommodate no portable tanks, etc.

FQE Chemicals products provide a quick and safe treatment

FQE Chemicals technical team proposed the use of FQE H₂S Scavenger+ for removal of the H₂S and FQE Pyrophoric for mitigation of the pyrophoric material. These products can be used together and were injected into the circulation pumps suctions and mixed with the tank products. Both products are liquid, so a small flowrate pneumatic pump was utilized to inject the two products.

Within 18-hours of circulation, the reactive sulfides were under 4 ppm, and H₂S was under 0.4 ppm. There was some "discovery sludge" found, which extended the budgeted cleaning time allowance. The tank was cleaned, and the effluent was pumped to treatment with absolutely no difficulties from pyrophoric material or H₂S.

Chemical cleaning finished in under 18-hours while generating no solids for disposal

The FQE product solution allowed for the safe clearing of a sour water tank without the need for mixing tanks, reaction vessels, or additional large equipment. The work was accomplished in a restricted footprint and generated no solids requiring disposal. Reaction time with the contaminates was under 18-hours.



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