CASE HISTORY

CHEMICAL DECONTAMINATION OF A SOUR WATER TANK

A large petroleum refinery in Pennsylvania used our hydrogen sulfide abatement product, FQE™ H₂S, and ammonia control product FQE™ Ammonia Odour to decontaminate a sour water tank.

The tank contained 673 m³ (178,000 gallons) of sour water. The initial H₂S readings from the vessel exceeded 50,000 ppm (5.0%) with ammonia readings of 560 ppm. The work plan included treating the tank water contents to remove the free ammonia typical of refinery sour water processes. FQE Ammonia Odour was pumped into the tank and circulated for 12 hours. Upon testing, the ammonia was non-detectable.

After the ammonia abatement was completed, an aqueous solution of FQE H₂S was prepared and pumped into the tank. The contents were circulated for an additional 24 hours to ensure good contact was made between the vessel water and FQE H₂S. The tank contents were sampled every two hours with the H₂S being reported at 0 ppm after 24 hours.

The chemical circulation was performed at ambient temperature and applied from bottom to top through a 3D nozzle mounted through the vessel’s top manway access. The spray nozzle was used to eliminate the high H₂S and ammonia concentrations present in the vessel’s head space. Upon completion, the treated water was processed through the wastewater treatment plant without delays.

This process was reported by plant personnel to have reduced their average outage time by at least 50%. The typical decontamination was completed by the slow addition of potassium permanganate liquid over a 5-8 day period, resulting in extra time and additional disposal considerations being required.

Results achieved

- Complete elimination of hydrogen sulfide and reduction of ammonia to non-detectable levels
- Over 75% reduction in outage time
- No personnel exposure to hazardous materials
- No additional disposal expense

Chemical profiles

FQE™ H₂S

Designed for instantaneous and permanent elimination of hydrogen sulfide present in refining and other process equipment. The most efficient abatement product on the market capable of removing 3 moles of sulfide to 1 mole of active chemical.

FQE™ Ammonia Odour

Exceptionally rapid removal of potentially toxic and harmful ammonia odours in refinery operations. Non-hazardous, non-reactive, safe for personnel, and equipment compatible for effective ammonia control.
Improve efficiency and financial performance

At FQE Chemicals, we help our clients improve the efficiency, safety, and financial performance of their assets by creating innovative and unique chemistries that provide superior value and performance. Our award-winning chemistries are distributed globally.

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We’re an innovative company creating chemistries that solve our clients’ toughest challenges.