CASE STUDY

H2S Elimination and Inhibition in Oilfield Produced Water

A Case Study Conducted in Conjunction with Bioxy's Technology Partner, 3 Tier Technologies, LLC

The management of H2S in the oil and gas industry has always been a challenge. Hydrogen sulphide is a colorless, flammable, corrosive and extremely hazardous gas formed by the breakdown of organic matter in the absence of oxygen, and is the most commonly occurring impurity in oil and gas fields. It is immediately dangerous to life and health at concentrations above 100 parts per million (ppm). Recent issues have escalated in some basins over the transport of crude oil with increasing levels of H2S as crude containing sulfur compounds can form H2S in the wellbore, in stock tanks, in pipelines, in rail cars and in terminal storage. A hazardous situation can develop at any point in the supply chain.

Bioxy's Advanced Organic Polymer based products may have the solution to this problem. Bioxy's predecessor company and 3 Tier Technologies worked with a regional waste water hauler with production water exhibiting H2S in excess of 800 PPM.

H2S Terminator Field Trial Outline

- A 300 barrel sample of production wastewater was collected and held in an empty storage tank.
- The tank was circulated and an H2S measurement was taken after the tank was allowed to settle.
- Initial reading for the tank was
    - H2S 800ppm,
    - ORP -385, and
    - pH at 7.8.
- The tank was treated with H2S Terminator, an advanced non-bacterial, organic polymer/enzyme product at a rate of 1 (one) gallon concentrate per 100 (one hundred) barrels of production water.
- The tank was circulated for 20 minutes and left to rest.

- The ORP reading immediately after mixing was -330 which was a 55 point or 15% improvement in ORP.
- After three hours, the water was again sampled and the
    - H2S dropped to 400ppm,
    - ORP improved to -320 and
    - pH remained relatively stable at 7.5.
- Another tank sample was pulled after 12 hours and the readings were
    - H2S 180ppm, a 78% reduction,
    - ORP -280, a 27% improvement, and
    - pH remained stable.
- Due to travel, a barrel sample was removed from the main tank and held for twelve days and re-sampled at that time.
- The testing after a total of thirteen days were
    - H2S at 0ppm, a 100% reduction,
    - ORP at +165, a 143% improvement and at a level unable to produce further H2S.
    - pH remained stable.

This treatment not only demonstrated the product's ability to rapidly reduce H2S for production sites, it also demonstrated the valuable chemistry the product provides in reversing ORP and moving the levels into a stable, non-H2S producing, environment. Further testing has also demonstrated the product's ability to manage H2S directly in crude oil.

For more information please visit our website at www.bioxyresearch.com or contact us at info@bioxyresearch.com or 855-55-BIOXY