A CASE HISTORY: The Elimination of H2S from Production Wastewater

The management of H2S in the gas and oil exploration is becoming a greater challenge. Recent issues have escalated in the Bakken's over the transport of fresh crude oil with increasing levels of H2S present has sent the industry scrambling for new treatments of this harmful gas.

Hydrogen sulphide is a colorless, flammable 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 especially gas fields. It is immediately dangerous to life and health at concentrations above 100 parts per million (ppm).

3 Tier Technologies has identified that its unique Organic Bio-Polymer based products may have the solution to this problem and sought an industry partner to explore a solution. 3 Tier in partnership with their Utah based solutions partner, Pure Processors LLC, worked with a regional waste water hauler with production water exhibiting H2S in excess of 800 PPM. 3 Tier has industry experience in the management of H2S with its international methane production companies and has proven its product performance in this industry for years.

Product 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 Bio-Regen Bio-Cat Booster, an advanced non-bacterial, Organic Bio-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. ORP reading immediately after mixing were -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.

This treatment not only demonstrated the products 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. Additional testing is now being done on the products ability to manage H2S directly in crude oil. More to follow.