



Oil Field Products

Tank Bottom Cleaning

A 10,000 BBL fixed roof storage tank needed sludge removed from the bottom and internals cleaned to allow floor, wall, and roof to be inspected and coated. The objective was to reduce the hazard of removing gas entrained sludge and reduce the hazard of explosive atmosphere within the tank during the sludge handling operation.

The tank was pumped out and both tank man-ways were opened. The heavy black sludge level in the tank was more than two feet deep (approximately 600 BBLs). One barrel of Para-Bac was injected into the tank. In addition, approximately 50 BBLs of basin hydrocarbon skimmings, 75 BBLs of lean oil, and 175 BBLs of Pentane Plus were added to the tank. After allowing the tank to sit overnight, a circulation pump was started to circulate the bacteria/condensate within the tank. The fluid circulated was across the tank between the man-ways and in part back through the BS&W line, the center sump in the tank. This circulation took place daily for 4-6 hours, for a total of 18 days. The fluid was pumped from the tank and water was allowed to separate out. About 200 BBLs of water and 600 BBLs of condensate (Pentane+) were removed from the tank.

Upon opening the man-ways on the SW and NE sides of the tank, it was observed that sludge reduction had taken place to the highest degree directly between the man-ways. The fluid was removed through the BS&W line from a sump in the center of the tank floor. It was also observed that the sludge that was still up on the walls 90° to the man-ways would slough down and turn liquid overnight, allowing it to be pumped off. Furthermore, the remaining sludge could be freely removed using the vacuum truck. The gas released from agitating the sludge was within allowable limits (less than 0.1% explosive mixture), allowing sludge removal within minimal explosive limits.

It was estimated that without taking labor costs into consideration (with the bacteria treatment being considerably less expensive due to volume and degassed sludge), bacterial treatment cost was one third the total cost or \$74,000 less expensive.