



SWR Corporation was asked by Atlantic Bulk Carriers, INC, Marine Fuel Oil Services, LLC to recover oil that had been stored at their Atlantic site in Middletown, DE. Atlantic Bulk delivers bunker fuel and lubricants to ships from New York to North Carolina. They remove ship sludge in all those ports on the Eastern United States Seaboard and recycle it thru waste oil recycling companies.

I arrived to find a 20,000 gallon Frac tank with around 18,000 gal of ship slop oil in it with up to 40% seawater emulsified into the oil. This was an aged collection of waste oil that had no apparent solution as regards disposal. This type of oil is typically hard to break from emulsion, and oil was found floating in various depths in clumps. It was agreed to use the SWR One product to break the water out of the oil and remove oil from the solids; this would result in three distinct layers and hopefully an oil product that would be profitable to sell to oil recycler companies. The water could be disposed of, and the solids could then be hauled off with minimal hydrocarbon contamination. This oil/sludge would have cost a minimum of \$.25 per gallon to dispose of. Oil recovered could sell for \$.65 per gallon at moisture levels below 5%.

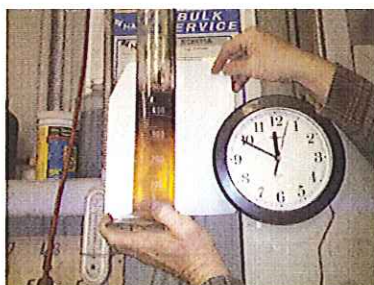
The Frac tank was connected to pumps on the top center manway, and the discharge was returned to each end of the tank, near the bottom. SWR One was slowly added (55 gal) to the tank and mixed in. The mixing continued overnight. An air line was connected to a larger pipe to assist mixing. Bench testing before starting the job revealed that we could separate the water and oil (see pictures of the graduated cylinder with clock in background). The original mix of oil and water was estimated to be 40% oil, 30% water, and 30% solids. At this point three major environmental companies received samples of the oil and established the test standards. This provided independent data for comparing with on-site results. In late April, 2010 a 5000 gal oil tanker was filled up with the initial oil recovered from the Frac tank; another 5000 gallons of oil was still in the tank to be recovered. This job was done at ambient temperatures below 50 deg F with no additional heat added.

With the SWR separation process confirmed, Atlantic Bulk was very pleased with the results. Now they can use SWR to deal with this difficult type of waste oil product, and will be able to make a profit selling the oil that is reclaimed.

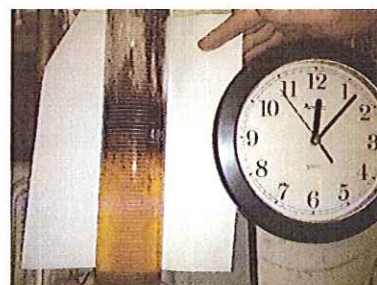
Roger Cherry - SWR Corporation



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1: Original waste oil without SWR 2: Ten minutes after SWR 3: 25 minutes after SWR