CASE HISTORY: Midway, Texas Coastal States Crude Gathering, Inc. Tank Cleaning – Paraffin & Asphaltene Tank Bottoms

June 2001:

Coastal States Crude Gathering contacted Texas EnviroChem, Inc. and inquired about the use of ACL (asphalt crude liquefier) for the cleaning of tank bottoms on an 80,000 bbls tank located at their Midway, Texas station.

Texas Envirochem responded with a site visit to draw samples, conduct an onsite analysis, and evaluate the procedures for the tank cleaning. Upon inspection of an interior boating roof tank, the decision was made to drain the 2,500 bbls of water and clean the frac tanks with TxChem BE1000 and then release the water onsite as permitted by the governing agencies of the State of Texas. Circulating the frac tanks with a 2 inch discharge pump for 8 hours treated the 2,500 bbls. When the cycle was completed, the water was tested for TPH (Total Petroleum Hydrocarbons), pH quantity, and quality, respectively. The analysis revealed a very acceptable level (25 ppm) of TPH and a pH of 6.8.

The second phase of the cleaning process consisted of calculating the quantity of paraffin oil that remained in the tank. It was determined that the amount was approximately 2,200 bbls which needed to be treated and removed. Texas EnviroChem set about injecting the ACL from 55 gallon drums at three entry points around the tank. The amount of ACL used was 88 drums (4% by volume). The chemical was left to sit overnight so that it could begin the liquefaction process. Within approximately 36 hours, the tank was opened and the media was tested for solubility, water content, viscosity, and gravity along with total overall quality. It was determined that the oil was definitely recyclable with a flashpoint of 136 degrees F.

Vacuum trucks were called, and the oil was pumped into waiting trucks for transport to a recycling facility, where it would be used as a burner fuel.

The next stage of the tank cleaning came in the form of utilizing the ACL to liquefy the remaining tank bottoms, which were asphaltic crude (approximately 800 bbls). Again, the ACL was applied at a rate of 6% by volume (36 drums) through a 2 inch pump into the tank openings, and the tank was closed for 24 hours.

When the tank was reopened 24 hours later, the asphaltenes had liquefied and were made pumpable. The vacuum trucks were moved into place and began pumping. Upon the removal of all of the bottoms, the washing phase began. Two heated pressure washers were used, along with TxChem HE-1000 to de-gas and wash out the tank and make it ready for inspection and repairs. Within approximately 4 hours, the tank was ready for entry by personnel. After about 4 hours, the tank was clean and was left to dry.

The rinse effluent was removed to vacuum trucks and taken back to the truck yard for disposal. When the trucks arrived, the yard supervisor inspected the trucks and noticed that the HE-1000 had

gone a long way to cleaning the truck tanks of hydrocarbons. This reduced the cleaning process and time by 75%, not to mention, the clean water saved wear and tear on his oil/water separator.

Conclusion:

The use of ACL to liquefy alsphaltenes and paraffin oil reduces the need for large amounts of equipment & personnel (decreasing exposure and increasing safety). Furthermore, it reduces cleaning time by 50 to 65% and turns the tank bottoms into a sellable commodity.