CASE HISTORY
NO. I6021
JUNE 2012

CLIENT: Chemtrade Logistics
Beaumont Plant
Beaumont, TX

UNIT: E-1A Sulfuric Acid Heat Exchanger (vertical)
2,347- 304H stainless steel tubes
2” O.D. x 11 BWG (0.120” AW) x 20’ long

OPERATING TEMPS:  
Shell Side 1,116°F
Tube Side 932°F

PROBLEM: Excessive inlet-end erosion resulting in hundreds of tubes severed just below the top inlet tubesheet resulting in 685 tubes plugged, severely impacting the heat exchanger's performance.

SOLUTION: CTI installed of 2,044 Shield/Seals constructed from type 304 Stainless Steel, 0.049” wall thickness x 14” long with Collars (bushings) to replace the missing tube material. The Shield/Seal and Collar assembly were roller expanded within the 1.5” thick tubesheet just beyond the welded tube end followed by a mechanical expansion at the downstream end of the Shield/Seal. Plugged/leaking/severed tubes were recovered and returned to service, greatly improving the heat exchanger's efficiency.