Deflated – Victims of Vacuum
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Abstract
Atmospheric pressure combined with a partial vacuum within chemical plant or refinery tanks can result in some ego-deflating moments. This article will review three catastrophic vessel failures in detail and touch on several other incidents. A 4,000-gallon acid tank was destroyed by a siphoning action; a well maintained tank truck was destroyed during a routine delivery; and a large, brand new refinery mega-vessel collapsed as the steam within it condensed. Seasoned engineers are aware of the frail nature of tanks and provide safeguards or procedures to limit damages. The purpose of this paper is to ensure this new generation of chemical plant/refinery employees understand the problems of the past and take the necessary precautions to guard against tank damages created by partial vacuum conditions.