Tanks A Lot:
A Look at the Frail Nature of Tanks

Roy E. Sanders
Chemical Process Safety Consultant
Lake Charles, LA
Sanders.Roy@Suddenlink.Net

Abstract
This paper could serve as an introductory awareness lesson for the newbie or trainee who desires to learn about the frail nature of tanks. But most likely, it will serve as a reminder to the seasoned reader of things he has previously seen or worse yet, experienced.

Storage tanks in chemical plants, oil refineries, related distribution terminals and pressure vessels associated in these industries are vital components and a major investment within their facilities. These essential vessels come in all sizes and many shapes and built to various codes. They may hold large inventories of hazardous materials.

Tanks can and do very safely contain a wide variety of raw materials, intermediates and finished products for years. If the tank or its accessories are poorly designed, abused by operations or are neglected of effective inspection and basic maintenance, bad things can happen.

Dr. Trevor Kletz in “What Went Wrong?” addressed storage tanks by saying: No item of equipment is involved in more accidents than the storage tank, probably because storage tanks are fragile and easily damaged by slight overpressure and vacuum.”

This paper includes a few tank system fundamentals as well as case histories of failures in design, operation, inspection and maintenance. Previous vessels incidents must be understood.

To quote Sam Levenson - American Author & Humorist (1911 – 1980), “You must learn from the mistakes of others. You can’t possibly live long enough to make them all yourself.”