

Protection of Floating Roof Petroleum Storage Tanks against Lightning Strokes

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Abstract : The subject of petroleum storage tank fires has gained a great deal of attention due to the high cost of petroleum, and the consequent disruption of petroleum production; therefore, much of the current research has focused on petroleum storage tank fires. Also, the number of petroleum tank fires is oscillating between 15 and 20 fires per year. About 33% of all tank fires are attributed to lightning. Floating roof tanks (FRT's) are especially vulnerable to lightning. To minimize the likelihood of a fire, the API RP 545 recommends three major modifications to floating roof tanks. This paper was inspired by a stroke of lightning that ignited a fire in a crude oil storage tank belonging to an Egyptian oil company, and is aimed at providing an efficient lightning protection system to the tank under study, in order to avoid the occurrence of such phenomena in the future and also, to give valuable recommendations to be applied to floating roof tank projects.

Keywords : crude oil, fire, floating roof tank, lightning protection system

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