

Proactive Lightning Protection Concepts

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Abstract

“Struck by lightning” is a metaphor for sudden, unpredictable disaster. A large thunderstorm can produce over 100 lightning flashes a minute, and even a modest storm cloud can generate the energy of a small nuclear power plant (a few hundred megawatts) Not all lightning strikes the ground but, when it does, that energy can be devastating. For a drilling rig to be shut down for hours or days due to equipment damage, or a chemical plant to have fires started by lightning, is a costly and hazardous risk.

Until relatively recently, there was little that could be done to minimize this risk. Lightning strikes when and where it will. Traditional lightning protection has sought to collect and divert the energy of a lightning strike into the ground. While this may avoid some of the worst effects of a direct strike, it has some serious drawbacks.

None of the traditional systems are 100 percent effective, and all suffer from the secondary effects related to the close proximity of the electrostatic and electromagnetic fields. They are dangerous to flammables, explosives, and electronics.

The unanswered question is, why collect the strike in the first place, when strikes always create side effects that must be dealt with? New technologies have demonstrated that it is possible to eliminate the strike altogether, thereby avoiding all of the risks.

The Charge Transfer System (CTS) has proven its effectiveness as a system to prevent lightning from striking the protected area. Such as chemical plants, nuclear power plants, oil and petroleum facilities, off shore drilling rigs and many other installations.

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