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Executive Summary: LEC's DAS vs. Traditional Lightning Protection

Since 1971, Lightning Eliminators and Consultants, Inc. (LEC) has not follow the traditional approach of lightning protection by providing a "preferred lightning collection point". The Franklin Rod systems that have been in existence for over 250 years create the problem. They attract lightning to an area when the lightning may have well terminated outside the desired safe zone. In our view, they create a potential problem where one might not have occurred.

These Franklin Rod devices (also known as lightning rods or air terminals) were applied to protect livestock and people from direct lightning strikes by providing a "preferred collection point". That is: lightning would strike a metal rod attached to a structure suspended above the "protected" area, and a ground wire would (hopefully) conduct the excessive lightning currents to earth ground. Because the Franklin Rods were physically attached to the structures, in many cases the structure would actually burn or sustain damage.

In today's world, this approach brings the severe lightning energy (a 50 percentile strike in the U.S. is 30,000 amps) too close to critically sensitive, sometimes explosive environments and the susceptible electronic systems that control and monitor these environments. Even if the collection or lightning "strike" does not directly contact a portion of a system or circuit, the secondary effects of lightning (earth current transients, atmospheric transients, secondary arching, electromagnetic pulse or EMP and ground potential rise or GPR) can degrade system components leading to premature failure and possibly cause false or erroneous operation.

For almost 50 years, LEC has been providing advance lightning protection systems worldwide. The systems LEC designs, manufactures and applies do not provide the traditional Franklin Rod protection schemes. Rather, we take the view we should avoid the strike, not collect it.

LEC's name is somewhat of a misnomer; LEC does not eliminate all lightning. LEC's Charge Transfer System (patented as the Dissipation Array® System or DAS®) uses a naturally occurring, scientific phenomenon called point discharge to retard the collection of lightning within a finite protection zone. LEC does not attract the lightning. LEC's system lowers the static field in the protected area long enough for the lightning strike to terminate outside the protected area. The DAS is engineered to the specific application or site.

The typical clients who choose the DAS system for their facility lightning protection are those that cannot tolerate any collection of lightning within the desired protection zone. The operation of the protected facility is too critical or sensitive to take the chance that a strike will be collected such as a physically explosive environment or where downtime will be too costly. Others choose our approach because the initial downtime will cause an extended restart period for repair and system checks, or processes that are interrupted by the initial lightning strike cannot be reset and will require disposal or waste that cannot be reused. The customers need reliable operation of their facility during the storm, not just protection of the structures. Another strong reason to choose DAS is personnel safety in an area that must be occupied during storm activity such as surveillance and security availability. These are a few of the mission critical issues that have caused our clients to choose LEC's unique patented approach.

The list of clients that choose LEC's DAS is extensive. A portion of that list includes global clients such as: Exxon Mobil, Phillips 66, Chevron, Marathon, Valero Refining, Anadarko, BASF, FedEx, UPS, Tennessee Valley Authority (TVA), Southern Carolina Electric & Gas, Duke Energy, Entergy, Fidelity National Information Services, Turner Broadcasting, International Paper, Georgia Pacific, US Navy, and the Israel Defense Forces. And, these customers are repeat customers often with multiple facilities in different geographic locations across the world all protected by LEC's DAS.

With over 73,000 system-years of actual in field operation and proven success in minimizing the effects of lightning, LEC is the smart risk reduction choice for critical systems lightning protection.