



Ashley Automation: Protection in oil and gas construction with Lightning Eliminators & Consultants

When hydraulic fracturing (“fracking”) energy exploration brought a new wave of energy exploration activity to the Barnett Shale formation near Fort Worth, local firm Ashley Automation & Technology Inc. began to capture new business opportunities in oil and gas facility construction. Now the company, which specializes in on-site electrical, measurement, control, and telemetry installation and maintenance, is one of the Fort Worth area’s leading providers of construction services for hydraulic fracturing salt water disposal (SWD) facilities, providing pump and motor controls, tank level and grounding systems and communications systems installation.

The work with SWDs gave Ashley Automation insight into a little-known fact about fracking: the tanks used to store the waste saltwater that comes from fracking wells attract lightning. In fact, in the oil and gas industry, it is not unheard of for SWDs to suffer lightning damage – or burn down completely – because of a lightning strike.



In 2004, Ashley added lightning protection to its list of oil and gas equipment installation services, offering “charge transfer” systems from [Lightning Eliminators & Consultants](#), Inc. (LEC) to help leading energy companies like EOG Resources and Summit Midstream protect their facilities from the threat of lightning.

“When a business is spending five or six million dollars for a salt water disposal facility, the last thing that company wants is to have lightning strike that causes it to burn to the ground,” according to Ashley Automation Project Manager Matt Jones. “The value of the building we protect makes the investment in lightning protection worth it.”

Protecting against lightning instead of capturing lightning

Charge transfer technology, which is used in LEC [Dissipation Array® System](#) (DAS®) installations, is especially useful in oil and gas industry installations.

Most other lightning protection systems work by “attracting” lightning, using a lightning rod to direct the energy from a strike to the ground. In oil and gas industry construction, however, that is not necessarily a foolproof approach: facilities often have highly flammable stored oil and gas on site, as well as vapors that can ignite any time lightning is nearby.

The DAS offers a unique advantage, as it prevents the termination of a lightning strike within a protected area altogether. The DAS’s charge transfer technology completely isolates facilities from a direct lightning strike by bleeding off the induced charge on the protected area during the course of a thunderstorm, reducing it to a much lower level in relationship to the surrounding environment. This suppresses the formation of an upward rising streamer, one of the required elements of the strike process, thus avoiding the strike. The proven success rate of DAS is over 99.87%, which made it the system of choice for Ashley Automation in lightning protection.

“We use LEC’s equipment,” explains Jones, “because it is the only lightning protection system that offers a guarantee.”

The DAS is in fact the only lightning protection product to offer a full no-strike warranty. When needed, Ashley Automation includes with its DAS installations complementary LEC products – such as [Chem-Rod®](#) Grounding Electrodes and [Spline Ball Ionizer®](#) terminals – to enhance its customers’ lightning protection profiles.

For some of Ashley Automation’s clients, the change in lightning activity with LEC solutions has been dramatic. At one Texas installation, for instance, Ashley Automation’s Matt Jones saw the difference charge transfer technology can make right away.

“During one construction project we were caught in a lightning storm and we saw part of our client’s facility take several direct lightning strikes,” explains Jones. “A few weeks later, when we had installed a DAS in an adjacent facility, we could literally see lightning move at an angle, away from the site we were protecting.”

LEC and charge transfer technology

LEC helps EPB and many other utilities avoid lightning damage and service disruptions by providing integrated, industrial lightning protection and prevention solutions, products and services. LEC provides innovative, patented charge transfer technology, grounding systems testing, surge protection, design and comprehensive consulting resources, based on physics

combined with state-of-the-art engineering principles. To date, the company has installed over 3000 lightning protection solutions in over 69 countries and throughout the United States. Roy B. Carpenter, Jr., a former chief engineer for NASA's Apollo Moon Landing Missions and the Space Shuttle design engineering teams, founded LEC in 1971 to study and apply engineering principles to lightning protection. This unique form of the charge transfer process – the patented technology used in the LEC DAS solution – reduces the rapid transfer of electrons that occurs with lightning to a slow pre-strike drip by dissipating storm-induced electric charge in the atmosphere, above a protected site, and lowering the electric field within the envelope of protection. With more than 40 years of lightning protection success, LEC is able to issue a full no-strike warranty to each of its DAS customers, as long as proper installation and maintenance are observed.