



## Rigs and Platforms: Assessing Vulnerability and Protecting Against Lightning Strikes

### The Challenge

Lightning events are on the rise and are predicted to strike with more frequency, more often and more forcefully all over the world. Areas that have not experienced a large impact before will certainly be impacted in the future. This will leave many industries searching for more proactive solutions that provide greater safety and protection in order to prevent loss, damage and destruction.

Offshore drilling companies are not immune to the potentially devastating effects. In fact, they may be at an even bigger risk than first thought. Even though lightning is less likely to strike over the open and deep water, the risks affecting a rig or platform are still great – and growing.



Offshore rigs and platforms are thought of as “grounded” to the ocean. However, the environment, and even the design of the facility itself, may lead to a compromise in bonding with rust and oil deposits that impede the energy’s path to ground. This leaves the advanced electrical and electronic systems and personnel susceptible to severe damage from not only direct strikes but dangerous secondary surge effects of lightning as well. Many upstream companies like Transocean, Chevron, Texaco, ExxonMobil and BP are trying to tackle the issue of how to stay online and not compromise productivity – or safety – during increased instances of bad weather. They are turning to Lightning Eliminators & Consultants (LEC) for the solution.

## The Goal

- Assessing vulnerability to determine proper solutions
- Improving level of safety for the workforce
- Protecting vessels against direct strikes and secondary surges
- Reducing downtime and associated costs
- Extending facility life through preventative measures

When it comes to threatening the offshore community, thermodynamic processes typically start near shore and can evolve into open water events. It comes as an offshoot of global climate change. Rising temperatures around the globe are causing an increase in the frequency and severity of lightning strikes and creating a growing need for protection.

No company large or small is immune. They all have grasped the reality of needing to protect offshore systems from all types of dangerous weather. They look to LEC to provide consulting and solutions for rigs and platforms in the waters off the coasts of Africa, the Middle East and parts of Europe, Asia and Latin America. They are not alone in finding a greater need for protection. LEC has installed over 3,000 systems in more than 70 countries during the past 41 years, including recent work on offshore platforms in Mexico, Egypt, Nigeria, Malaysia and South Korea.

During 2012, solutions for nearly a dozen companies’ offshore platforms and rigs were produced following vulnerability studies based on IEC and NFPA guidelines and standards. Many included Lightning Eliminators & Consultants’ no-strike protection system to halt current -- and prevent future -- costly effects of a lightning strike. The Dissipation Array System (DAS) prevents lightning strikes in an “area of protection” by discouraging the attachment process of lightning, rather than attracting it to the area like older lightning rod systems that collect the strike were designed to do. LEC’s market-leading experience and knowledge has guided the evolution of the system, which retains a 99.87% reliability rate, leading the company to provide a unique no-strike guarantee.

It’s not just about direct strikes. Protecting sophisticated equipment – and significant investments – from secondary surges that wreak havoc on electrical instrumentation and equipment after the event is becoming a bigger topic in the energy production industry. With every upgrade in technology, sensitive systems like dynamic positioning (DP), drilling instrumentation and control and other rig management systems essential to staying online are becoming more vulnerable.

Determining the mean-time-between-failure (MTBF) for sensitive systems is a challenging task, much more difficult than simply calculating the raw dollars lost through obvious damage and downtime. As systems become smarter and more efficient, they are also more intricate and vulnerable. The voltage needed to run the instrumentation controls decreases and the risk of a high-energy secondary surge damaging equipment and affecting the operations on a rig or platform rises. In the end, it could cost \$20,000 to \$60,000 per hour or more when a system is down. And that does not include the replacement costs of the equipment affected.

Protecting a vessel from lightning strikes also protects the systems that would otherwise have lost a considerable part of their lifespans. With the uncertainty of the world economy, many companies look to LEC for its cost-effective protection as a way to extend the lives of older vessels and become more risk averse with new construction.



### **The Solution**

Not every case is the same, so LEC starts with a risk assessment to determine the level of vulnerability the rig or platform faces. LEC engineers interview key rig/platform technical personnel, review schematics and wiring diagrams for crucial components and inspect in situ grounding practices.

LEC's site surveys provide sound reasoning for the proposal offered, as each one is tailored to the needs of the rig or platform in question. Some rigs may only need surge protection devices (SPD), which have become critical to protecting power distribution and low voltage instrumentation and control. Other rigs and platforms may need a no-strike system to provide security against lightning strikes on the helipad, drill derrick or jack-up legs.

No matter the level of protection needed, Lightning Eliminators & Consultants has proven to be the right choice for the solution. Some of the world's largest offshore producers are utilizing LEC's DAS no-strike protection -- which is the only system available with a "no-strike" guarantee -- as well as surge protection systems to provide a critical safety net for their sophisticated instrumentation and their pocketbooks.

Get your rig or platform protected now. Contact Lightning Eliminators & Consultants at +1 (303) 447-2828 to find out how to implement a trusted and cost-effective lightning protection system today. Visit [www.lightningprotection.com](http://www.lightningprotection.com) for more information.



### **About Lightning Eliminators & Consultants (LEC)**

*Lightning Eliminators & Consultants (LEC) is dedicated to providing integrated lightning protection and prevention products, solutions and services by utilizing innovative, patented charge transfer technology, grounding systems testing, surge protection design, and providing comprehensive consulting services based on physics and state-of-the-art engineering principles. Working in more than 70 countries and throughout the United States, LEC Global has implemented its proprietary DAS™ solutions in addition to RGA™ solutions for floating roof tanks across many industries like petrochemical, oil and gas, biochemical, information technologies, nuclear energy, utilities and manufacturing. For more information about how LEC can provide total lightning protection, visit:*

*[www.lightningprotection.com](http://www.lightningprotection.com)*