

real life

A STORY FROM THE FRONT LINES OF POWER PROTECTION

Reliable phone systems are necessary to keep daily operations running smoothly. Dealers, market researchers and telemarketers cannot afford to worry that a lightning storm may impact their daily business. To ensure that phone lines are protected from lightning damage, companies use ONEAC telecom line protectors.

April Showers Bring May Service Calls

To keep phone systems operating at all times, a worldwide manufacturer of photographic and optical products uses ONEAC telephone line protectors in many remote facilities in the New England area.

The Problem

The worldwide manufacturer needed ONEAC line protectors in their remote facilities because numerous lightning strikes were damaging line cards and telephone sets. "When lightning strikes, there is a potential for 8,000-10,000 volts to be induced on a phone line.

“ Just one damaged card can lead to chaos in a single department because there are approximately 16 phones connected to each card.

Lightning takes the path of least resistance and that happens to be phone lines,” explained Don Forgie, Williams Communications Project Manager for the installations.

The amount of damage depends on the direction of the surge and how intense the hit is. When lightning hits a remote, it could damage a digital line card and the 16 ports on the card.

The line card is connected to the switch that makes the individual phones function. When lightning strikes, the whole card needs to be replaced because the phones no longer operate.

Just one damaged card can lead to chaos in a single department because there are approximately 16 phones connected to each card. The controller card, which leads a dial tone to

each phone line, can also be damaged from lightning.

Many times, the manufacturer had to pay for premium time for the labor since most problems occur after hours, on weekends or on holidays. It can cost up to \$70,000 or more per lightning strike.

Forgie explained that when the phone system is out of service, there can be 300-1500 dial tones down at once. The switchboard cannot process incoming calls so customer calls are lost.

An average of 2 million calls a month are processed through the switchboard. When phones are down, it is bad for business.

The large research and development department also relies heavily on the phone system for outbound calls. Without phones, they can not complete their day-to-day responsibilities.

Forgie stated that the most recent lightning hit was at the host location. The surge burned out \$75,000 worth of equipment.

The Search

The manufacturer needed a higher level of protection at the host site due to a series of lightning hits in a short period of time.

They wanted to get the best fix for the situation. An independent electrical

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testing company was called in to check all groundings and cables. All the elements of the problem and the possible solutions like changing the type of protectors to a lower voltage for the digital line were reviewed.

Grounding is also very important. It has been reviewed, checked and reviewed again over time.

"The manufacturer realized that they needed a higher level of protection and ONEAC fulfilled that need," explained Forgie.

The Solution

Forgie stated that there are over 15 remote facilities at the manufacturer that use ONEAC telecom line protectors.

Each remote facility supports between 200 and 700 telephone lines. The host has a main switch that links each of the remotes, manufacturing facilities and office spaces by underground cabling. ONEAC line protectors are connected to the cables that bind one building to another.

"In locations where they're needed most, we're gradually replacing all line

protectors with ONEAC products," Forgie explained.

In 1995, Northern Telecom recommended that they use a solid state tip and ring protector that would clamp at a lower voltage. ONEAC was a perfect match, the 6-DP line protector clamps at 70 volts. The previous line protectors, AT&T model WE4C, were gas tube based and clamped at 400 volts.

The ONEAC 6-DP line protector is also used in remote facilities where there is a mix of digital and analog lines.

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The manufacturer had been using a standard ONEAC tip and ring protector and upgraded to data protectors. The 6-DP protector was designed for digital equipment and helped to guard against lightning damage.

To ensure that the ONEAC protectors were installed correctly, a site survey was conducted by an ONEAC representative. The representative verified that the cable shields were properly bonded to ground and that the ONEAC protectors were installed in NEMA approved protector bases.

About half of the remote facilities use ONEAC line protectors. The ONEAC line protectors are mainly used in remote facilities that have underground cabling running to another building.

ONEAC products are also used on "trouble sites". Trouble sites are those locations known to be susceptible to lightning strikes because they are located on hills or ledges. Some remotes may have sustained multiple lightning hits in the past or are located a sizeable distance from other buildings.

The manufacturer also brought a new remote facility on-line this year and installed 1,000 new ONEAC tip and ring protectors. They also installed 4,000 ONEAC line protectors this year and 3,000 last year at various locations.

"They have not had any problems since installing ONEAC products. There were huge storms in June on the East Coast and I expected a lot of 'out of service calls' but there were none. The ONEAC line protectors worked like they are suppose to," Forgie said.

During those June storms, one remote was hit by lightning. There was a loss of power but the phone systems stayed on-line.

"There weren't any problems! By using ONEAC tip and ring protectors, customers can get through regardless of weather problems," Forgie said.