



The Longo



Response

Service Through Knowledge

A photograph of an industrial electrical control room with a fire overlay. The room contains several metal racks filled with electrical equipment, including circuit breakers and control panels. A large fire with bright orange and yellow flames is visible in the foreground, partially obscuring the lower part of the equipment. The background shows more industrial structures and wiring.

A manufacturing plant in northwest NJ was dealing with one of those Jersey downpours, intense, a couple of inches in hour! It was a little after 6 am when the water from the downpour appeared to short out the electrical systems main buss bar. Transformers ruptured sending flaming oil into the switchgear. In a millisecond it was game on. [more>](#)





The Longo Response



Service Through Knowledge

In over 60 years, Longo has handled just about every type electrical crisis, disaster, and catastrophe there is. The source or reason for these range from raccoons and other wildlife paying the ultimate price when shorting out equipment to old unmaintained equipment, to make shift wiring and mother nature. The why of these events can be interesting, but Longo, which comes in after the fact, is concerned with how to quickly get the equipment up and running again, whether by repair or replacement.



Remnants of the transformer that ruptured and sent burning oil into the switchgear area.

The Incident

Longo was contacted at 8:30am the day of the explosion and fire. Talking to the customer it was quickly evident the scope of the damage would require a swift and concentrated effort. **Within 90 minutes** a Longo Field Service Technician was on site establishing the scope of the damage. A triage of the facility and the damage would consist of what is the extent of the damage, what is involved in getting the customer back up and running until repairs and new equipment can be installed and how to manage this effectively.



The extent and heat of the fire is evident from the damage in the switchgear units. However, note the plastic mirrors above the cabinets. Electrical fires can be very unusual in how they do their damage.

The Assesment: The equipment that blew up was a transformer, rated at 3500 kva with a primary voltage of 12,470 and a secondary voltage of 480. Initial observations indicated the low voltage bus going into the building failed causing a bolted short circuit on the 480 volt side. The cause of the bus failure is assumed to be due to all the wet weather causing water to intrude into the bus duct resulting in its failure or short circuiting. This led to very high currents in the transformer secondary (480 volts) which caused it to heat rapidly and fail violently causing a rupture of the transformer tank spilling its oil which caught fire. Unlike many of these cases, the equipment in this situation seems to have been maintained and functioning prior to the incident. The customer also had functioning safety equipment in the form of sprinklers and an automatic fire door.

The Response



An extensive web of cables from the generator trailers had to be organized and channeled to the correct stations to re-energize the facility

Within 4 hours 18 Longo Field Service Technicians were on site. While some were isolating the damaged equipment from the company's electrical system others were testing the existing electrical system and preparing to connect auxiliary power to the remaining power system. This team was also assessing what materials would be needed to reestablish power to the facility. Contact with our procurement personnel made sure the delivery of the materials would enable the team to maintain its pace. Our switchgear specialist was on site reviewing the damage, possible causes and developing an estimate to supply and reinstall new equipment to replace the fire-damaged units. Right after the initial contact Longo made arrangements for two generator trailers to be at the site **Within 6 hours** two generators, a 2 MW and a 100KV, were on site and the technicians were laying out the cables and preparing to re-establish power to the company.

Longo management clearly outlined our procedures and actions with the customer. Since the pace of activity would be intense, communication with the customer's facility team was essentially constant.



6,000 feet of conduit was needed for the cables to replace main buss running through the building. Obtaining a replacement buss would not have been time effective.

The Repairs

The generators are supplying 480 volts to most of the building via cables that are routed, suspended and connected to the remaining electrical systems that were determined to be still intact through electrical testing. In other words, the generator power is bypassing the damaged areas. They are like huge extension cords supplying power at points some distance from the destroyed switchgear. The main buss that ran through both the office and the production facility was not functioning properly. Replacement buss was not an option due to the time factor. Replacing the buss with cables is something Longo is very familiar with and able to do with exceptional speed.

There will be approximately 6,000 feet of new aluminum conduit installed when cable installation is completed.