



TEDDER'S TECHNICAL FACTS

Summer 2007

Page 1

**Hampton
Tedder
Electric
(HTE)
&
Hampton
Tedder
Technical
Services
(HTTS)**

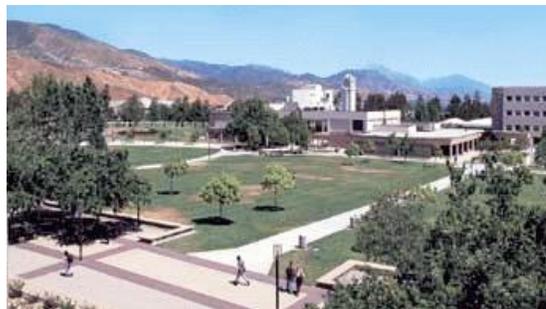
**SOUTHERN
CALIFORNIA**
(909) 628-1256
LIC. #288-589 C-10
LIC. #288-589 C-31

ARIZONA
(480) 967-7765
LIC. #146676
Comm. A-17
LIC. #156612
Comm. A-11

NEVADA
(702) 646-7449
LIC. #39279

**NEW
MEXICO**
(480) 797-3928
LIC. #89512

Hampton Tedder Technical Services discovers, then resolves, looming electrical calamity during a routine maintenance at CalState's San Bernardino campus



CalState University San Bernardino CA Campus

were the switchgear's only devices containing black tar. These bottles insulate the line and load sides of each breaker's stabs from each other. All four main circuit breakers were leaking tar and in need of immediate repair.

HTTS finished the maintenance and then notified the college that this dripping black tar would eventually cause a void in the insulation. If a void within the tar becomes large enough, arcing would start across the void and likely cause a phase-to-ground fault with possibly catastrophic results. The staff in the University's Maintenance and Operations Department was very impressed with HTTS' ability to quickly detect and identify the black substance, determine its likely origin, and to predict the worst-case scenario if nothing was done to fix it. Due to HTTS' quick analysis of the problem the University recognized and immediately acted upon the need to approve the ordering of parts and to schedule a utility outage. Quick approval to proceed was important because the needed repair parts were obsolete parts and would not be easy to find. Rebuilt repair parts ultimately had to be ordered because, after an extensive search, new parts were determined to no longer be available.

Tamberen secured an outage and planned for around-the-clock work, starting on a Friday night and running through very early Monday morning. A crew of sixteen men was assigned to assure that all of the needed work would be completed within this tight time window.

Hampton Tedder's (HTTS) Project Manager, Tom Tamberen, was supervising a regular planned maintenance of the college's 12,000V electrical distribution system when a problem came to light. One of the HTTS crew noticed that a "black tar" substance was dripping from somewhere inside the switchgear. They knew that the high voltage air circuit breakers' contact bottles



Obsolete 12,000V Circuit Breakers
Many parts are no longer available, but Hampton Tedder procured rebuilt parts to repair the four high voltage circuit breakers.



TEDDER'S TECHNICAL FACTS

Summer 2007

Page 2

**Hampton
Tedder
Electric
(HTE)
&
Hampton
Tedder
Technical
Services
(HTTS)**

**SOUTHERN
CALIFORNIA**
(909) 628-1256
LIC. #288-589 C-10
LIC. #288-589 C-31

ARIZONA
(480) 967-7765
LIC. #146676
Comm. A-17
LIC. #156612
Comm. A-11

NEVADA
(702) 646-7449
LIC. #39279

**NEW
MEXICO**
(480) 797-3928
LIC. #89512

Tim Reed served as the HTTS technical planner, advisor and Project Foreman. Before any work was begun, Reed held a very precise and serious safety meeting with everyone involved including the University's management. They were very impressed with HTTS' attention to detail and the company's deep regard for safety.

The parts were acquired and the utility outage occurred as planned. It became apparent by Saturday night that the repairs were ahead of schedule. After discussions, a few more men were added to the repair crew, enabling them to finish the job before sundown Sunday, which avoided a 2nd night without power. Full power was restored to the University by late Sunday afternoon. Both the school's management team and maintenance team were well pleased.

Additionally, HTTS was asked to engineer and assemble a special type of high voltage jumper cables. The University wanted these cables to be installed during the outage, which enabled some emergency backup generators to feed certain buildings that required 24/7 electrical power.

The preceding story shows the importance of regularly scheduled maintenance. We at Hampton Tedder are experts at testing industrial and commercial electrical systems. We have 20-years experience as a full-member NETA independent testing lab and 50-years experience as a high voltage contractor. In 2008, we celebrate our golden anniversary under the same name and owner; stability rarely found these days! This deep, broad expertise brings to you the best high voltage electrical services by HTE. HTTS' NETA status brings to you the industry's best testing standards, period!! Check out **NETA's Website** here: www.netaworld.org. Download NETA's Free "Guide to Electrical Maintenance" <http://www.netaworld.org/files/ItemFileA42.pdf>.

We also provide quality engineering, installation, and repair services. Think of us as your "one-stop electrical system shopping" and call us at the office nearest you.

Visit us at: www.hamptontedder.com



Insulating Tar Seeping in Switchgear

These bus bars reveal a quickly worsening problem that eventually would have caused a short circuit and outage.



Leaking Contact Insulation Wells

Replaced all contact wells because of leaking insulation tar to avoid flashover potential.



HTTS-Engineered High Voltage Cable Modifications

Specialty high voltage jumper cables (left) were made by HTTS to connect emergency generators to select switches (right)