3M™ Aluminum Conductor Composite Reinforced
July 2009

3M™ Gridlines©

Updates on 3M ACCR

Download the product specifications or the PLS-CADD cable files for 3M ACCR/TW at www.3m.com/accr.

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Higher Conductivity in Higher Amp Applications

3M Brings its Reputation for Reliability to Trapwire Conductors

3M announces product specifications on a full line of 3M ACCR trapwire conductors are now available on its website.

Planners are becoming increasingly interested in improving the efficiency of transmission lines. Trapwire designs improve efficiency by replacing the round outer wires with trapezoidal-shaped wires, in order to maximize the amount of current-carrying aluminum

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3M ACCR Roundwire

3M ACCR Trapwire

Two Brazilian Utilities Face Unique Challenges

CTEEP Simplifies a Difficult Crossing

Near the Jupiá dam, on the border between the Brazilian states of Sao Paulo and Mato Grosso Do Sul, a unique 138 kV double circuit transmission line crosses the Paraná River. The line needed a large upgrade to serve the regional electrical system, but its structures, raised above the water by large concrete foundations, were not easy to modify.

By upgrading the river crossing with Ostrich 3M ACCR, Companhia de Transmissão de Energia Elétrica Paulista (CTEEP) was able to get a 120% capacity

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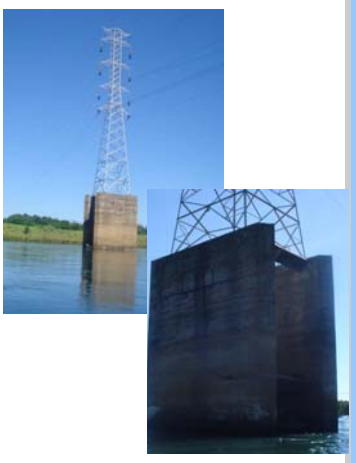

Concrete Foundations, the Paraná River Crossing, Brazil

CTEEP River Crossing

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increase on the line using only the existing structures. Besides a 36% reduction in weight, compared to the existing Oriole ACSR, the ACCR installation also matched the sag and tensions. To cap it off, the installation took only six days.

CTEEP is principally owned by Grupo Empresarial ISA (ISA Group), which supplies about 30 percent of the electrical power used in Brazil. The Paraná River is the 2nd longest river in South America, after the Amazon. It flows from Brazil, along the border with Paraguay and into Argentina, providing power to the Itaipu Dam, the world's most powerful hydroelectric plant.

According to CTEEP, had they upgraded with a heavier conductor, they would have had to build larger towers, requiring changes to the concrete foundations that rise out of the river to support the new towers. The project would have interfered with an environmentally sensitive area, would have taken much longer than 6 days to install, and would have been more costly. The installation process went smoothly, and the line was energized on February 15th

The CTEEP 138 kV Line Runs Parallel to a Railroad Bridge

CPFL Will Become the Second Utility in Brazil to Install 3M ACCR

In addition to CTEEP, another Brazilian utility is also planning to install 3M ACCR, but their challenges are quite different.

CPFL Piratininga, a power distribution unit of CPFL Energia, one of Brazil's largest electric utilities, is looking to upgrade an 88 kV line located in a heavily populated area just 60 km from the City of Sao Paulo. The line passes through a residential neighborhood in Várzea Paulista. Houses line both sides of the right of way, presenting numerous costly logistical problems for building new towers.

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Várzea Paulista has a population of approximately 100,000

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A Second Challenge in Brazil

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According to Claudia Costa Dominguite, South American Business Manager for the High Capacity Conductor Program, 3M ACCR has been installed in major metropolitan areas in the U.S., China and other countries, often because in these areas there are other lines or facilities that would be impacted by a major rebuild project. "Not only can 3M ACCR be installed on existing structures, leaving under-built lines and buildings undisturbed, it can also increase capacity significantly while matching the sag and tension of the conductor it is replacing and maintaining the existing mechanical safety factors."

CPFL has begun installation of 336 Linnet 3M ACCR on the double circuit line and plans to energize in July 2009.

Paulo Ricardo Bombassaro, engineering and planning manager for CPFL Energia: "After reviewing numerous options for meeting the growth in demand in this area, we determined that 3M ACCR is the most cost-effective, reliable and best technical solution available to us."

Trying it Out

Dominion Virginia Power Installs 3M ACCR

Dominion Power, headquartered in Richmond, Virginia, recently installed 1033 Curlew 3M ACCR as an upgrade on a single circuit of the 230 kV Loudoun to Brambleton line. The installation increased the capacity by approximately 90 percent, while using existing towers. The 5-mile line is located in Loudoun County in northern Virginia, which includes Washington Dulles International Airport, part of the fast-growing suburban region west of Washington, D.C.

According to Tim Koenig, director of 3M's High-Capacity Conductor Program, 3M ACCR is ideally suited for places such as Northern Virginia. "Because it can be installed as a drop-in replacement on existing lines, it eliminates much of the disruption that major upgrade projects can cause to people, businesses and the environment, making it espe-

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Loudoun Substation

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Dominion Virginia Power

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cially good for densely populated or high-growth areas. And, because utilities can use the existing land and structures, it can save significant costs while providing a large capacity increase."

This installation is providing Dominion with the experience to decide which applications on their system might benefit from products like 3M ACCR. Dominion is one of two PJM-member utilities, along with Allegheny Power, to install 3M ACCR in an area designated as a critical transmission corridor by the DOE.

Temporary pole, roller arrays and conductor, Tower 3

3M ACCR Trapwire

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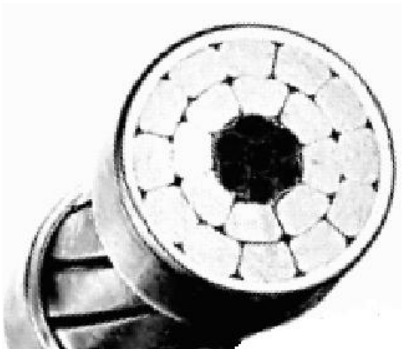
within the same diameter. The increased conductivity may reduce losses on the line, depending on the line characteristics

However, adding aluminum increases both conductivity and weight, so it is important to work with your 3M representative to choose the best solution for your specific application.

3M offers a full line of ACCR/TW with diameters comparable to standard conductors.

Download the product specifications or the PLS-CADD cable files for 3M ACCR/TW at:

www.3m.com/accr.



Visit www.3m.com/accr to:

- Find lab and field test reports
- Download PLS-CADD cable files
- Download the technical brochure on common conductor sizes
- Fill in the Information Request Form to get help on a specific project
- Contact us with questions or comments

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