

# SOLUTIONS



## PROJECT:

*Dominion Virginia Project*

OWNER: *Dominion*

YEAR: *2011*

## The Problem

The Hampton Roads area of Virginia is one of the state's fastest-growing regions, resulting in increased demand for electricity from both residential and business customers. In order to head off the potential for rolling blackouts during peak demand times, Dominion Virginia Power (DVP) recently undertook a \$250 million, 60-mile transmission line project to dramatically increase its electrical grid capacity. Called the Suffolk to Carson Transmission Line, the project involves setting over a hundred 130-foot-tall transmission towers in one of Virginia's most remote areas – an environmentally sensitive region of swamp and woods with little or no access by road.

## The Five Star® Solution

DVP called on Five Star® to develop and test grouting materials to ensure that the massive transmission towers would be properly set. Following a detailed review of the project requirements, location and logistics, Five Star® recommended its Fluid Grout 100, the industry's leading cement-based, non-metallic, non-shrink fluid grout for supporting machinery requiring precision alignment. Next came extensive product testing at the University of Delaware and rigorous destructive testing at the Mountaintop Campus of Lehigh University where engineers tried unsuccessfully to destroy a mockup of a transmission tower set into place with Fluid Grout 100.

Due to the tremendous geographical challenges of this project, Five Star® worked with DVP at every level, beginning with the development of special packaging in 3,000-pound bulk bags to cut down on labor time and simplify mixing and placement. Because ready-mix trucks could not be brought on-site, this custom packaging allowed the product to be mixed in smaller tow-behind barrel mixers, minimizing the environmental impact. Five Star® also provided detailed installation guidance for the remote areas, demonstrating their total commitment to the project.

Begun under ideal cooler temperatures in the spring of 2010, the summer heat and humidity soon set in. Such temperatures make working with any cement-based product a challenge, and normally work crews need to cool the material for optimal mixability. However, the remoteness of the job sites made it difficult to get cold water and ice to the locations. Five Star's R&D Group took it upon themselves to rapidly develop custom mixes behind the scenes. By the time the heat set in and the contractor was ready for the next truckload of grout, a custom formula had been developed, validated and tested, and was ready to go. This not only ensured ease of placement but, most importantly, allowed the project to stay on schedule.

Experts from Five Star® have remained available to DVP throughout the project, visiting each job site to offer support. Five Star® continues to support DVP in the field with periodic site visits and constant availability to help with any advice on mixing, product specs and tech support.



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# FLUID GROUT 100

## High Performance Precision Nonshrink Fluid Grout

### PRODUCT DESCRIPTION

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Five Star® Fluid Grout 100 is the industry's leading cement-based, nonmetallic, nonshrink fluid grout for supporting machinery and equipment. It is formulated with Air Release technology that combines high performance with the greatest reliability. When tested in accordance with ASTM C 827, Five Star® Fluid Grout 100 exhibits positive expansion. Five Star® Fluid Grout 100 meets the performance requirements of ASTM C 1107-02 Grades A, B and C, ASTM C 1107-14 and CRD-C 621-93 specifications for non-shrink grout over a wide temperature range, 40°F - 90°F (4°C - 32°C).

### ADVANTAGES

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- Air release technology per ACI 351.1 R
- Placement within tight clearances down to 1/2 inch
- High 1, 7, 28 day strength
- Permanent support for machinery requiring precision alignment
- Does not contain gas generating additives, such as aluminum powder
- Non-shrink from the time of placement
- 95% Effective Bearing Area (EBA) is typically achieved following proper grouting procedures

### USES

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- Grouting clearances to one-half inch
- Grouting of anchors and dowels
- Grouting of machinery and equipment to maintain precision alignment
- Non-shrink grouting of structural steel and precast concrete
- Preplaced aggregate grouting
- Support of tanks and vessels

For worldwide availability, additional product information and technical support, contact your local FiveStar® distributor, local sales representative, or you may call Five Star Products, Inc. Engineering and Technical Service Center at (800) 243-2206.

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March 2011