

Market

Buildings

Application

Concrete Repair & Protection

Focus

Corrosion

Project: Dry Fork Station, Gillette
Owner: Basin Electric Power Cooperative
Contractor: Ames Construction, Inc., Salt Lake City, UT
Year: 2009

The Problem



Dry Fork Station is a coal fired power station five miles north of Gillette, Wyoming along State Highway 59. Concrete beams were constructed in October 2008. Freezing and thawing of water collected in anchor bolt sleeves and concrete pockets generated damage to the concrete beams during winter months. The beams are constructed of approximately 1,000 yards of concrete and reinforcing steel and sit approximately 50 ft. above grade on six 12' x 15' concrete reinforced columns. The dimensions of the reinforced concrete beams are 35' x 10' x 12'. A total of 4.5 cu. yard of concrete repair material was needed to restore the beams to the designed structural condition.

The Sika Solution

The product utilized for this repair was Sikacrete 211 SCC Plus. Sikacrete 211 SCC Plus is a single component self-consolidating concrete in a bag. This product is additionally enhanced with silica fume, polymer and a penetrating corrosion inhibitor. For a form and pour application the excellent consolidating characteristics of this material was the main reason for its selection. Formwork with a bird's mouth opening was created to receive mixed material. The formwork was sealed to prevent loss of moisture from the mixed material. The work area was tented and heated to provide an ambient temperature environment that was ideal for concrete replacement.



An SSD condition was achieved by filling the forms with water, the night prior to the pour. Test batches were performed a day in advance, to familiarize the crew with the handling of the material and confirm performance properties of Sikacrete 211 SCC Plus. Ninety seven percent of the reported one day strength was achieved in 17 hours. Sikacrete 211 SCC Plus was successfully placed into forms continuously in a single pour. There were no shrinkage cracks developed from the massive continuous

pour. Maximum depth was 12" horizontally in a continuous 36' vertical pour. Depths varied from 2" up to 12" within the formwork. An on-site testing lab performed testing to validate strength evaluation and flow characteristics. The results met and exceeded the project specifications. The excellent placement characteristics of the Sikacrete 211 SCC Plus coupled with the outstanding execution and placement strategy of the contractor, resulted in a challenging repair project to be completed successfully.



Sika Products Used

Sikacrete® 211 SCC Plus is a one-component, self-consolidating concrete containing factory blended coarse aggregate. This self-consolidating concrete material is silica fume and polymer modified and also contains a penetrating corrosion inhibitor.



Contact Sika at:
Phone: 1-800-933-SIKA (Nationwide)
Website: www.sikaconstruction.com



Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 201-933-8800
Fax: 201-933-6225

Sika Canada Inc.
601 Delmar Avenue
Pointe Claire
Quebec H9R 4A9
Phone: 514-697-2610
Fax: 514-694-2792

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76920
Phone: 52 442 2385800
Fax: 52 442 2250537