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Phillystran Ropes for Dragline Move under 500,000V Power Lines

July 27, 2021 - Mining rope maker, Phillystran, has supplied Aramid PSWR 1500 fiber lines to the Sabine Mining Company, a subsidiary of the North American Coal Corporation, for moving a Marion 7820 Key-1 dragline under a pair of 500,000V power lines to a new site at Sabine Mine's South Hallsville surface mine. The fiber lines supported the dragline boom during the move under the power lines, allowing the dragline relocation to be completed in a fraction of time needed had the boom been disassembled.



The Marion 7820 Key-1 dragline passing under 500,000V power lines during the move to a new site at Sabine Mine's South Hallsville surface mine.

The Sabine Mine, operated by the Sabine Mining Company, delivers approximately 4.0 million tons of coal per year to Southwestern Electric Power Company. The operation utilizes two draglines for overburden removal and reclaims about 400 acres of land annually. Normally the dragline move would involve either disassembling the boom or lowering the power lines to the ground allowing the dragline to pass over them.

"We considered both approaches, but neither was attractive due to the cost and disruption to mining operations," says Spence Thompson, Manager Dragline Technical Services at North American Coal-Sabine Mine. "Working with heavy industrial contractor, Warfab, and Phillystran, we decided to lower the boom and pass under the two 500,000v power lines. This had the advantage of speed as well as reducing the exposure of conductive steel wires to the power lines."

The 5.3" diameter Phillystran PSWR 1500 rope has a break strength of 1.5 million lbs (6,672kN). Manufactured to a +/- 0.5% (+/- 4inch) length tolerance for a spliced rope, four ropes were used with a spliced eye containing a steel grommet thimble at each end. One pair, measuring 55ft, was connected to a crane and another pair, measuring 63ft, supported the boom. The length tolerance between each rope pair was +/- 0.13% (+/- 1inch). These ropes are stranded synthetic working ropes made of Twaron aramid fiber with braided polyester fiber jackets.

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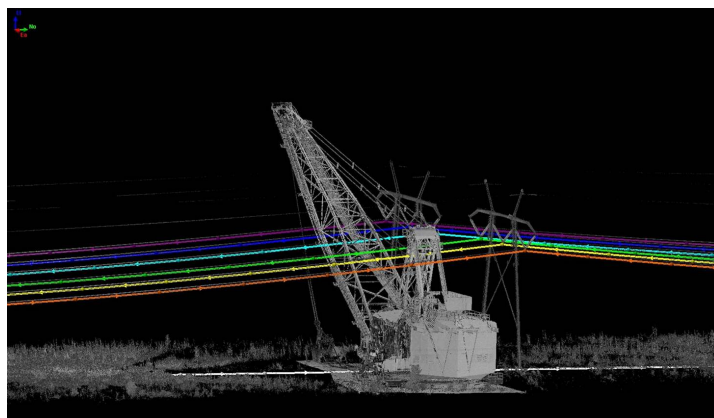




Phillystran Aramid PSWR 1500 fiber rope lines supporting the Marion 7820 Key-1 dragline boom.

Spence Thompson again. "We first lowered the dragline boom to the ground and attached the ropes. After raising the boom, the ropes were tensioned to remove any stretch, and the dragline moved under the powerlines. It went very well; we completed the dragline move within 4 hours."

In addition to temporary mining ropes like these, Phillystran also supplies ARA-BOOM mid-boom and main-boom pendants for draglines. "Because spliced terminations were required here, we opted for a balanced stranded rope made from Aramid fiber with a protective braided jacket," says Greg Savage, Market Manager Utility, Mining & Structures, Phillystran. "A +/- 0.5% (+/- 4inch) length tolerance is unprecedented for a spliced rope of this kind, achieving it reduced the risk to the boom during the move."



Analysis showing how far the dragline boom had to be lowered to pass under the power lines.

For more information on Phillystran and mining ropes, visit www.phillystran.com.
For more information on North American Coal Corporation, visit www.nacoal.com.
For more information on Warfab, visit www.warfabinc.com.

About Phillystran

Phillystran is a leading developer and manufacturer of high performance, synthetic fiber ropes for marine, utility, broadcast and military applications, including mooring lines, life lines and winch lines, boat rigging, structural support lines, power cables, broadcast tower guy cables and Seismic Cables. Phillystran is also part of one of the world's largest steel wire rope manufacturer, WireCo® WorldGroup.

Based in Philadelphia, United States, Phillystran has led the development of synthetic ropes for applications previously performed by steel wire ropes, with significant performance and business benefits. In addition to offering to the industry the widest range of high performance yarns, Phillystran is a leader in rope construction and engineering. Its proprietary four strand, wire lay construction offers outstanding levels of abrasion resistance and service life.

For more information visit www.phillystran.com.

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