



THE TUSCARORA TUNNEL GETS SAFE, FIRE-RESISTANT UPGRADES

The Tuscarora Tunnel cuts through the Appalachian Mountains along I-76 in Pennsylvania near the Huntingdon/Franklin county line. The tunnel measures 1.1 miles in length and is the second longest active tunnel on the Pennsylvania Turnpike System. It is one of four original Pennsylvania Turnpike tunnels still in active use.

Challenge

The Tuscarora Tunnel's eastbound tube originally opened in 1940, followed by the westbound tube in 1968. Renovation was completed in the 1980s, but after nearly 40 years, the aging infrastructure – electrical cables, conduit and components – had begun to deteriorate due to general wear and tear. It was time again to repair, replace and upgrade.

The project owners also desired a safe, two-hour fire-rated alternative to the tunnel's existing non-compliant steel conduit (GRC) system with its zinc interior coating. Vehicular accidents causing fires create extremely high temperatures that cause the GRC conduit interior zinc coating to interact with the copper cable conductors. This creates brass alloys that cause premature electrical system failures of the life-safety circuits. This is an extreme potential hazard for all commuters using the tunnel.

Solution

Project owners researched the safest solutions for the aging tunnel environment. While they entertained other types of fiberglass conduit, they ultimately chose Champion Fiberglass Flame Shield® Phenolic XW Conduit. Known as a leading fire-rated safety solution, it can withstand two hours at 1850°F. This fire-resistant conduit is the number one choice for transit systems' surface-mounted electrical conduit. Additionally, when combined with RSCC's VITALink® 300 RHW and Radix DuraLife AWG Cables the combination offers a zero-smoke, zero-halogen, two-hour fire-rated solution that meets UL 2196 requirements.

Results

Most importantly, Champion Fiberglass conduit met project goals to create a safe, updated tunnel environment with tested, fire-proof performance. The project owners also received savings in materials, installation, and through product longevity. Finally, not only was Champion Fiberglass selected for the Tuscarora Tunnel, it is being used to create safer tunnels in additional projects along the Pennsylvania Turnpike.

QUICK FACTS

PROJECT NAME

Tuscarora Tunnel
Rehabilitation Project

APPLICATION

Transportation

CHAMPION FIBERGLASS PRODUCT(s)

Champion Fiberglass Flame Shield®
Phenolic Conduit XW

- » Champion Fiberglass Flame Shield® Phenolic XW Conduit and RSCC's VITALink® Cables provided a two-hour, fire-rated solution, meeting project goals to create a safe, upgraded environment for motorists and workers
- » Project savings in material costs and installation beat other fiberglass conduit brands