

Peoria Crossing

US SPEC PRODUCTS

US SPEC Products: NA-50

Contractor: SEMA Construction

Engineering Group: Denver Public Works

Date of Completion: June 2014

Peoria Street is a very busy north-south artery in East Denver that was constantly congested due to rail line crossings. The solution was to construct the new Peoria Crossing Bridge. Contrary to what the name suggests, the bridge does not cross over Peoria Street but instead turns it into an overpass. Peoria Street now crosses over Union Pacific rail road tracks, Regional Transportation District (RTD) light rail lines and two local roadways. The overpass will relieve commuters of several delays. According to the project's engineer, Denver Public Works, the rail crossings will experience approximately 56,000 vehicles and 200 rail gate closures per day in the future. In addition, a new light rail stop will increase the number of pedestrian and bicycle traffic. The bridge allows people to safely cross the busy rail lines.



Planning started in 2011, construction began in 2013 and the bridge was open to traffic in 2014. The estimated project cost was \$50 million. As a part of the Denver Regional Council of Government's 2012-2017 Transportation Improvement Program, \$25 million in federal funding was approved for the project based on a 50% local match of \$25 million. Peoria Crossing was sponsored by the City and County of Denver, City and County of Aurora and RTD.

This post-tension bridge needed a grout that met several physical requirements including having a fluid consistency, ease of long distance pumping, an extended working time and a specific strength. US SPEC NA-50 was chosen because it met these requirements. The extended working time allows for additional working time if needed. The grout is engineered to not bleed water under the pressures of grout placement. Bleed water will rise to the top of the tendons; when it evaporates there is a possibility of a void and the tendons being exposed. Also, as required, NA-50 was on the Colorado Department of Transportation (CDOT) approved product list and meets CDOT's Prestressed Concrete Specification section 618 detail post tension grout requirements.



Before placement, the product was closely monitored to make sure it was conditioned to the proper temperature. A diesel powered, colloidal mixer was used to mix US SPEC NA-50. All water used for mixing needs to be potable. A potable water source was not available at the job site and a water truck was brought in. After mixing, the grout was pumped through hoses to be injected into the bridge. NA-50 is designed to be pumped and fill the annular spaces between the cables and the conduits that house the cables. Filling in these voids eliminates the possibility of corrosive elements entering the system and corroding tendons.

Post-tension grout is typically pumped from the low side of the structure; however, this bridge did not have a noticeable difference in elevation from one end to the other. There were valves placed throughout the length of each cable to be grouted. The valves were placed at the high points of the cables. These valves allowed visual confirmation that the grout was moving through the conduit as intended. After the grout appeared, the valves were closed and workers moved onto the next set.



NA-50 has been used on many similar projects throughout Colorado and across the country. In Denver, the grout has been involved with the light rail expansion on bridges near I-225 and Parker Road, Smith Road and Chambers Road and is scheduled to be used on the Colfax Avenue and I-225 Bridge.