More than a Pipeline. A Lifeline. Southern Colorado’s future requires water. El Paso County is currently the most populous county in Colorado and is projected to add 350,000 people by 2030. The project partners already own rights to sufficient water, but need a delivery system to transport it. The Southern Delivery System (SDS) will maximize the current system in Pueblo and El Paso County, Colorado. Without a major water source nearby, the new water delivery system was needed. Previous generations built a highly advanced system to bring water to the area from the Continental Divide. The SDS is the next critical component needed to sustain the area. The SDS will carry water from Pueblo Reservoir to the Fountain, Colorado Springs, Pueblo West and Security water districts in El Paso County. This project will help meet the needs of these growing communities for years to come.

The SDS is the largest project of this type in Colorado to date. Plans for the SDS were originally proposed in the 1980s and project planning was started in the 1990s; construction began early 2013. At an estimated cost of $1.45 billion, the SDS will include a new waste water treatment plant, treated water plant, pipelines, dam connections and three raw water pump stations: the Juniper pump station in Pueblo State Park and the Bradley and Williams Creek stations in El Paso County. When at full capacity, the system is designed to move 96 million gallons of water per day. Water will be moved 1,500 feet up in elevation from Pueblo to the El Paso County Water Treatment Facility. A second phase for expansion is planned for 2020-2025 or when more water capacity is needed.

When construction started on the Williams Creek Pump Station, US SPEC MP Grout was submitted and approved for filling approximately 2 inch voids between the base of the pump can and the cans’ concrete foundation. Pump cans are large steel tubes located inside a pump station and hold the pumps that move the water. These critical components needed to be installed according to strict guidelines.

The grout will transfer the weight between the two components and help tie the system together to act as one unit.

The grouting portion of the project took place during cold weather months. Temperatures dropped to near freezing and approached the mid-40s during the day. This meant cold weather precautions needed to be taken to ensure a successful grouting operation. Archer Western Construction, the general contractor, took several steps to keep the materials and areas to be grouted in the proper temperature range of 40° - 90°F. A ground thaw unit was used and heat tape was draped around and between the steel base and concrete foundation. The heat tape was then wrapped in insulating concrete blankets to help retain the heat. MP Grout was covered in blankets and stored in a mobile storage unit on site, and the water for mixing was stored in a 55 gallon drum wrapped in a drum heater.

A mortar mixer was used to mix the material at the fluid water ratio: 4.5 quarts of water per bag of MP Grout. The mixed grout was then transferred to the application areas and poured. Archer Western used lumber to build forms used for holding the grout in place. The mixed grout was poured on one side of the form and flowed to fill in the entire form creating the base. Pouring from one area helps eliminate the chance of trapping air and having voids in the grout. Archer Western Construction liked the flowability of the grout and its ease of mixing. The grout was poured until the perimeter of the steel can showed a uniform depth of grout. MP Grout flows very well and minimal agitation was needed (mechanical vibration is never recommended with grout applications as it can cause segregation). After completing one can, workers quickly moved to the next area. When the grout was sufficiently set, wet burlap was laid on top to start the damp curing process. The ground thaw unit was left on overnight and concrete blankets were placed to keep temperatures from falling too low. To address any questions or concerns, a US SPEC representative was on site for the pre-grout meeting and during the grouting operations.

The SDS is an ambitious project that is kept “on time, under budget”. To ensure the job stays on time, several goals were made and every goal to this point has been met. The final goal, completion of the water treatment plant and water pump stations should be reached in 2016.