Draper WTP Solids Handling Facility
Oklahoma City, Oklahoma

Constructed in 1964, the Draper Water Treatment Plant (WTP) serves as the largest treatment plant in Oklahoma City’s water system. By utilizing water from Lake Atoka in southeastern Oklahoma, the Draper Water Treatment facility treats 150 million gallons per day. Six stations along the 100-mile-long Atoka pipeline pump water from Lake Atoka to Lake Stanley Draper, where it is then treated at the facility and distributed to the southern and eastern areas of Oklahoma City (OKC).

In order to provide an efficient and automated means of removing solids generated by the water treatment process, Myers Engineering was selected to design a new solids handling facility located adjacent to the existing treatment plant. The upgrade included the addition of five new treatment tanks: two 1.06 MG flow equalization basins, two 1.69 MG gravity thickeners, and a 1.0 MG mixing tank.

The solids removal process begins with filter backwash being pumped into the flow equalization basins to ensure a steady flow rate into the gravity thickeners. The thickened sludge produced in the gravity thickeners is then pumped to the mixing tank where it is stored and mixed to maintain consistency until it can be fed to a series of belt filter presses. The belt filter presses finalize the sludge consolidation and drying process until the solids are able to be fed to a conveyor system and loaded into trucks for haul off and disposal. The completed facility will provide an efficient, cost effective means of solids removal at OKC’s largest treatment plant.

As part of the design of the new facility, a best value comparison was performed between AWWA D110 Type III prestressed concrete tanks and traditional reinforced concrete structures. AWWA D110 Type III tanks were determined to provide the best value for the project based on a combination of factors including: initial cost, long-term durability, future maintenance costs, assurance of water tightness, and consistency of quality control.

DN Tanks is excited to have been a part of this project which highlights the value provided by prestressed concrete tanks in non-potable treatment and process applications.