References

A 100-year, leak-free service for the Oregon irrigation district

Uponor involvement

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A U.S. irrigation district with a rich agricultural history has chosen Weholite to ensure that the district's valuable water supply will conserve every ounce of water intended for use and remain safe and leak-free.

Project Facts:

Location
Tumalo, USA

Completion
2019

Building Type
Soil & Forestry

Project Type
New building

The Tumalo Irrigation District in Oregon, U.S.A., boasts a rich farming history originating in the late 19th century. To support the crops and livestock of the surrounding areas, the first documented canal was dug in 1883 to divert water from the Tumalo Creek.

The Tumalo Irrigation District now manages two primary water diversions in nearby reservation parks and lake storage. The District encompasses 667 customers, manages over 80 miles (130 kilometres) of piped and open canals and irrigates more than 8,000 acres (3,200 hectares) of growing farmland consisting of cash crops such as hay, garlic, lavender and others.

For the last 15 years, the District has been very active in enclosing long stretches of its irrigation canals, which can significantly reduce evaporation and exfiltration losses. The benefits of regular enclosure include increased safety for the surrounding public and livestock, as well as the opportunity to reclaim and utilize land, once occupied by the canal, for

healthy crop production.

Minimal chance of leakage

The key aspect of a commercial irrigation system that sells water is ensuring that there are no leaks in the system, which could result in financial losses. Weholite ensures leakfree systems by way of its robust material characteristics and fabrication method. The fabrication of Weholite pipe, consists of extruding a linear closed profile structural beam of PE-HD and then winding the profile around a circular drum while fusing the adjacent profile surfaces together. The fusing process results in the development of a single homogeneous pipe of high structural strength. When fusing PE-HD pipes together, the connection points or joints are typically stronger than the pipe itself. These very strong, fused PE-HD joints allow for a leak-free system over the design life of Weholite, which is 100 years.

Uponor Infra North America worked extensively with the Tumalo Irrigation District to provide its Weholite offering for this impressive project. Phase one of the project called for 4,000 feet (1,220 metres) of 84'' RSC250 Weholite large diameter PE-HD pipe, 19 elbows, 2 access chambers and several turn-outs. Installation of the Weholite pipe began in December of 2017 and concluded successfully in March 2018. Phase two of the same project is even more extensive, as it calls for another 8,000 feet (2,440 metres) of 84'' RSC250 Weholite large diameter PEHD pipe, with an additional 3,000 feet (915 metres) of 60'' RSC250 to be installed in the autumn of 2018 and continuing into the winter of 2019. This winter installation is causing little concern, since the fusing zone only needs to be heated to a temperature of 5°C or higher for the installation to progress, even in the harshest of climates. The operating pressure of the complete irrigation system will be 15 PSI (1 bar).

The optimal material for irrigating farms

There are numerous benefits to using Weholite PE-HD pipe for various water management infrastructure projects. For successful farming and crop growth, dependability is a high priority throughout the system from the design to the installation and deployment of irrigation spanning large surface areas. While some piping materials may suffer from corrosion, erosion or in some instances cracking, the combination of Weholite's unique closed profile, double wall design with the added benefits of its PE-HD material, provides for a 100-year design life and the lowest life cycle costs on the market today.

The preferred material of North American engineers

Engineers choose Weholite structural PE-HD pipe over conventional pipe materials (concrete and steel) for several key reasons. For example, engineers now realise the importance of selecting solutions based on Life Cycle Cost (LCC) so that the true cost of ownership, which includes annual operational and maintenance costs, are captured. Steel pipe can corrode and in turn produce corrosion products capable of reducing the internal diameter of a pipe. Pipe restrictions result in increased annual pumping costs. Concrete pipe, which is good in terms of compression but not tension, requires the addition of steel wire or reinforcement to make it stronger. As concrete is porous, the steel wire can also corrode resulting in spalling and/or loss of pipe integrity, if the steel wire snaps.

The consequence of wire corrosion is higher maintenance costs or immediate replacement. Weholite is a non-metallic structural pipe made from PE-HD and as such does not corrode, does not suffer from hydrogen sulphide exposure, does not spall and is not subject to high surge or transient pressures. This is why Weholite has one of the lowest Life Cycle Costs on the market today.

Working together as a team, Core & Main provided local support and communication for the client, while Uponor provided overall support in product selection, installation drawings and field installation services. Uponor´s ability to act locally in support of the client allowed for increased speed of response in answering their questions and requests, while the installation of Weholite provided the irrigation district with the means of conserving water through a leak-free system.

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