



High Knob Utilities, Inc.

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HIGH KNOB UTILITIES NAMED VIRGINIA WATER SYSTEM OF THE YEAR

High Knob Utilities, Inc. was named the 2007 Virginia Water System of the Year by the Virginia Rural Water Association at the association's annual conference in Roanoke on Wednesday, March 28. The award was based on the utility's outstanding performance in executing both a financial and operational turnaround from 2000 to 2006, and recognizes the system as outstanding water system in the state of Virginia.

Accepting the award, HKUI President David Henderson stated, "We feel that the transformation of this water system from its indebted, crisis condition in 2000 to the system in place today is a truly significant accomplishment, especially in view of the fact that the effort was initiated, financed, and managed by a volunteer community organization."

The statewide competition is open to the 210 water systems that are voting members of the VRWA. High Knob Utilities falls in Region 3, which also includes Strasburg, Woodstock, Luray, Mt. Jackson, New Market, Leesburg, and Warrenton.

Prior to 2000, the High Knob water system was in such bad shape that water had to be trucked in by contractors, and some homes were without water for up to three days. Over half of the water being distributed was lost to underground leaks. At one point, the Virginia Department of Health (VDH) placed a moratorium on new housing construction until the water system could meet the community's needs. In addition, the utility was \$52,000 in debt.

In late 2000, a new rate structure was established and the outstanding debt was paid off. An engineering study was commissioned to recommend improvements to the system, and a five-year, \$1.25 million water system improvement project resulted.

Completion of this project established a high capacity, high quality, and reliable system for providing potable water to the residents of High Knob Subdivision. During the improvement process, over 150 homes were built within the subdivision. Not only did the project crew have to contend with the system improvement work, but they were also tasked with connecting and maintaining a nearly 60% growth in the customer load.

In addition to Henderson, current board members are Keith Arnett, Vice-President; Thomas Ricks, Secretary; Vince Bonzagni, Treasurer; and Josh Douglas, Director.

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Background

During 2006, a significant system upgrade was completed. The five-year, \$1.25 million water system improvements included:

- Replacement of approximately 6.7 miles of water mains
- Construction of four 37,000-gallon reservoirs
- Installation of a computer operated control and monitoring (SCADA) package
- Replacement of valves and other components throughout the system
- Upgrading/replacement of aging residential taps
- Installation of 15 fire hydrants throughout the system
- Construction of a central valve station for maximum flexibility in routing water
- Installation of propane-fed backup power systems for key wells and reservoirs

Financed primarily by an \$895,000 low-interest, 20-year loan from the Virginia Water Supply Revolving Fund, the remainder of the project was underwritten by a capital

improvements fund built up by HKUI over several years. The initial engineering study by Bushman Engineering was paid for by a state grant.

Major system work was carried out by EC Pace Co. of Roanoke, throughout 2004. Pace laid the heavier six-inch mains, and worked on areas of the project where difficult terrain called for special equipment. Reservoir construction was contracted locally, and the SCADA system was provided and installed by Synchrony, Inc. of Roanoke.

The remainder of the work was carried out by HKUI personnel, providing close to \$300,000 in cost savings over having the work performed by contractors. Local consultant and licensed water operator J. Daniel Althouse was retained to administer and manage the project on a day-to-day basis. The upgrades were completed in 2006 with the installation of the backup power facilities, and final modifications to the SCADA system.

When the engineering study was completed in 2001, the system supported 258 connections, with an average daily usage rate of approximately 53,000 gallons, or 205 gallons per household. Today, with 441 connections, the average daily usage rate is approximately 43,000 gallons, or 97.5 gallons per household.

This indicates the significance of leakage within the system prior to the upgrade, and is just one measure of the results of the improvement project. In 2006, the system experienced its first month of leak-free operation. HKUI is in full compliance with VDH water quality standards. Water quality reports for 2003 – 2005 are available on the HKUI website, www.hkui.org.

Completion of this project substantially increased the value of the homes and building lots in the subdivision, returning value to the owners. In addition, the installation of 15 fire hydrants throughout the subdivision where none existed before provided further financial benefits, not just to property values but also by reducing homeowner insurance.

Another major consideration is that this improvement project was carried out on a water system that exists on the side of a mountain. The lowest customer connection is at

approximately 900 feet elevation, and the highest customer is at approximately 2400 feet elevation. The topography is heavily forested and quite rugged, and the soil is extremely rocky. These conditions considerably increased the engineering challenges, both for routing water lines and for establishing radio links for the SCADA system.

HKUI is owned by the High Knob Owners' Association, Inc., and both are operated as non-profit organizations by boards of directors elected from the community, working on a volunteer basis.

The High Knob water system obtains its source water from five springs and six wells. Storage capacity is provided by 11 concrete reservoirs. All water is chlorinated and tested according to VDH requirements. The system has been approved and is inspected regularly by the Virginia Department of Health (VDH).

The distribution system has approximately 12 miles of pipe with associated pumps, valves and meters. The community's covenants prohibit wells on most individual lots. Each customer is served by an individual metered connection to the system mains.

The system has evolved over the years as a "terminal" branching system. Water does not circulate within the system, but instead flows down the mountain into separate branches, which in most cases follow the roadways.

The VRWA is headquartered in Buena Vista, and is an affiliate of the National Rural Water Association. For more information on the Virginia Rural Water Association, see <http://www.vrwa.org/>.