

Highland County Water Company Selects Multi-Mag's for their Raw and Finished Water and Everything In Between.



The Highland County Water Company is the largest public water system in the State of Ohio. In addition to supplying water for Highland County, portions of Ross, Adams, Brown and Clinton counties are also serviced by this water treatment plant. The County was named for its location in the "high lands" between the Scioto and Little Miami Rivers in the southwestern region of Ohio. Highland County's groundwater resources are valuable assets to the county's citizens and industry since it provides the majority of the areas water supply. The availability and quality of these resources are directly influenced by the properties of the geologic formations underlying the county. Two primary aquifer formations are located in Highland County. Today, geologists and hydrologists continue to study the state's groundwater resources. As a result, Ohio is one of only a few states that has been completely mapped for groundwater availability.

According to Bryan Knisley, Chief Operator at the Highland County Water Company, "In 2000, the plant underwent an extensive expansion project to increase its daily drinking water production from 2 to 8 million gallons per day (mgd). The contractor for the project construction was O'Brien Engineering located in Indiana."



Prior to the plant upgrade, spool-piece magmeters were used to monitor plant flows. The majority of inline spool-piece magmeters (sometimes called *full-bore magmeters*) consist of a section of flanged-end pipe with electrodes mounted in the sides. When the meters are mounted they replace a section of pipe in the system requiring additional construction/installation costs. The preferred location of spool-piece meters for accurate readings is on vertical upward flow lines, however, repeatable, less accurate readings can be achieved from meters installed in horizontal lines at a low point in the system. In addition, magmeters require at least five diameters of straight pipe upstream and two diameters downstream in order to maintain their accuracy.

Knisley states, "The spool-piece meters were providing reliable data but they were not easy to install or maintain. If the meters had to be serviced the entire water production process would have to be shut down." Halting water production at the facility meant decreased efficiency resulting in additional operating expenditures.

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A water-industry trade journal advertisement for Marsh-McBirney's (MMI's) **Multi-Mag Insertable Flowmeter** caught Knisley's eye. The local MMI representative, Chesley Associates, was contacted for additional product information. The Multi-Mag is best known for its ability to accurately measure flow when installed near difficult piping configurations such as bends and elbows. The Multi-Mag can be easily installed in minutes via a "hot tap" connection (welding a pipe opening onto "live" or pressurized lines) eliminating the need to shut down the process. The insertable sensor uses proven electromagnetic sensor technology. Multiple measuring points are precisely positioned on the sensor according to the pipe size, enabling the meter to achieve an accuracy of $\pm 1\%$. The Multi-Mag costs substantially less than most flowmeters whose prices increase substantially as pipe size increases. The Multi-Mag sensor also has a standard 5-year warranty.

Fourteen (14) Multi-Mag Insertable Magmeters were specified by the Highland County Water Company for installation immediately following the construction portion of the plant upgrade. Knisley comments, "The Multi-Mags were selected for their ease of installation and the fact that they did not require lengthy straight pipe runs required by the spool-piece meters we had been using."

Knisley installed the Multi-Mag's in key locations throughout the entire plant—beginning at the front door and out the back door as well as locations in between. Multi-Mag's are accurately monitoring flow at the following plant locations:

- Influent "raw water" lines coming into the plant.
- In-House water use line.
- Balancing Filter lines for rate of flow control.
- Backwash Pump lines for rate of flow control.
- Effluent "finished" water lines going out of the plant.

The Multi-Mag's have been installed at the water treatment plant for three years now and Knisley states, "I have been very pleased with the flow data provided by the meters." The accurate flow data obtained from the Multi-Mag's will enable him to efficiently monitor all of the plant's flow processes in a cost-effective manner for many years to come.

For additional information contact McCrometer, Inc.
Toll Free (800) 220-2279 • (951) 652-6811
FAX (951) 652-3078
www.mccrometer.com