

# OHIO WATER TREATMENT PLANT

## Case Study



**ACCURATE &  
RELIABLE UVT  
FOR NEARLY A DECADE**

**LOCATION:**

Ohio,  
USA

**SOURCE TYPE:**

Surface Water  
and Groundwater

**PARAMETERS:**

UV254, UVT

**APPLICATIONS:**

GAC Monitoring,  
UV Disinfection Performance

**PRODUCTS:**

Real UV254 Online  
Analyzers with  
Real Clean Systems

## WTP TRUSTS AND RELIES ON REAL TECH FOR UVT NEEDS

A surface water treatment plant (WTP) in Ohio has successfully used six Real Tech Real UV254 online analyzers in their 240 MGD WTP for over seven (7) years to help monitor and achieve the highest levels of organics removal and UV disinfection performance. Throughout the past 7 years the WTP has found Real Tech's instruments to provide exceptionally reliable and low-maintenance performance while also achieving the highest levels of accuracy and data integrity.

The WTP has a long and interesting history dating back to the late 1890's. In its current configuration the plant provides up to 240 MGD of treated water to the city and nearby communities in Ohio and Kentucky. The plant treats a combination of surface water from the Ohio River with seasonal use of groundwater. Recognizing the need to treat an increasingly difficult to remove array of organics, the WTP began operation of the world's largest granular active carbon (GAC) / biologically active carbon (BAC) treatment system in 1992. Upon implementing the new process, the plant recognized the importance of monitoring organics removal in its conventional coagulation-flocculation process upstream of the GAC system. Several years into operation the WTP adopted some of the early instrumentation for online UV254 monitoring from another instrumentation manufacture. While effective, the WTP found that the limited resolution, calibration requirements, drift, and maintenance requirements of these early UV254 analyzers posed a significant challenge in their use for long-term monitoring and process control.



Always evolving and implementing the latest technologies, the WTP decided to install Real Tech's UV254 real-time monitoring solution in 2011. The plant utilizes four (4) Real UV254 high purity analyzers with their UV disinfection system, with one additional Real Tech analyzer on the finished water discharge for UV transmittance (UVT) monitoring. Together these UVT analyzers allow for continuous online measurement and optimization of UV dose in response to water quality. Since their installation, the units have proven themselves accurate and reliable over the long term. Historical data show UVT values of 95- 99% in the treated water – well above the minimum validation limits of the UV system. The high sensitivity and repeatability of the online UVT readings helps the plant ensure that they are conservatively within their design and operating limits and gives the WTP very high confidence that they are consistently achieving treated water goals.

In 2013, an additional Real Tech UV254 online analyzer was added as a part of regular plant upgrades. The new Real UV254 analyzer is installed at the influent to the BAC / GAC system to provide online monitoring of total organic carbon (TOC) entering the process. By monitoring UV254 out of coagulation and before the BAC, the plant was able to have a very good idea of how raw water quality is fluctuating in the Ohio River. The data provides a good idea of how TOC concentrations are affecting the overall treatment process.

Data from the analyzers has always been validated with regular grab samples that are sent to WTP laboratory, however, over time the plant has found Real Tech's instruments to provide extremely

accurate results. Readings from the Real Tech UVT instruments are consistent and show very little drift to the point where if the WTP sees some difference between the laboratory and Real Tech analyzer data, they know that 9 times out of 10 there was probably some issue in how samples were collected. The UVT instruments have just proven themselves to be that accurate and reliable.

While accuracy is certainly a very important factor in any instrument, so is the maintenance required to maintain that accuracy. Here again, the WTP found Real Tech's instrument to offer excellent performance and value in terms of low maintenance cost. Compared to the other UV254 instrumentation they had used; the Real Tech equipment was rock-solid. The WTP checks the system twice a week only because it is required in their permit. The instruments have proven to be very undemanding in terms of maintenance over the long term.

For nearly a decade the WTP has trusted and relied on two generations of Real Tech's Real UV254 analyzers to monitor treatment efficiency and the safety of treated water. Over time the plant staff have found Real Tech's UV254 instrumentation exceptionally simple maintain, to provide extremely accurate results, and to deliver superior long-term value and affordability.

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