REALTECH INC.

WATER QUALITY MONITORING SOLUTIONS

MOHAWK VALLEY WATER AUTHORITY

WATER TREATMENT PLANT

Case Study

LOCATION:
New York, USA

SOURCE TYPE:
Surface Water

PARAMETER:
UV254

APPLICATIONS:
Coagulation Optimization, DBP Formation Potential, Distribution System Security

PRODUCTS:
Real UV254 Online Analyzers with Real Clean Systems, Real UV254 Field Meter

MVWA WTP ENSURES DBP COMPLIANCE WITH UV254

Mohawk Valley Water Authority (MVWA) in New York State is a progressive supplier of potable water. With source water from the Adirondack Mountains, MVWA works to improve on nature and provide superior water quality, always striving to meet or exceed drinking water standards.

Background

Like many other surface water sources, MVWA's water supply is rich with natural organic matter (NOM). Unfortunately, growing research has demonstrated that NOM in water when combined with chlorine leads to the formation of potentially harmful disinfection by-products (DBPs), such as Trihalomethanes (THMs).

The US EPA's Stage 2 Disinfection By-Products Rule has been implemented to protect the publics health from these potential cancer-causing substances and improve drinking water quality.

For several years, MVWA has been examining potential treatment strategies to meet the upcoming regulatory requirements. Their comprehensive research project indicated that it was very important to monitor for DBP precursor levels in the raw and filtered water continuously in real time. This important tool would enable them to monitor the effectiveness of their treatment processes in removing NOM and thereby reducing the potential of DBP formation. MVWA's parameter of choice, UV254.

"The Real Tech 254 monitor is an invaluable water quality monitoring tool both in the treatment plant and the distribution system. We are able to monitor the removal of organic matter throughout our treatment plant and monitor for organic contaminants in our distribution system. It is both user friendly and nearly maintenance free."

Connie Schreppel I Director of Water Quality

Figure 1: Real UV254 M3000 analyzers with Real Clean systems installed at MWVA WTP.

UV254 Organic Monitoring Solution

Unlike TOC testing, UV254 organic testing has been recognized as the best detector of reactive NOM. This is significant because it is the reactive NOM that more readily combines with chlorine to form DBPs.

MVWA determined that the Real UV254 online analyzer from Real Tech Inc. was a reliable, easy to use and affordable continuous real-time UV254 monitor. The initial cost of the Real UV254 analyzer instrument is approximately 80% less than the initial cost of an on-line TOC analyzer and equivalent to the maintenance costs alone for a one-year period of a TOC analyzer.

MVWA purchased not only Real Tech's Real UV254 online analyzer for their continuous online UV254 organic monitoring requirements but also their portable Real UV254 portable field meter for their UV254 grab sample needs. Real Tech's innovative UV254 organic testing instrumentation provides them with affordable DBP precursor monitoring solutions for their raw water and treated water needs, as well as for expanded monitoring in their distribution system.

UV254 Monitoring Benefits

MVWA's first Real UV254 online analyzer was installed at the treatment plant to continuously monitor the plant's raw water organic content. This single monitor was then programmed to also monitor the filtered water UV254 levels. Using these two UV254 readings MVWA can assess the effectiveness of the treatment process in removing the natural organic matter.

MVWA was able to go one step further by synchronizing their raw water UV254 results to correspond to the filtered water UV254 result. This results in a true "real time" measure of NOM reduction, which can aid in coagulation optimization and potential cost savings.

By setting their targeted finished water UV254 goal to 0.03 to 0.035 UVA, MVWA is able to ensure that their corresponding TOC levels are less than 2 mg/L. Since MVWA experiences higher reactive organic levels and therefore forms higher THMs during the summer months, they have been piloting the use of granular activated carbon (GAC) to enhance the removal of these DBP precursors during this period of time. UV254 testing is aiding MVWA with this study to help determine the effectiveness of the GAC filtration in removing the reactive NOM and ensuring that they fall below DBP maximum contamination levels (MCLs) during the summer months.

Additionally, to monitor the quality of their distribution system water MVWA has installed Real UV254 onlines at two key distribution system real time monitoring stations. The UV254 results from these monitors are linked directly to an auto-dialer that provides instant notification of any detection of organics that fall outside of baseline values. This provides MVWA with the added benefit of providing real time security monitoring for accidental or intentional organic contamination of the drinking water supply.

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