

HYDABURG, ALASKA TAKES CONTROL OF WATER QUALITY USING UV254



New approach to the plant's ability to continuously monitor and adjust treatment processes in response to changes in raw water

THE CHALLENGE:

With the ongoing concern about water quality in Hydaburg, Alaska, Philip Downing, the Remote Maintenance Worker for SouthEast Alaska Regional Health Consortium, offered a new approach to the plant's ability to continuously monitor and adjust treatment processes in response to changes in raw water quality. By incorporating new technology into their environment, the plant has been able to take a proactive approach to optimizing their treatment process while reducing costs for the city at the same time.

In the event of heavy rainfall, the plant in Hydaburg would see turbidity spike from an average of 0.2 NTU up to a high of 5.0 NTU. Depending on how long the storm would last, this temporary spike could last overnight or in rainy seasons could last for a period of weeks. Historically, the plant has used a streaming current monitor to determine the potential change in coagulant demand to remove turbidity found in the raw water supply. The trouble with this approach was that even as turbidity was returning to a normal level, the natural organic matter (NOM) in the water remained high. The plant had no way of predicting what the coagulant demand would be to optimize removal of NOM.

“Having the online UV meter from Real Tech has provided us with the information that explains the anomalies that no one could explain until now. Previously, we had used turbidity removal to determine the settings for our Polymer injection system. Now, using the Real UVT Field Meter to measure UVA, we can determine on the bench the coagulant pump settings that will optimize the removal of NOM which helps us meet the challenges of the D/DBP Rule. The Real UVT Online Monitor confirms that our plant is operating at the optimum level. Optimizing our current filtration system can potentially eliminate the need for costly plant upgrades to meet Disinfection By-Products regulations.”

PHILIP DOWNING
REMOTE MAINTENANCE WORKER
SOUTH EAST ALASKA REGIONAL HEALTH CONSORTIUM

PHOTO: HYDABURG, ALASKA WATER TREATMENT PLANT - REAL TECH INC.'S REAL UVT ONLINE CONTINUOUS UV254 MONITOR WITH THE REAL CLEAN AUTOMATIC CHEMICAL CLEANING SYSTEM, AND THE REAL UVT FIELD METER (SHOWN ON TABLE)

THE SOLUTION:

With the introduction of Real Tech Inc.'s online UV254 monitor, plant operator Doug Mathena was able to monitor fluctuations in NOM coming into their plant and adjust coagulant dose accordingly. Raw water UV absorbance (UVA) values coming into the plant were in the range of 0.080-0.635 UVA. By using UV254, Doug and Philip were able to predict and optimize the plant's coagulation process and routinely increase their effective organics removal rate, as measured by UVA, to approximately 90%. Compared to previous results, this represents a significant improvement. Since installing Real Tech Inc.'s online UV254 monitor, the plant has been able to significantly reduce their coagulant costs over time while maintaining finished drinking water with UV254 absorbance in the range of 0.050-0.012 UVA which is considered extremely good quality.

In addition to the optimization of their coagulation process, the plant has also seen changes in their use of chlorine. Given that the dose of polymer has decreased over time, the plant has also been able to optimize the amount of chlorine used as well. Previous to having UV254, chlorine would be consumed by the increase in aromatic organics from heavy rainfall, resulting in increased chlorine demand to achieve the necessary residual in the distribution system which in turn increased the disinfection by-products level. This is no longer the case since installing the Real Tech Inc.'s online UV254 monitor, given that organics are now under control, the chlorine use has been considerably lower than in previous years while still meeting chlorine residual requirements and maintaining drinking water quality.

THE RESULTS:

The water quality in Hydaburg has changed dramatically. The Alaska Department of Environmental Conservation and the Hydaburg residents have been extremely happy with the improvements at the Hydaburg Water Treatment Plant and the quality of the drinking water produced there over the past few months. With the results seen in Hydaburg, Alaska, Philip Downing is hopeful that other towns and cities experiencing the same challenges will be able to use UV254 to their advantage, resulting in clean drinking water for more Alaska residents.



FOR MORE INFORMATION
PLEASE CONTACT:

REAL TECH INC
905.665.6888
1.877.779.2888
info@realtech.ca
www.realtech.ca

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