

## **ABSTRACT for the 2018 ISA WWAC Symposium**

**Title:** Online Organics Monitoring for Rapid Process Control of Drinking Water and Wastewater Treatment Operations  
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### **SUBMISSION TYPE**

30-minute presentation

6-12 page paper plus 30-minute presentation

3 foot wide x 4 foot high large format poster

### **KEYWORDS**

Total organic carbon (TOC) analysis, process control, laboratory analysis, online automation, groundwater/surface water treatment systems, nutrient removal, regulatory compliance

*Track 1 – Instrumentation, Wireless, System Integration, Automation, Plant Case Studies, Optimization, New Technologies*

### **ABSTRACT**

Organic measurements, such as Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) were developed decades ago to measure water quality. Today, these time-consuming measurements are still used as parameters to check water treatment processes; however, the time required to generate a result—ranging from hours to days—does not allow COD or BOD to be useful process control parameters. Online Organics Monitoring with Total Organic Carbon (TOC) Analysis allows for effective process control because results are generated in a few minutes and offers true quantification of all carbon, a leading indicator of contaminant loading and effective tracker for effective contamination removal. Though it does not replace BOD or COD measurements still required for compliance reporting, TOC analysis drives smart, data-driven and rapid decision making to improve process control and optimization, meet compliances or detect leaks.

TOC Analysis offers a dependable tool to capture true organic strength and generate real-time data to help operators make treatment adjustments when there is a change in process conditions, troubleshoot a problem, or predict future behavior. These decisions often lead to cost savings and improve regulation compliance. Three application examples of TOC analysis are included in this presentation: carbon & nitrogen diurnal pattern insights at WWTP, disinfection byproduct (DBP) formation control in drinking water plant, and optimizing treatment of reclaimed water at drinking water plant. Organics monitoring using rapid, efficient, and inclusive TOC analysis allows drinking water and wastewater operators to optimize chemical addition, understand nutrient balancing, meet effluent discharge requirements, and control treatment processes from start to finish by relying on data to make smart treatment decisions and adjustments based on water quality.

### **ABOUT THE AUTHORS**

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Amanda Scott is the Industrial and Environmental Product and Applications Manager at Suez Water Technologies & Solutions, Analytical Instruments. Amanda has a Masters in Chemical Engineering from University of Cambridge and a Bachelors of Chemical Engineering from Vanderbilt University. For the past three years, Amanda has worked to develop and support organics monitoring solutions for industrial and environmental markets through market research, strategic planning, technical and application support, and product development. Amanda has presented at over 20 different national and international water conferences and seminars and is published in over 5 different trade journals. Prior to Suez, Amanda was a Product Developer with Crocs Footwear. Her research experiences include work developing biophotovoltaic devices. In addition to her work, Amanda is a two-time US Olympic Marathon Trials Qualifier.