

## PeCOD<sup>®</sup> Case Study #09

### Municipal Wastewater Treatment

#### Introduction

A municipal Wastewater Treatment Plant (WWTP) located in the Greater Toronto Area (GTA) currently utilizes Biological Oxygen Demand (BOD) from a 24-hour composite sample to monitor their discharge to Lake Ontario and meet compliance standards.

#### The Challenge

The BOD method run on the 24-hour composite from the final effluent of the WWTP is a 5-day BOD test. The samples are sent out to an external lab for analysis, which creates a 7 day turn around for results. This does not provide sufficient time to respond to high organic loads being discharged to Lake Ontario. The delay in response to sample results is also reflected in the sampling frequency, since a 24-hour composite sample does not provide insight as to when the activity in the WWTP may have occurred.

#### The Solution

MANTECH partnered with the WWTP to install a Real Time L100 PeCOD<sup>®</sup> at the final effluent to monitor Chemical Oxygen Demand (COD) on an hourly basis. The PeCOD<sup>®</sup> is proven to be an excellent BOD screening tool, providing accurate BOD estimates in just minutes. The PeCOD<sup>®</sup> and BOD correlation is stronger than similar dichromate COD approaches due to the fact that PeCOD<sup>®</sup> does not require pre-digestion of the sample.



#### General Project Information

##### Client

Municipal WWTP

##### Location

GTA Ontario Canada

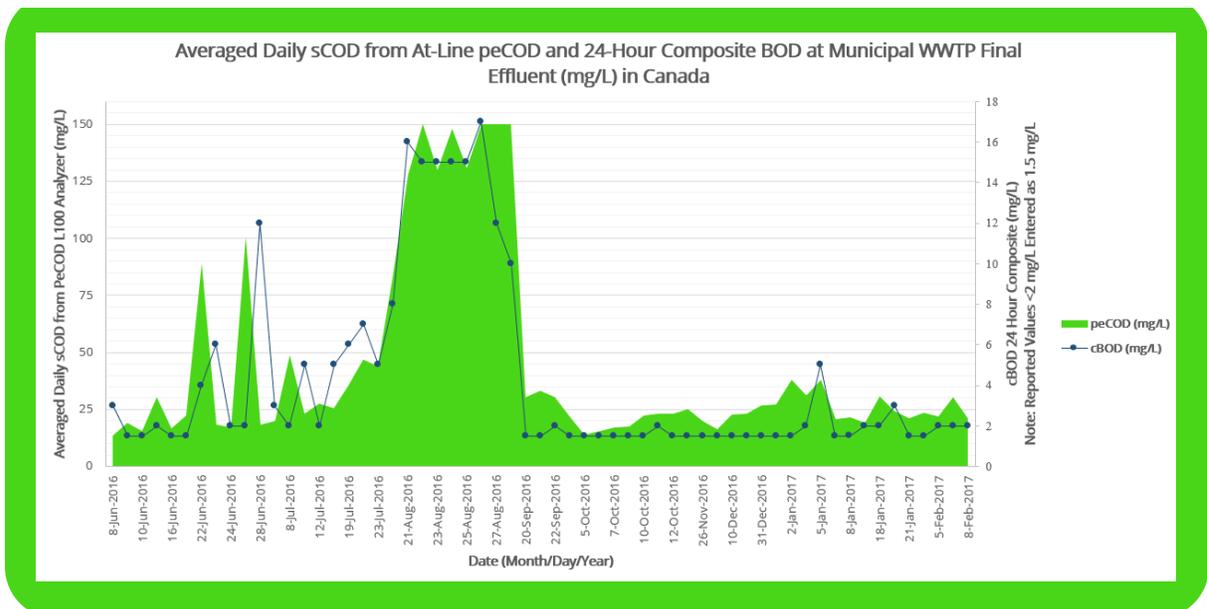
##### About the Client

The plant serves **1.2 million** people of the GTA with a daily capacity of **163,500 m<sup>3</sup>** of wastewater. The WWTP uses three trunk sewers for conventional and biosolids treatment. Final effluent BOD ranges between **2- 30 mg/L**.

### The Result

The PeCOD<sup>®</sup> analyzed the same effluent that was collected in the 24-hour BOD sample and was able to capture several events in real time. The below figure displays hourly COD from the PeCOD<sup>®</sup> on the left axis and daily composite BOD on the right in mg/L. The data was collected from June to August 2016 with BOD values plotted when the sample was collected.

The PeCOD<sup>®</sup> was successfully able to measure known events in real time that were occurring at the WWTP. One event was observed on July 25<sup>th</sup> 2016 when an aeration and final tank were taken offline for preventative maintenance creating a large load of organics. The PeCOD<sup>®</sup> immediately spiked above 150 mg/L on July 25<sup>th</sup> whereas the BOD result of 20 mg/L was not known until the beginning of August.



### Positive Monitoring Applications

The PeCOD<sup>®</sup> can provide real-time regulatory screening for compliance and optimization of wastewater treatment processes. The green chemistry PeCOD<sup>®</sup> COD system can be integrated anywhere along the wastewater treatment process for fast analysis, ease of use, safe operation, and accurate results to aid in financial and environmental sustainability.

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