

## **PACWEST 2019 MANTECH/CANFOR PULP ABSTRACT**

### **Western Canadian pulp mill employs fast COD analyzer for improved process control and savings**

Kerry Betz-Stablein, Canfor Pulp; Maggie Grierson, Mantech; Matthew Jensen, Canfor Pulp; Adam Lancaster, Canfor Pulp

All Canadian Pulp mill effluent is required to meet certain Biological Oxygen Demand (BOD) guidelines before being discharged into the watershed. Many mills also use the BOD test to monitor numerous effluent flows from the mill and throughout the treatment system. This information is used to monitor and control the efficiency of the system and ensure that effluent quality standards will be reached. Unfortunately, due to the five day test time, actions to improve effluent quality tend to be reactive rather than proactive. Chemical Oxygen Demand (COD) testing provides a shorter feedback time, with information about effluent quality being obtained within two and a half hours. The traditional Dichromate method poses safety and environmental concerns due to its use of mercury, dichromate, and concentrated acid. Photoelectric Chemical Oxygen Demand (PeCOD) is a newer, green technology that completes analysis of samples within 15 minutes using only salt and sugar solutions.

Canfor Pulp, in Prince George, BC, purchased a PeCOD analyzer with an autosampling system at the end of 2016 and has been using it to monitor effluent quality and control treatment processes at the Intercontinental and Prince George Pulp and Paper mills. Canfor Pulp has built robust correlations for mill effluent streams prior to microbiological treatment, with R-squared values in excess of 0.7. Having daily feedback on what is going into and coming out of the effluent system has allowed operators to make changes to improve effluent quality, meet permits, and lower operating costs.

PeCOD is monitored on a regular basis and values are used to direct flows to the appropriate treatment systems, control treatment of high PeCOD effluents, and make decisions about reclaiming spills into the process. Incoming PeCOD data has been used to make decisions about the amount of aeration required for effluent treatment, allowing for significant electricity saving by shutting down excess aeration while maintaining effluent quality. This paper covers the basics of the PeCOD technology, the comparison with Dichromate COD, the system setup process and troubleshooting, correlations with BOD in Canfor Pulp effluents, the use of data in the mill, and the benefits achieved.