

Date of Field Test: June 28, 2016
Test Designation: Grease mat emulsification with dissolved oxygen priming
Location: Teeswater, Ontario, Canada
Site: Teeswater Sewage Collection Lift Station
Structure Description: Rectangular Flow Cells
Weather Condition: Overcast/Light Rain **Temperature:** 22°C/72°F



Sampling Purpose:

Determine the TITUS®Twister™ Mixing Aerator's ability to break-up and emulsify an influent coagulated grease mat. In contrast to other grease formation treatment applications, this station receives the "milky" sewage from an upstream dairy processing facility. Collection system issues such as grease formations and low DO levels inhibit any organic pretreatment. Upstream treatment reduces loading on downstream receiving WWTP facilities.

Sampling Method:

Dissolved Oxygen: DO content was measured with a calibrated YSI model "Po 20" membrane unit (DO sampled for 2 hours)
 Grease: Before and after representative grab sampling (2 hours apart)

Site Pictures:

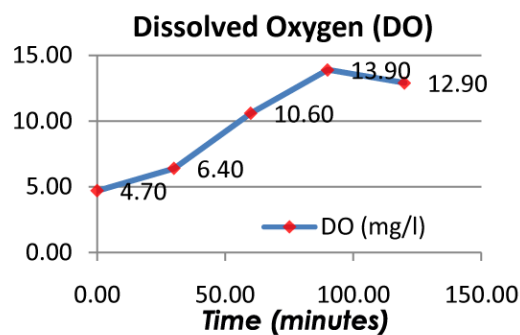


Empirical Data / Graph:

Starting Time: 10:30am EDT

Time (min)	DO (mg/l)
0.00	4.70
30.00	6.40
60.00	10.60
90.00	13.90
120.00	12.90

Avg Sample Temp: 16.6°C



Results:

Dissolved oxygen measurements over the 120 minute field test sampling period displayed a high DO transfer rate with the TITUS®Twister™ Mixing Aerator. After the first hour into the allotted time period between influent sewage received and the effluent being pumped there was a huge increase in upstream discharge flow to this station as a result of a per shift maintenance process at the dairy facility. From 11:45AM to 12:15PM the cycling of the lift station increased by approximately three times that of the first seventy five minutes of observation and throughout the next thirty minute period. It should be noted that during this thirty minute surge, at an average temperature of 16.6°C, DO measurements spiked markedly above the physical DO saturation rate of 9.7 mg/l during the plant's maintenance. The reason for this has not been determined and remains under review. After the technology is placed into service, additional field testing will be in 2017.

Sampling Technician: Wells Tudor Senior Project Engineer, John Stark

Attested By: Scott Gowan, Project Manager, Veolia North America