

Case Study: Suffield

NITROGEN & PHOSPHORUS REMOVAL SUFFIELD, CONNECTICUT (POPULATION 14,000)

2.0 mg/L total-Nitrogen and 0.5 mg/L total-Phosphorus

Equipment Cost: \$25,000

Annual Savings: \$30,000/yr less electricity



The dissolved oxygen concentration in the first aerobic zone of the oxidation ditches is kept low enough to solubilize influent BOD without oxidizing it. The soluble BOD passes into the first anoxic zone to support nitrate removal. Ammonia removal occurs in the second aeration zone.

The internal recycle pump rates were reduced by one-third to create optimal fermentive conditions (ORP readings of -300 mV) in the pre-anoxic tank for biological phosphorus removal. Around the clock air mixing of the sludge holding tanks has been discontinued to provide supplemental soluble BOD and reduce electrical consumption.

Effluent nitrogen at the 1.5 MGD facility has been reduced from 7 to 2.0 mg/L. Phosphorus has been reduced from 3 to 0.5 mg/L.

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