

Case Study: Chinook

NITROGEN & PHOSPHORUS REMOVAL CHINOOK, MONTANA (POPULATION 1,200)

Effective Nutrient Removal without Facility Upgrade

Cost: \$8,000

Nitrogen and Phosphorus Removal



Plant supervisor Eric Miller and staff are cycling the mechanical aerators at Chinook's 0.5 MGD oxidation ditch to realize biological phosphorus and nitrogen removal.

An in-line ORP probe connected to the plant's SCADA system turns on one of two rotors when the ORP reaches -210 mV. The rotor continues to operate until the ORP rises to +210 mV when the in-service rotor turns off. Thirty minutes later, after a small amount of settling has occurred and a small anaerobic blanket has formed, a rail-mounted submersible mixer turns on.

Effluent total-N now averages 3 mg/L, an 88% reduction. Effluent total-P averages 1.2 mg/L, a reduction of more than 50%.

Chinook's plant was not originally designed to remove nitrogen or phosphorus. The sole cost has been \$8,000 for a new ORP probe and SCADA programming.

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