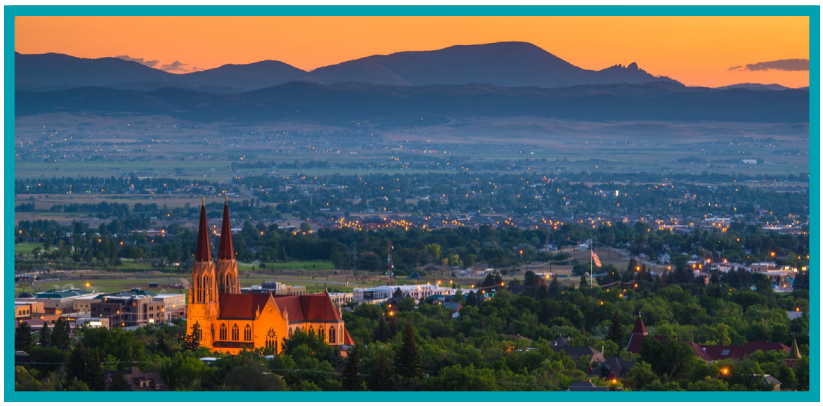
Case Study: Helena

NITROGEN & PHOSPHORUS REMOVAL
HELENA, MONTANA
(POPULATION 30,000)

Effective Nutrient Removal without Facility Upgrade

Cost: $5,000 for a portable ORP meter



Helena's 5.4 MGD Modified Ludzack-Ettinger (MLE) wastewater treatment plant has historically produced excellent BOD & TSS numbers: effluent averages less than 5 mg/L. Total nitrogen has declined from 7 mg/L to 5; total phosphorus has improved from 3 mg/L to less than 2.0 mg/L, averaging 0.5 mg/L during summer months when liquid sludge is hauled off-site for disposal.

To increase organic loading on the plant bioreactors' anoxic zones for nitrate removal, one of two primary clarifiers is in service and a small amount of digested waste sludge is fed back into the primary effluent. Plant staff routinely use ORP as a tool in adjusting the internal recycle pump rates.

The anoxic mixers have been raised and are periodically cycled off to create optimal conditions for biological phosphorus removal.

Mark Fitzwater, Chief Operator • 406.457.8558 • mfitzwater@helenamt.gov

GRANT TECH
GrantTechSolutions.com
111 Huntington Street
New London, CT 06320
860.777.5256
www.GrantTechSolutions.com