

Low Dose™, the first fully automated water treatment software to reliably optimize coagulant and polymer dosage.

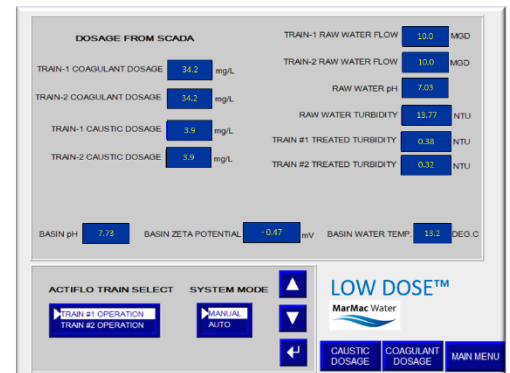
## CASE HISTORY – TOWN OF BRECKENRIDGE, COLORADO

### BACKGROUND

The Town of Breckenridge (Town), Colorado commissioned a new conventional water treatment facility in 2020 that uses surface water as the primary source. After commissioning, the facility sought to optimize coagulant dosing with the goal of minimizing pretreatment solids carryover, maximizing filter run times, and improving solids dewatering capability. To achieve these goals, Marmac Water proposed a full-scale trial using an automated coagulant dosing system.

Marmac Water was contracted to conduct jar testing to determine the feasibility of incorporating our Low Dose™ automated coagulant dosing system. On-site jar testing, review of operational data and observation of process performance determined that overdosing of coagulant was the primary cause of plant performance issues. We recommended a full-scale demonstration which was initiated in mid October and ran for thirty days.

Control panel, analyzer installation and SCADA integration took only one day to install. The Low Dose™ software incorporates an on-line zeta potential analyzer as well as additional inputs pulled from the plant SCADA system. Full-time input monitoring provides optimized coagulant dosing which maintains desired particle charge of carryover particles discharging from the inclined plate settler to the filter. This optimized dosing improves filter run times and reduces produced sludge volume. This optimized control reduces coagulant demand, increases filter run times and provides enhanced dewatering.



### RESULTS

- Fully automated dosing
- Extended filter run time
- Turbidity event mitigation
- Reduced coagulant demand
- Improved recycle performance
- Reduced filter head-loss
- Improved dewatering

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## IMPROVEMENTS

Parameter	Before Implementation	After Implementation	Improvement
Coagulant dose (PACl)	18 – 24 ppm	2.5 – 8 ppm	75%
Filter run time	40 – 50 hours	75 hours +	100%
Solids generation/day (dry)	50 lbs	10 lbs	80%
Centrifuge efficiency	Good	Excellent	100%
Sludge thickener operation	Poor	Excellent	100%
Recycle performance	Fair	Excellent	100%



Left: Without Low Dose™ control  
Right: After Low Dose™ control

## FEATURES

- Fully automated
- Multiple analyzer inputs
- Auto & Enhanced Coagulation
- Corrosion Monitoring
- Auto TOC and DBP Compliance
- Charged Value Polymer Dosing
- Zeta Potential Driven
- Temperature Compensation
- SCADA Integration

Low Dose™ is a trade name of Marmac Water, Inc.

*The Low Dose™ automated chemical dosing software is patented; USPTO 11,505,478*

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