LOWDOSE™

Coagulant Optimization Software

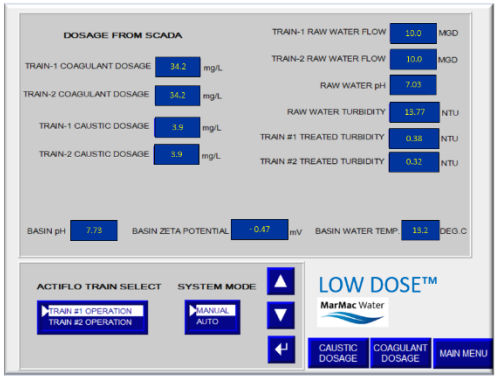
MarMac Water

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

CASE HISTORY – TOWN OF JOHNSTOWN, COLORADO

BACKGROUND

The Town of Johnstown (Town), Colorado operates a conventional water treatment system utilizing dissolved air floatation (DAF) and multi-media filters. The Town has started construction on a low pressure membrane filter addition to replace the aging conventional filters. To gain operational experience with controlled dosing, the Town decided to implement the LowDose™ fully automated on-line system incorporating the Anton Paar Litesizer™ zeta potential analyzer.



Marmac Water was contracted to conduct jar testing to determine the feasibility of incorporating our LowDose™ automated coagulant dosing system. On-site jar testing, review of operational data and observation of process performance determined that LowDose™ can reduce coagulant demand while simultaneously improve conventional and future membrane filter performance.

Control panel, analyzer enclosure and SCADA integration took one day to install. The LowDose™ 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 dissolved air flotation system (DAF) to the filter. Optimized dosing improves filter efficiency, reduces coagulant, polymer, pH adjustment and chlorine demand. Optimized dosing reduces operator attention and eliminates the need for jar testing, especially during turbidity events.

RESULTS

- Fullly automated dosing
- Extended filter run time
- Reduced coagulant demand
- Reduced chlorine demand
- Reduced filter head-loss
- Turbidity event mitigation

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IMPROVEMENTS

Parameter	Before Implementation	After Implementation	Improvement
Coagulant dose (Alum)	34 ppm	25 ppm	35%
Filter run time	40 – 50 hours	75 hours +	100%
UFRV	50 lbs	10 lbs	80%
Production	Good	Excellent	100%

	Filter Efficiency %	UFRV %	Alum Demand %	Polymer Demand %
February	35.86	16.48	- 41.31	- 44.64
March	70.78	44.14	- 35.55	- 62.51
April	57.99	43.46	- 34.95	- 64.41
May	69.18	42.56	- 24.67	- 77.11

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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

LowDose™ is a trade name of Marmac Water, Inc.

The LowDose™ automated chemical dosing software is patented; USPTO 11,505,478

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