Infilco Degremont
SUEZ

South San Joaquin
Irrigation District
Manteca, California

AquaDAF™ High-Rate Dissolved Air Flotation System

Situation

Fed by the Woodward Reservoir, the 46 MGD South San Joaquin Irrigation District wanted to provide high quality water to the residents of Manteca, Escalon, Lathrop, and Tracy, California, and to meet more restrictive water quality regulations—all at a cost comparable to traditional treatment methods.

A three-month pilot study, designed to test the performance of Infilco Degremont's AquaDAF Dissolved Air Flotation technology, was conducted at the South San Joaquin Irrigation District during the summer months of 2002. The pilot study objectives were clear-cut; the owners and their consultant, Black and Veatch, wanted to:

- Verify AquaDAF performance at application rates of 14-18 gpm/ft^2
- Demonstrate AquaDAF effluent turbidity of < 1.0 NTU
- Achieve TOC removal of > 25% for D/DBP rulings.
- Verify AquaDAF performance at various flocculation times
- Demonstrate process performance to the State of California for regulatory approval
- Test the process as a pre-treatment to membrane filtration

The study was divided into two phases. In Phase One, the AquaDAF High-rate Clarifier was operated at rates of 14 gpm/ft^2, 16 gpm/ft^2, and 18 gpm/ft^2. In Phase Two, the AquaDAF was operated at 14 gpm/ft^2 when followed by Zenon membranes.

Solution

The pilot study verified that the combination of DAF and membrane technologies was a winning solution for the plant. A full-scale startup was planned for late spring 2005.

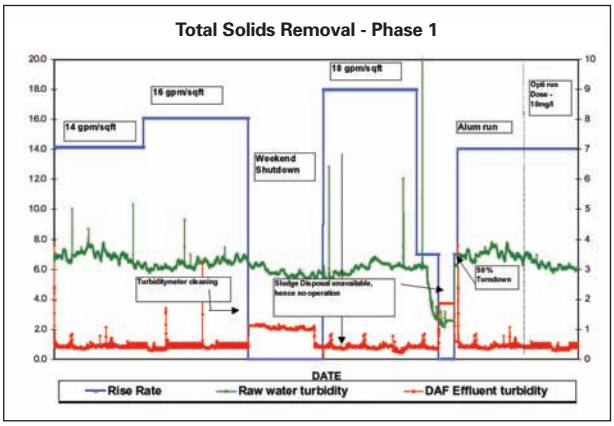
System Description

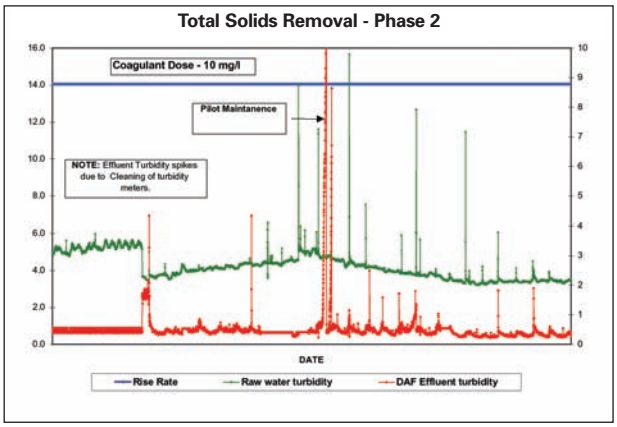
The AquaDAF is a hybrid of conventional DAF and patented system components. It is highly effective for treatment of troublesome raw water characteristics, including low turbidity, and high TOC, color and algae. Polymers are not required, making it an ideal membrane pre-treatment process.

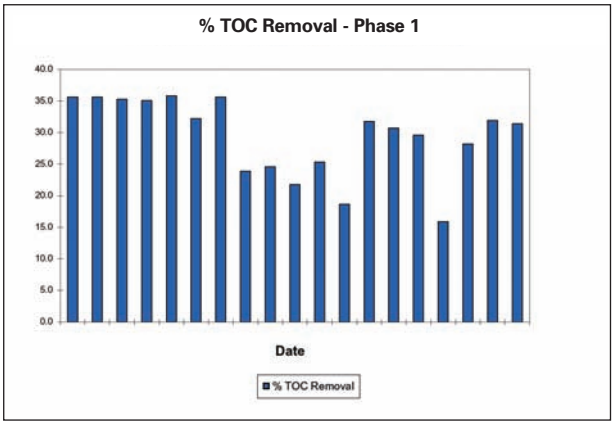
Pilot Study Results

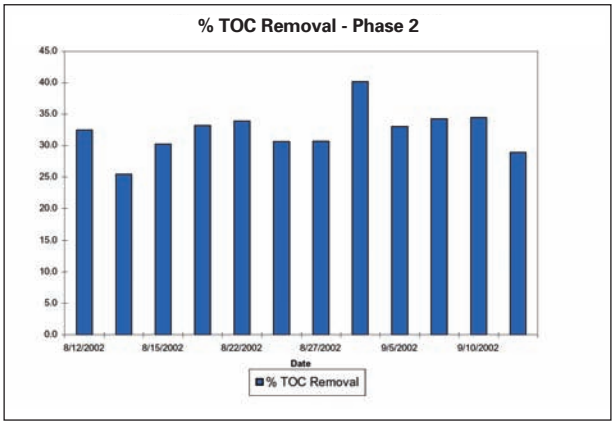
PARAMETER	PHASE 1	PHASE 2
Flow rates	67 to 160 gpm	118 gpm
Rise rates	7 - 18 gpm/ft^2	14 gpm/ft^2
Ferric dose	14 mg/l	10 mg/l
Effluent pH	6.5	7.0
Percent TOC removal	15% - 36%	28% - 33%
Raw water turbidity	2.5 to 4 ntu	2.5 to 4 ntu
Clarified turbidity	0.2 to 0.6 ntu	0.4 to 0.5 ntu

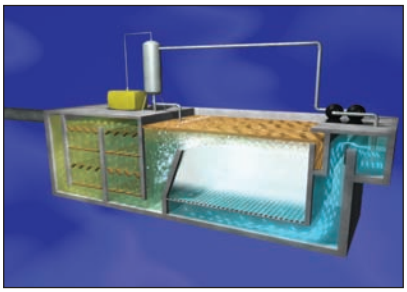
South San Joaquin Irrigation District











Process loading rates are from 12-20+ gpm/ft^2, versus 4-8 gpm/ft^2 for conventional DAF processes. With its small footprint, AquaDAF is easy to retrofit.

Infilco Degremont SUEZ

Contact us for information on cost-effective water treatment solutions.

P.O. Box 71390
Richmond, VA 23255-1390 USA
Phone: (800) 446-1150
(804) 756-7600
Fax: (804) 756-7643
www.infilcodegremont.com

6/2005 **CS515SJ**