Nalco Enhances DAF Technology to Save Thousands in Surcharges

Situation

A Midwestern processor of private label canned soups uses a conventional Dissolved Air Flotation (DAF) unit for primary clarification of total suspended solids (TSS) in the waste stream exiting the plant.

Typically, wastewater from the plant is collected in a sump and sent to a screen unit where major solids are separated and removed. The water is then sent to a 5000-gallon equalization tank where pH is adjusted. The pH-adjusted water is treated with a Nalco polymer program. Finally, the treated wastewater is sent to the existing DAF unit where solids are separated.

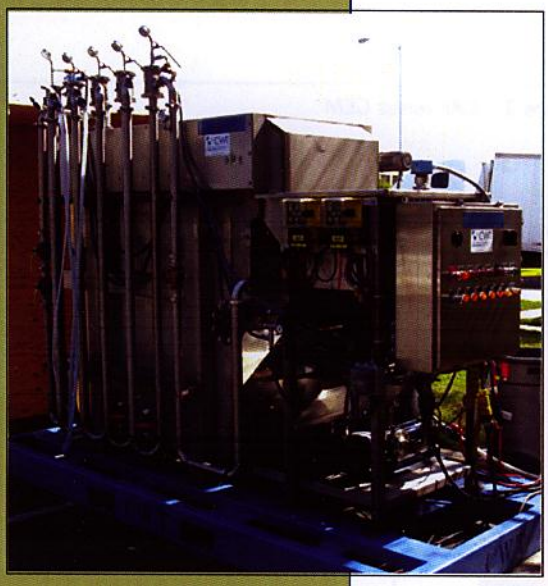

Figure 1 – *Gem Unit*

The effluent water from the DAF unit is discharged to the city sewer and the solids are collected in the tank for periodic removal. Surcharges for BOD and TSS are assessed since this plant discharges to the municipality. About 50% of the surcharge is due to TSS.

Program

Nalco's Engineering Approach to solving our customers' problems includes Mechanical, Operational, and Chemical components – as necessary. In this case, Nalco combined a mechanical and chemical approach to helping this processor improve the limitations of their existing DAF equipment and reduce surcharges. In combination with Nalco's polymer technology, Nalco optimized the solids removal with an innovative DAF design from Clean Water Technologies called a GEM (Figure 1). These recommendations improved the overall efficiency of the TSS removal from the waste stream.

Performance and Results

The combination of Nalco's polymer technology and a unique DAF design by Clean Water Technology called GEM resulted in several benefits for this processor.

Not only did the GEM improve mixing of the polymer with the wastewater, the GEM distributed the micro-bubbles in the liquid more effectively.

(Continued on Reverse Side)

When comparing the Plant DAF to the GEM, the following results were realized:

- Reduced Effluent Turbidity (Figure 2)
- 20-30% Improvement in TSS capture (Figure 3)
- A significant reduction in the volume of water carried with the solids for disposal. (Figure 4)

Improved solids removal made a significant impact on the monthly operating costs of the waste plant. Ultimately, this enhanced application saved the cannery thousands each month in surcharge costs for a positive impact on profitability.

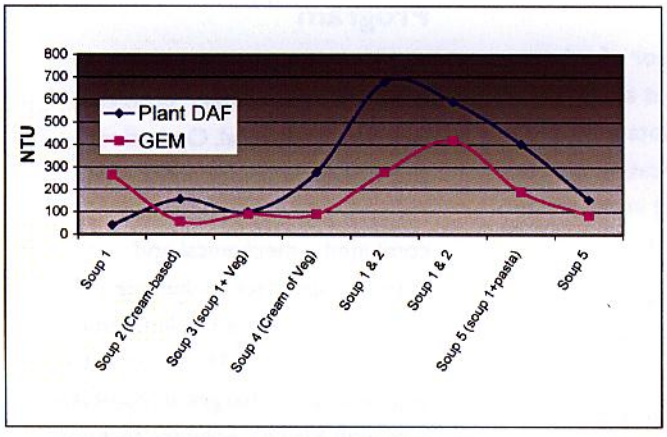

Figure 2 – *GEM versus DAF Effluent turbidity*

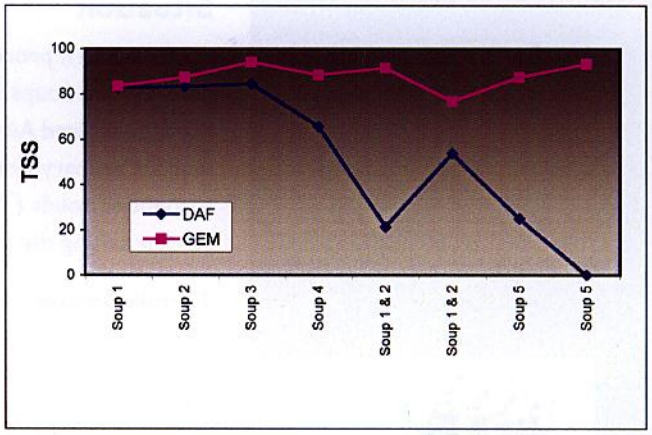

Figure 3 – *DAF versus GEM*

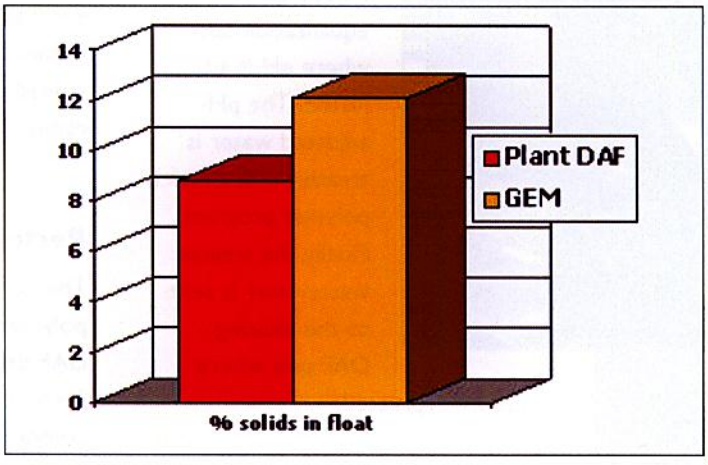

Figure 4 –

NALCO COMPANY OPERATIONS

North America: ***Headquarters*** – 1601 West Diehl Road • Naperville, Illinois 60563 • USA
Energy Services Division – 7705 Highway 90-A • Sugar Land, Texas 77487 • USA
Europe: Ir. G. Tjalmaweg 1 • 2342 BV Oegstgeest • The Netherlands
Asia Pacific: 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930
Latin America: Av. das Nações Unidas 17.891 • 6° Andar 04795-100 • São Paulo • SP • Brazil

www.nalco.com