

PARETO™ Optimizer Improves BAF Performance and Delivers Significant Savings



SITUATION

A northeastern U.S. cheese plant was looking for ways to optimize the overall operational cost of the waste treatment plant. The processing at this plant produced a waste stream high in phosphorus which was being discharged to the local POTW until the phosphorus load became too high for the POTW facility to handle. As a result, the cheese plant had to install a bubbled air floatation (BAF) unit. Figure 1 highlights the current wastewater operation at this plant.

The wastewater plant operates the BAF 24 hours, 7 days a week with a flow rate of 250 gpm/36,000 gpd. The plant's discharge permit allows up to 100 lbs. per day of phosphorus in the waste stream.

SOLUTION

The local Nalco Water Sales Engineer asked his Nalco Water Regional Wastewater Consultant to conduct a waste treatment audit that included a comprehensive review of the

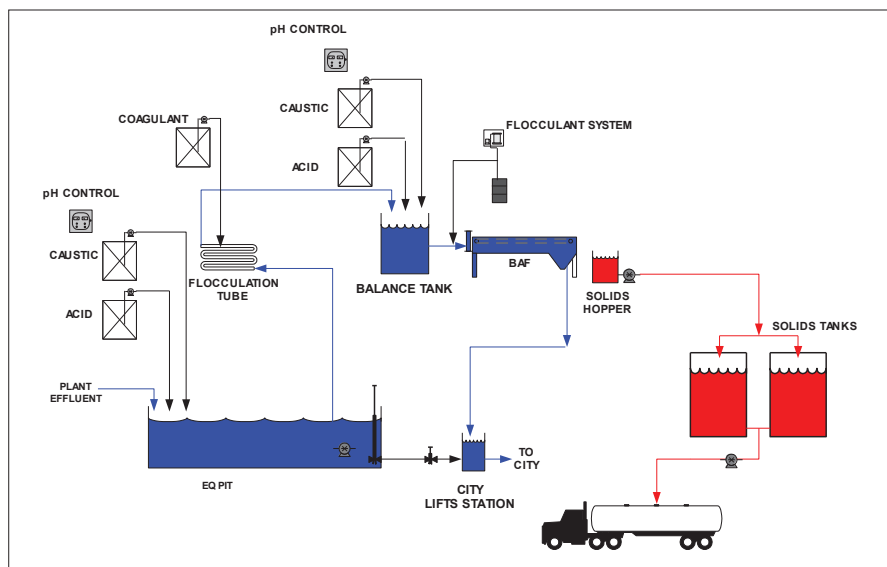


Figure 1

CUSTOMER IMPACT

Reduced sludge by 26 truckloads annually

Decreased chemical use by 15,652 lbs



ECONOMIC RESULTS

Annual savings of \$10,400

Annual savings of \$14,360

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mechanical equipment, operational practices and chemical program. The objective of this audit was to determine if the overall cost of operation could be optimized.

Based on the results of the audit, the Regional Wastewater Consultant recommended the installation of the patented PARETO Optimizer to feed the coagulant more effectively. The goals were to optimize chemical use, increase the sludge solids, and decrease the sludge haulage costs while meeting the plant's discharge permit for phosphorus.

The PARETO Optimizer (Figure 2) is designed to be a high efficiency mixing injector that enhances chemical performance through rapidly mixing the chemical additive with the feed water.

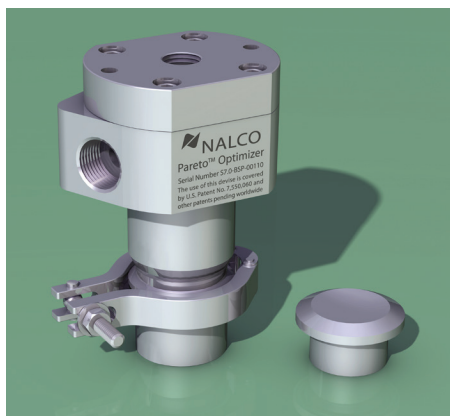


Figure 2 - PARETO Optimizer

After installing the PARETO Optimizer, the Nalco Water Wastewater Consultant and Sales Engineer worked on optimizing the dosage of the coagulant. Within several hours,

a lower dosage of the coagulant was achieved. Fine tuning of the program over the next several days showed that the coagulant dosage could be reduced by 27% given that the product was being mixed more effectively by the PARETO Optimizer. Figure 3 highlights the visual impact

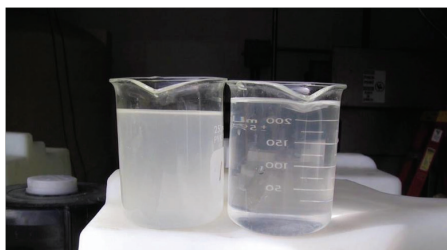


Figure 3 - (Left) Before PARETO - 120 mls of Coagulant, (Right) After PARETO - 80 mls of Coagulant

of the PARETO Optimizer on the overall waste treatment effluent. Even at this lower chemical dosage, the plant was able to meet their plant discharge limit of 100 lbs. per day for phosphorus with an effluent average discharge of 67 lbs. per day. In addition, the DAF was producing a drier sludge and a 12.5% reduction in the weekly sludge haulage as seen in Figure 4.

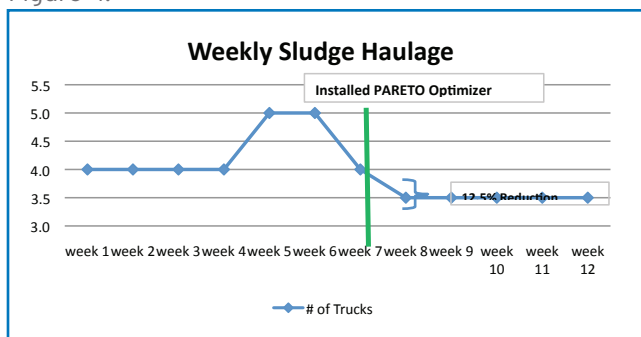


Figure 4

RESULTS

By implementing the PARETO Optimizer, the local Nalco Water Sales Engineer and Regional Wastewater Consultant were able to optimize the total cost of operation for this wastewater plant. The BAF operational improvement led to annual sludge haulage savings of \$10,400. Since the PARETO Optimizer also improved the chemical efficiency, an annual coagulant savings of \$14,360 was realized. By conducting a comprehensive waste treatment audit and implementing the recommendations, this customer achieves a total annual savings of \$24,760 and confidence that the plant's overall total cost of operation is now optimized.

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