



# 3D TRASAR™ Technology for DAF Improves DAF Effluent Discharge Compliance and Reduces the Total Cost of Operation at a Midwest Food Plant



## BACKGROUND

Dissolved Air Flotation (DAF) is a primary step in the treatment of industrial wastewater, where pH modification chemistry, coagulants, flocculants and compressed air are used to assist in the separation of solids and contaminants from the wastewater. A Midwestern food plant utilizes a DAF unit to remove Total Suspended Solids (TSS) and Fats, Oils, and Grease (FOG) from the plant waste stream.

The wastewater treatment plant has two flow equalization tanks before the wastewater enters into a pH adjustment tank. The waste stream is then treated with a Nalco Water coagulant program prior to further pH adjustment if needed with caustic. Flocculant is then dosed before the

wastewater is sent to the DAF unit for final treatment. The effluent from the DAF unit is discharged to a municipal water recovery system.

## SITUATION

The plant initially operated the DAF by manually adjusting the coagulant and flocculant feed based on visual observation and intermittent point-in-time testing of effluent quality. Due to the variability in the quality and quantity of the incoming wastewater and the fact that treatment was only adjusted occasionally when observations were made, the performance of the DAF unit was not optimal. This resulted in intermittent violations of the plant's FOG discharge limit of 250 ppm and fines.

### CUSTOMER IMPACT



### ECONOMIC RESULTS

Effluent FOG discharge compliance improved from 70% to 99%



More than \$30,000 annual saving on effluent non-compliance fines

Total volume of chemical reduced by 35%, or 19,000 pounds per year



Reduction in total operational costs by over \$36,000 per year

Productivity improved by 60%



\$190,000 annual saving as a result of the increased productivity

*eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.*

The plant wanted to improve the discharge compliance and eliminate or significantly reduce the discharge violation fines. The plant was also interested in reduction of total cost of operation through dosage optimization, and minimization of labor requirements for manual intervention of the wastewater treatment process.

## PROGRAM

Nalco Water 3D TRASAR Technology for DAF has been implemented to automate coagulant and flocculant dosing based on a custom algorithm utilizing influent flow (“Feed Forward”) as well as effluent turbidity (“Feedback”). An added option of effluent FOG monitoring was included

and automated alarms were initiated whenever the FOG discharge limit of 250 ppm was exceeded. Monitoring and control data was collected via the 3D TRASAR Web for simple customer visibility.

## ENVIRONMENTAL RESULTS

The implementation of 3D TRASAR Technology has improved the plant’s effluent FOG discharge compliance to 99% from less than 70% under manual control. The program has also resulted in more than 19,000 lbs or 35% chemical savings annually.

## ECONOMIC RESULTS

The improved effluent compliance has saved the company at least \$30,000 in fines compared to not implementing the 3D TRASAR technology. The annualized chemical reduction is approximately \$36,000. In addition, the program also increased productivity by reducing approximately 60% of the operator’s manual intervention time. The productivity gain allows for completion of other value-added tasks without incurring any additional labor expense. The resulting value of the increased productivity is estimated to be \$190,000/year.

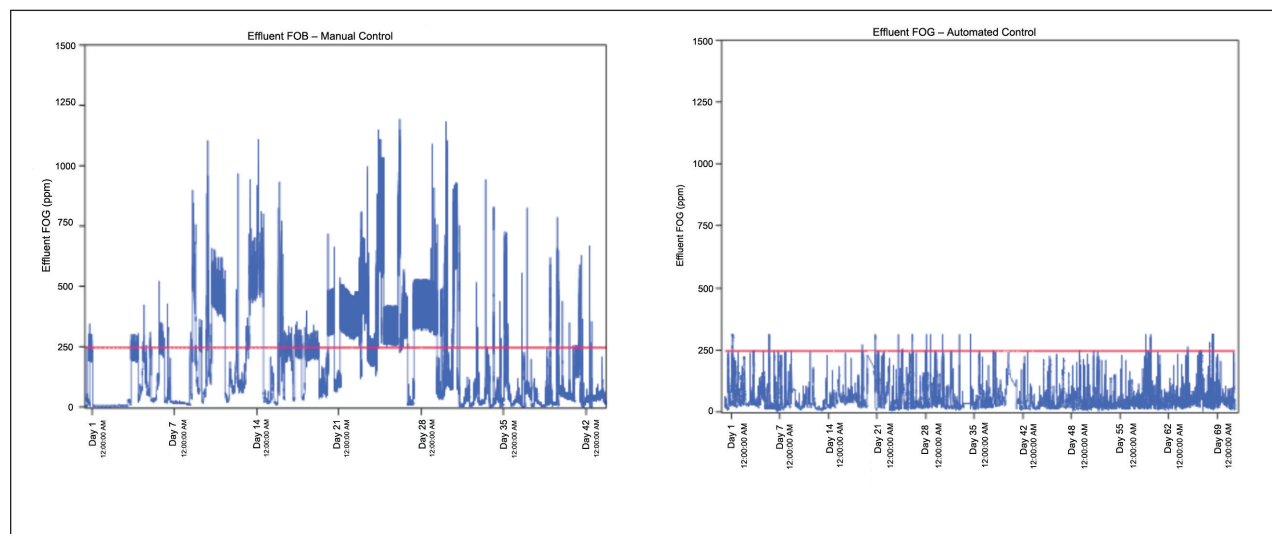


Figure 1 - Effluent TSS and FOG performance data (3D TRASAR Technology versus manual control)

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