

Ice Cream producer reduces wastewater total plant operating costs by over \$150,000 annually using 3D TRASAR™ Technology for Effluent Program

CASE STUDY

► BACKGROUND

Relying on reclaim water for their plant condenser systems, an ice cream producer was seeing poor water quality effluent supplying their plant reclamation reverse osmosis/ultrafiltration (RO/UF) systems.

This operating inefficiency was limiting the volume of reclaim water and increasing the requirement for city makeup water and sewer costs.

► SOLUTION

Ecolab conducted a mechanical, operational, chemical and biological evaluation, finding that the ice cream producer was bypassing their equalization tank (EQ tank) and processing all their wastewater through a neutralization tank and dissolved air flotation (DAF) system. The variability in loading and under-treatment of the DAF was resulting in poor DAF effluent quality, which was negatively impacting sequencing batch reactor (SBR) settling and effluent water quality supplying the RO/UF.

Ecolab recommended processing all the wastewater through the EQ tank and chemically treating the DAF system. To accomplish this, manually optimizing the coagulant polymer program dosage was necessary to meet the fluctuating demands of the EQ tank water.



EQ tank water vs DAF effluent water utilizing the new treatment strategy.

Ecolab then identified an opportunity for 3D TRASAR™ Technology for Effluent and E-data collection of daily key performance indicators to monitor and optimize the chemical programs which had seen variability overnight and on the weekends when the plant was not staffed.

eROISM
by Ecolab

ANNUAL SAVINGS

 **WATER**

33,000 m3

 **WASTE**

**20% reduction in
sludge hauling and
land application costs**

 **PRODUCTIVITY**

**70% reduction in
consumables**

 **PRODUCT
OPTIMIZATION**

>20% chemistry reduction

 **TOTAL VALUE
DELIVERED**

\$153,000

► RESULTS

The 3D TRASAR automation increased tighter control of the coagulant feed based on an effluent set-point, providing consistently clean water to the SBR. It also monitored and adjusted for upset conditions and the 'coagulant demand' impact of changes in production schedules. While the change to automated coagulant feed optimized the chemical usage, the effluent quality improvement also reduced costs on the plant reclamation process providing holistic cost optimization for the customer.



FIGURE 1: Coagulant pump output (yellow) vs DAF Effluent Turbidity (blue) (NTU) at 10 NTU set-point (Nov-Dec 2024)

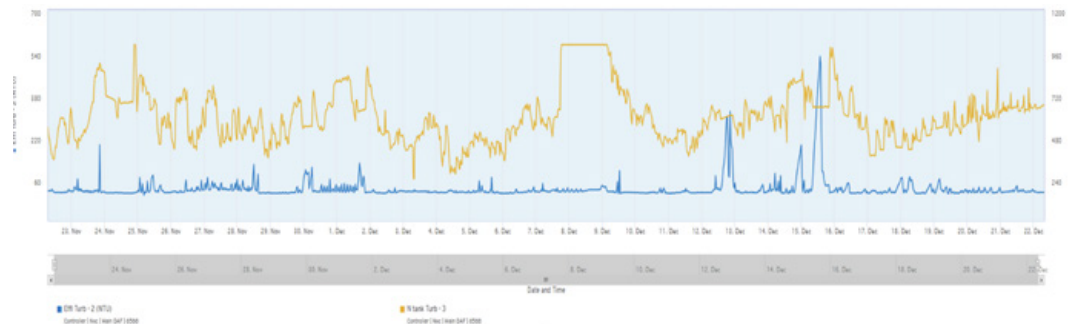


FIGURE 2: Neutralization Tank (Influent) Turbidity (yellow) (NTU) vs DAF Effluent Turbidity (blue) (NTU) (Nov-Dec 2024)

► CONCLUSION

Once the full 3D TRASAR Technology for Effluent solution was implemented, it met the sustainability, performance and costs goals of the plant, exceeding the targets for their top business drivers. Further, the sustainability impacts have benefited the plant's resource allocations, improving productivity and reducing waste. The visibility and automation provided through the 3D TRASAR program and E-data will help the ice cream producer to quantifiably hold the gains achieved as it plans for a plant expansion in the near future.

