



## Reference Case

Boosting solids performance and cutting chemical OPEX in dairy wastewater

**CarboNet** ●●

**One of North America's largest dairy producers** needed tighter control over its wastewater system. Their DAF and belt press systems relied on high polymer doses but still produced variable results, with off-spec performance and rising treatment costs.

**Background:**

The facility runs DAF clarification and sludge dewatering to manage high-strength dairy effluent. It needed a chemistry program that could improve TSS control, increase cake solids, and reduce polymer volumes—all without overhauling existing infrastructure.

**Problem:**

Operators struggled with rising polymer costs, off-spec TSS during high flows, and inconsistent belt press performance. Tote handling and dilution water requirements added operational burden.

**Approach:**

Over a 10-day trial, the facility tested PreFlight 10080C (for DAF) and SimpleFloc 3078C/3080C (for belt presses). Products were injected using the plant's existing Velodyne units and Venturi system. Operators monitored performance across flow changes, maintenance cycles, and minor dosing issues. CarboNet supported optimization throughout.

**Results:**

CarboNet chemistry achieved better solids capture, higher cake dryness, and lower chemical OPEX. Floc quality held up under upset conditions, reducing effluent carryover. Belt press cake solids rose from 14.3% to 15.7%, while polyacrylamide use dropped by 62%. No infrastructure changes were needed.

“It’s the most technologically innovative water treatment application I have laid eyes on this decade. It’s the difference between a system that just meets regulations and one that’s set up to accelerate and scale.”

**Randy Khalil**

Dewatering & Water Treatment SME

**RESULTS**

KPI	INCUMBENT	DAFLOC 10080C
DAF TSS	600–700 ppm	Lower
DAF Dose	4.1 GPH	3.5 GPH
Cake Solids	14.3%	15.7% (↑9%)
PAM usage	-	↓62%
Chem OPEX	-	↓13% (~\$91K/yr)

**IMPACT**

- 17% polymer cost reduction (belt press)
- 25% Scope 3 emissions reduction
- ~5 million gallons/year dilution water saved

**CarboNet:** As freshwater becomes increasingly scarce and regulated, companies from energy and mining to food and beauty turn to CarboNet to reduce, recycle, and renew the water they need to compete.



## Reference Case

Cutting 75% wastewater sludge volume  
and \$800k in haul-off costs.

**CarboNet** ●●

# A plant in Southern California produces frozen Tex-Mex-style cuisine. Their team aimed to reduce sludge hauling costs and associated emissions, which led to an evaluation of their wastewater treatment chemistry.

## The problem:

The plant's influent had high solids and large swings in temperature and pH. Incumbent chemistry formed weak, inconsistent flocs that couldn't be dewatered by the screw press, forcing disposal of wet, untreated sludge. Meanwhile, the client aimed to cut Scope 3 emissions and found sludge transport was a key contributor—making wastewater optimization a clear business case.

## The approach:

We tested a range of products to optimize treatment performance, reliability, and sludge disposal costs and emissions:

- **SimplePrime:** Coagulant used prior to DAF system to destabilize colloids and improve effluent clarity, enhancing flocculation.
- **SimpleFloc Gel:** A no make-down product applied prior to DAF system to form stronger flocs, reducing TSS and improving water clarity.
- **SimpleFloc Emulsion:** Specifically chosen for screw press dewatering, this flocculant reduced sludge volume by 75%.

## Results:

The switch to SimplePrime and SimpleFloc had an immediate impact on the water, the P&L, and the plant's scope 3 emissions:

- Sludge volume reduction: 75%
- Operational savings: \$800,000 saved annually by reducing sludge haul-off costs.
- Enhanced operational efficiency: Reduced down-time and associated labor
- Reduced Scope 3 emissions: Transportation-related emissions from sludge haul-off

## Results cont'd:

The CarboNet field team also recognized the challenge operators were facing with the screw press. Once the chemistry was in place to ensure the equipment could be used effectively, they worked with plant staff to ensure operators felt confident—providing a dosing & troubleshooting guide along with Standard Operating Procedure (SOP) documentation.

“The savings are impressive, but what really stood out with CarboNet was their attention to detail. They helped us tailor the chemistry to our unique challenges, delivering reliable performance at dramatically lower cost”

**Plant Manager**

### RESULTS

- 75% sludge volume reduction
- \$800k reduction in transport costs
- Reduced down time and associated labor
- Reduced Scope 3 emissions

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## Reference Case

Solving harvest season challenges, cutting treatment costs, and saving freshwater

**CarboNet** ●●

# North America's largest winemaker operates a 24/7 treatment plant in California where grape harvest months create sharp swings in pectin, sugar, and TSS. Their chemistry program could not meet KPIs, and increased cost put pressure on profit margins.

This plant averages 350 GPM influent flow, peaking to 600 GPM during crush. Water is sent to a DAF and then to secondary treatment, while float solids are pressed and hauled. The incumbent chemistry program included ACH / DADMAC + anionic / cationic PAM.

## Problem:

The plant's KPI of  $\leq 750$  mg/L TSS could not be met during harvest. The operations team routinely doubled polymer feed, yet DAF effluent still drifted past 1000 mg/L. Daily chemistry spend increased from \$850 to \$1,700. High doses strained pump capacity, disrupted secondary treatment, and undermined cost targets just when production margins were tightest.

## Approach:

We designed a program to address the challenges of harvest season and simplify things year round. Based on site conditions, we moved the flocculant injection point downstream to reduce shear, and integrated progressive cavity pumps with SCADA for consistent dosing to cut down on labor during peak season. These operational changes were paired with a new chemistry program:

**SimplePrime 6650** – Blended coagulant applied before the DAF to form pin floc under high TSS and color load.

**SimpleFloc 3035A** – High-charge anionic flocculant used to form strong, floatable flocs and improve clarity.

**SimpleFloc 3061C** – Added in extreme conditions to offset coagulant demand and control overall treatment cost.

## Results:

The new program consistently held DAF effluent between 600–700 mg/L TSS, even during peak harvest. Switching to SCADA-integrated pumps improved dose stability as flow rates shifted. Together, these changes cut manual adjustments and reduced chemical handling during the busiest weeks of the year.

CarboNet's chemistry is now in full-time use, where site operators reported 20–25% reductions in treatment cost.

## RESULTS

- 20–25% reduction in cost-to-treat
- \$100,000 annual savings (estimated)
- 4.9M gallons of water saved annually
- Reduced labor needs during peak season

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## Reference Project

Optimizing Wastewater Treatment  
in Food Manufacturing

CarboNet ●●

# A food manufacturer faced constant surcharges as unreliable chemical suppliers and understaffed make-down disrupted wastewater operations.

**The problem:** A food manufacturer in Northern California struggled to staff make-down operations which, when combined with an unreliable chemical supply chain, led to wastewater that regularly breached permissible levels of suspended solids.

**The solution:** While SimpleFloc was initially discussed to solve the issue of suspended solids in the waste stream, the conversation broadened to include make-down itself: the materials, the staffing, and the babysitting required to deal with FOG water's high variability.

↳ **Make-down is a relic** of treatment from the 1970s that leads to CAPEX, OPEX, and emission overages. It's core ingredient—polyacrylamide—has weak bonds that create inconsistent flocs, forcing teams to overdose and, in turn, create flocs that are too wet or spongy—gumming up filters and presses that lead to work stops, swap outs, and shut downs.

↳ **SimpleFloc**, in contrast, requires no make-down and plugs directly into the lines, cutting out make-own equipment, maintenance, dosing schedules, and adjustments.

**The result:** The switch to SimpleFloc had an immediate impact on the water and the P&L:

- ↳ 89.6% less PAM
- ↳ 18% less suspended solids
- ↳ Wastewater surcharges greatly reduced

**The bottom line:** Just as with chemistry, water treatment decisions have primary and secondary consequences that aren't always factored into the big picture or the bottom line.

↳ **By adding SimpleFloc**, the manufacturer was able to remove an entire process, along with the associated costs and inefficiencies that were slowing them down and hitting the P&L.

## RESULTS

- 89.6% less PAM
- 18% less suspended solids
- Wastewater surcharges greatly reduced
- Boosted crew efficiency

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