



Reference Case

Meeting lower turbidity targets while reducing residual acrylamide at a potato processor

CarboNet ●●

A potato processor in Oregon with high-volumes of wash water needed to meet new, tighter restrictions on effluent turbidity and reduce residual acrylamide exposure risk in a food-contact-adjacent environment.

BACKGROUND

The facility uses billions of gallons of water annually to clean soil from incoming potatoes in a series of silt bays. This process generates organic wastewater high in starches, silt, clay, and nitrates which is treated with a coagulant and flocculant package.

PROBLEM

- **Regulatory change.** The Port Authority placed new, lower limits on turbidity. Previous treatment chemistries could not meet these requirements.
- **PAM & residual acrylamide.** The previously used flocculant used a high amount of active PAM to meet effluent turbidity limits. Increasing the dose to meet the new, lower limits would mean exceeding internal requirements for residual acrylamide.
- **Wet Sludge.** Dewatered solids were high in water content, indicating poor chemistry performance and increased disposal costs for trucking and hauling.

APPROACH

CarboNet performed bench scale validation chemistries for clarification and dewatering. A gel based flocculant boosted by NanoNets allowed for a significantly lower volume of active PAM.

APPROACH cont'd

Full scale trials confirmed the results and **SimplePrime 2000** coagulant and **SimpleFloc 3050** flocculant were put into production.

SpecialOps automated dosing was also used to align chemistry dosing with incoming solids—reducing consumption and cost-to-treat.

RESULTS

CarboNet chemistry and automated dosing kept turbidity well below the new limit while reducing residual acrylamide. This enabled more wash water to be recycled and reduced cost-to-treat.

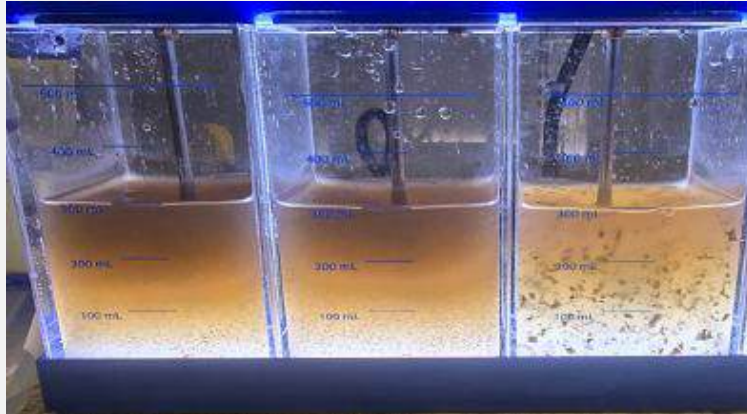
RESULTS
• Averaged 575 NTU (700 NTU target)
• Reduced active PAM by 80%
• Reduced coagulant by 50%
• Enabled 80% of wash water to be recycled

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.

Results Details

BENCH SCALE

Confirmation of Chemistry

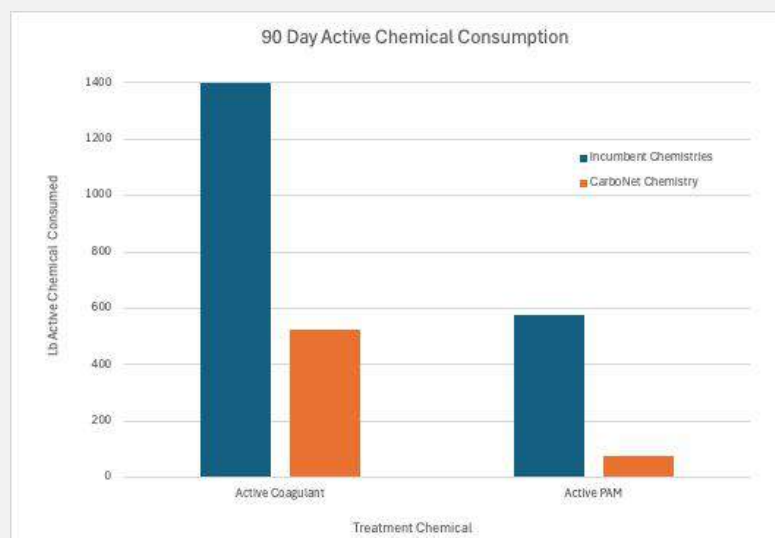


	INCUMBENT PACKAGE	CARBONET PACKAGE 1 LOWEST RESIDUALS	CARBONET PACKAGE 2 BEST DEWATERING
Coagulant	1.3 ppm Incumbent	1.3 ppm SimplePrime 2000	1.3 ppm SimplePrime 2000
Flocculant	0.5 ppm Incumbent	2.5 ppm SimpleFloc 3050A-G1	0.5 ppm SimpleFloc 4035A-E1
TSS	838 ppm	405 ppm	663 ppm
Active PAM	0.18 ppm*	0.04 ppm	0.15 ppm
Residual Acrylamide	Unspecified	< 12 ppt	< 50 ppt

*Assuming standard PAM content for emulsion product (35%)

FULL SCALE

Active Chemical Required for Treatment



CHEMICAL REDUCTIONS

Active Coagulant > 50%

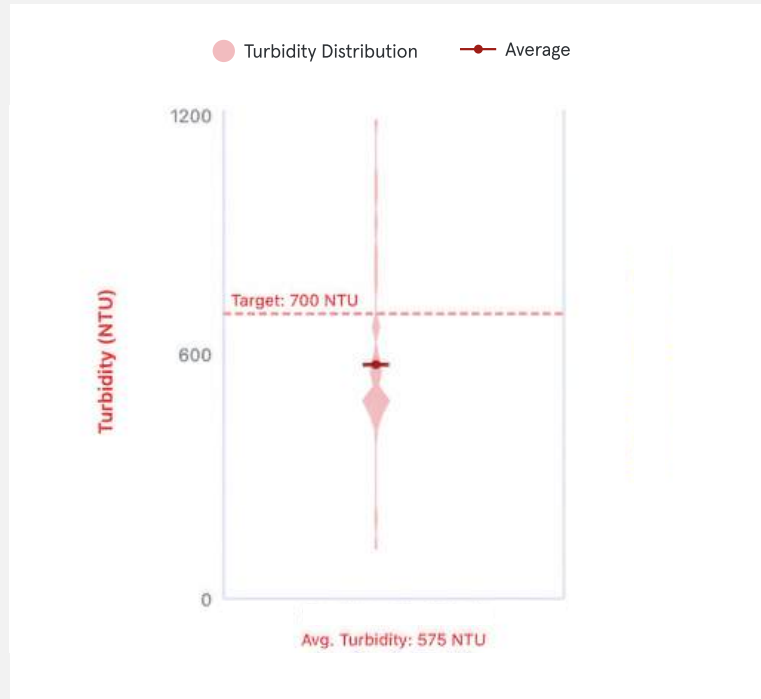
Active PAM > 80%

Chemical consumption was monitored over a 90-day trial and compared against historical data on incumbent usage.

Plant Performance

EFFLUENT QUALITY BY SITE

Distribution of effluent turbidity over 90 day period



AUTOMATED POTATO WASH WATER RECOVERY LOOP

80% of wash water recovered due to reduced acrylamide in treatment water

