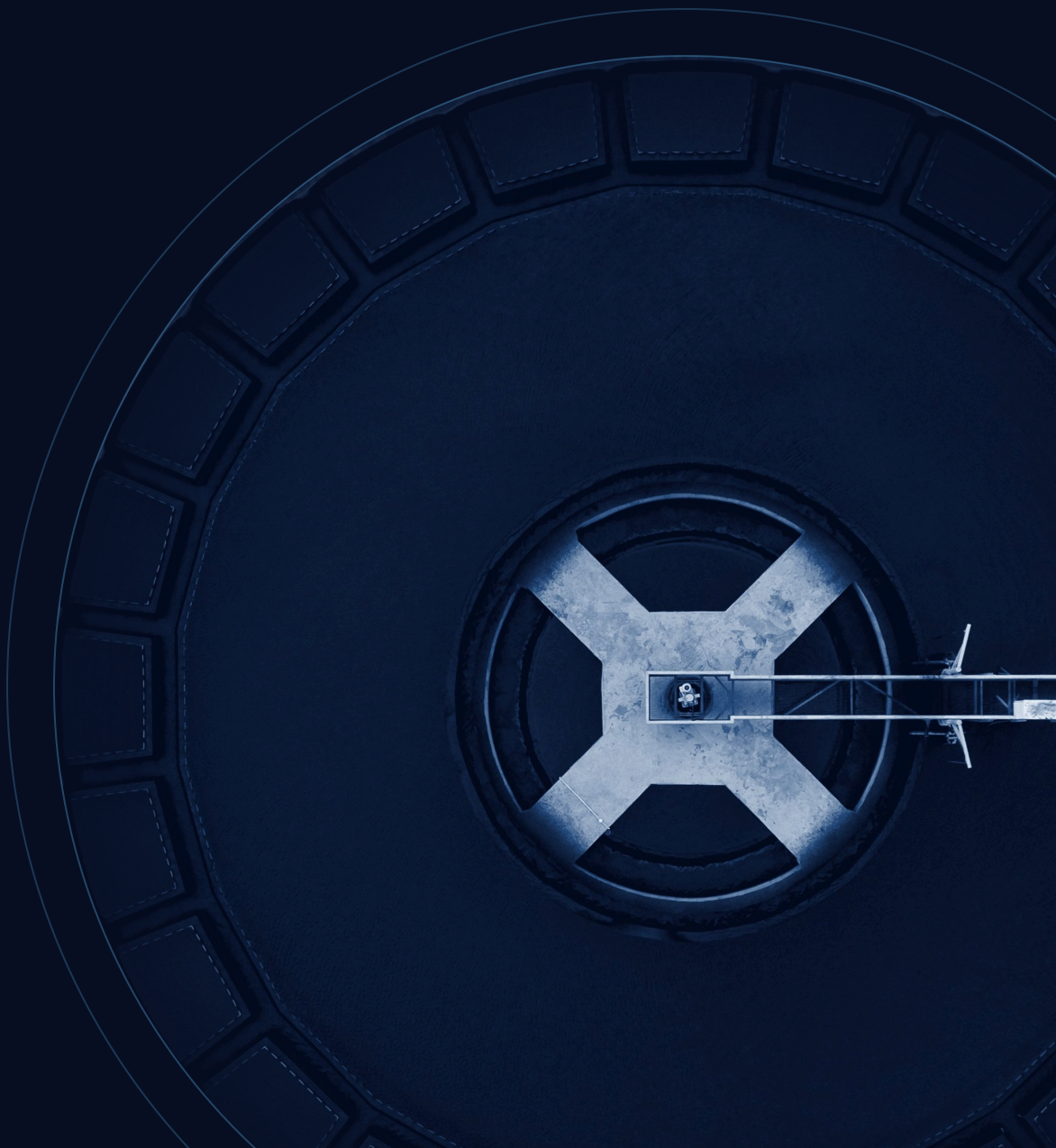
UltraClear®
WASTEWATER

CASE STUDY
FOOD PROCESSING

BIO-AUGMENTATION · TAN COMPLIANCE

Rapid nitrification recovery at a food processing facility

When biology fails, speed matters.



EFFLUENT AMMONIA

~10 mg/L ↓

0.05 mg/L

Nitrification restored in days.
No permit violations.
No capital investment.

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FACILITY PROFILE

INDUSTRY
Food processing

REGION
Southern United States

TREATMENT SYSTEM
Anaerobic digestion with aerobic nitrification

OPERATING ENVIRONMENT
Variable flow, fluctuating organic loading

COMPLIANCE PRIORITY
Total Ammonia Nitrogen (TAN) permit limits

THE CRISIS

A sudden nitrification failure sent effluent ammonia to ~10 mg/L.

Threatening permit compliance and creating immediate regulatory risk.

Initial assessment pointed to a temperature fluctuation. Then the anaerobic digesters also showed signs of distress, and the team knew something more complex was happening.

CONTRIBUTING FACTORS

Two systems that don't directly interact were hit at once.

That pointed to a facility-wide stressor rather than a simple process upset. The investigation revealed three potential causes.

Elevated influent flow and organic loading

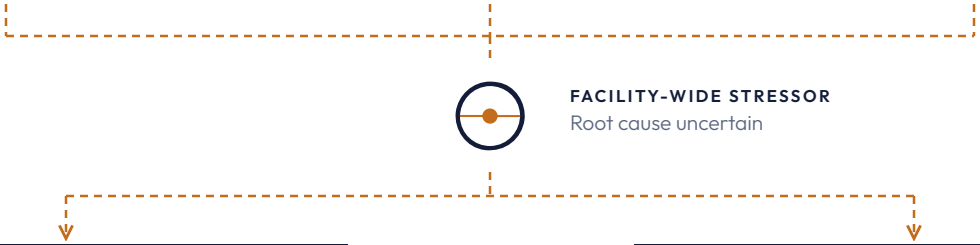
From increased plant production.

Suspected chemical exposure

NEVER DEFINITIVELY IDENTIFIED

Temperature fluctuations

Coinciding with the event.



SYSTEM A

Anaerobic digesters

- **Signs of distress**
  Observed alongside the nitrification failure

NO DIRECT INTERACTION

SYSTEM B

Aerobic nitrification

- **Sudden failure**
  Effluent ammonia spiked

ON HAND WHEN IT MATTERED

Already on-site. No shipping delay.

Treatment started inside the critical window.

THE RESPONSE

Immediate bio-augmentation.

With compliance on the line and the root cause uncertain, the facility needed to restore stability while troubleshooting continued.

DEPLOYED TO THE TREATMENT SYSTEM

2×275 gal totes

UltraClear Nitrifying Concentrate.

01 Dosed immediately

Application began the moment the team recognized the severity of the upset.

02 Propagated on-site

The UltraClear Propagation Kit extended and amplified the active nitrifying biomass. That stretched the available concentrate while dosing stayed aggressive, buying time before the next shipment arrived.

WHY IT WORKED SO FAST

DORMANT POWDER PRODUCTS

Require acclimation

There is a lag before dormant cultures start nitrifying.

ULTRACLEAR LIVE LIQUID

Immediate activity

Live, active *Nitrosomonas* and *Nitrobacter* began oxidizing ammonia as soon as they were applied.

RESULTS

Recovery in days, not weeks.

BEFORE TREATMENT

~10 mg/L

AFTER TREATMENT

0.05 mg/L Down about 99.5% from the upset peak

METRIC	BEFORE	AFTER
Effluent ammonia	~10 mg/L	**0.05 mg/L**
Time to recovery	–	**Days**
Compliance	● At risk	● **Maintained**
Capital investment	–	**$0**

Values as reported by the facility.

CONFIRMED OUTCOMES

- ✓ Nitrification stability fully restored
- ✓ No permit violations or regulatory complications
- ✓ Recovery significantly faster than previous biological upsets at the facility

"It worked out really well to help us recover so much quicker... It was good to have these nitrifiers here to start recovery *way, way quicker*... This has been a really good find for us."

— OPERATIONS MANAGER, FOOD PROCESSING FACILITY

OPERATIONAL IMPACT

They now stock the fix before they need it.

The facility immediately reordered after using the initial totes and plans to keep the Propagation Kit on hand too, treating both as biological insurance instead of waiting for the next emergency.

Faster intervention, even when root cause analysis is incomplete.

Reduced operational anxiety during high-risk periods.

Confidence in recovery, whether or not the trigger is identified.

INDUSTRY CONTEXT

Why food processing plants are uniquely vulnerable.

Food processing wastewater systems face a distinct set of biological challenges.

In these environments, nitrification failures are rarely isolated or gradual. They can cascade across systems, are difficult to diagnose in real time, and are costly if left unaddressed.

Protein-driven ammonia loads	From processing waste streams.
Chemical exposure risk	From sanitation protocols and plant operations.
Variable loading patterns	Tied to production schedules.
Biological complexity	Interdependent anaerobic and aerobic processes.

KEY TAKEAWAYS FOR TREATMENT OPERATORS

Treat while you diagnose.

Recovery is possible even when the root cause remains unclear.

Keep live nitrifiers on-site.

Product on hand eliminates shipping delays during critical windows.

Plan for propagation.

On-site propagation extends treatment capacity between shipments.

1 GAL · 55 GAL · 275 GAL

ABOUT THE PRODUCT

UltraClear Nitrifying Concentrate

A proprietary liquid formulation containing live, active *Nitrosomonas* and *Nitrobacter* strains, engineered for immediate ammonia and nitrite oxidation in industrial wastewater systems.

Instant activation	No lag time waiting for dormant bacteria to acclimate.
Aggressive ammonia reduction	Rapidly drives Total Ammonia Nitrogen to compliant levels.
Critical upset recovery	Re-establishes stable nitrification in days after biological disruption.
Propagation-ready	Can be cultured on-site to extend treatment capacity.

Full product specs ↗

OPTIMAL APPLICATION

Apply directly to oxygen-rich zones.

- Aeration basins, oxidation ditches, or the influent of Rotating Biological Contactors (RBCs).
- Avoid anaerobic zones and primary clarifiers.
- Agitate before use.
- Store between 50°F and 95°F.

CONTACT TECHNICAL SALES

Ready to protect **your system?**

Don't wait for a nitrification failure to discover your recovery plan doesn't work fast enough. Contact UltraClear to discuss custom dosing regimens, on-site propagation training, and inventory programs for your facility.

Request a dosing plan →

CALL TECHNICAL SALES
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