

CHALLENGE

Severe **biological contamination** over an open bakery production line — cooling capacity restored and EHS risk eliminated

A Midwest US commercial bakery operated an evaporative condenser whose film fill and open basin sat directly above the production area. Yeast, sulfate-reducing bacteria and biofilm had taken over the system, exposing products, ingredients and staff to drift and droplets — including potential Legionella risk. Previous treatment programs had failed to bring it back.

UNIT SERVED

**Commercial bakery ·
Evap condenser**

KEY ISSUE

**Yeast · SRB · Biofilm ·
Drift**

RISK

**Product recall · OSHA
· Legionella**

ROI

< 4 hours (consulting)

CHALLENGE

What was happening

Severe biological contamination in the evaporative condenser — yeast, sulfate-reducing bacteria and entrenched biofilm — in a system whose film fill and open basin sat inside the baking environment. Drift and droplets exposed products, ingredients and personnel. Prior treatment programs had failed. Plant faced product recall, OSHA exposure and Legionella risk.

INTERVENTION

What we did

Biological analysis, biocide effectiveness study, monitoring & control design. A planned 3-day weekend shutdown for combined mechanical + chemical cleanup: drained and vacuumed 2 feet of biological material, circulated H_2O_2 + dispersant + dual biodispersants + quat biocide to ATP <30 RLU. Refilled on a safer non-phosphate program. New evaporator panels and wall panels installed to isolate the unit from production.

PROOF · BASELINE > AFTER

1. Mild steel corrosion: <1 mpy after restart.
2. Copper corrosion: <0.1 mpy.
3. ATP / microbial: <15 RLU on the new program.
4. Containment: production environment isolated from the system via new evaporator and wall panels.

VALUE DELIVERED

\$10M+ avoided

plus OSHA, Legionella and recall exposure

Product recall	\$10,000,000 avoided
Consumer notice	\$150,000 avoided
OSHA fines	\$165,514 / incident
Workers' comp	\$75,000 / employee
ROI · consulting	< 4 hours

Small cooling systems can carry business-ending risk. Cooling operations can be overlooked while you are maximizing production and managing people, but hidden risk can expose the company to recall, OSHA and Legionella liability. Many systems can be reviewed remotely — your system deserves a look.