NONA

DATA CENTER BLOWDOWN RECOVERY

NONA | RECOVER at a Data Center Facility

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NONA TECHNOLOGIES
Somerville, MA

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Project Details

Industry: Data Centers

Water Source: Cooling tower blowdown

Treatment Targets:

- Hold sump conductivity ≤ 1,200 µS/cm
- Optimize chemical dosing

Cooling Tower Information

- Capacity: 50 TR (Open-loop)
- Cooling Tower Water Loop Volume: 1,500 Gallons

Cooling tower water: higher conductivity

Challenge

High conductivity in cooling system

A Data Center faced rising concerns about ongoing operations related to water scaling and pipe management. Cooling water conductivity occasionally exceeded recommended ranges to the point where scaling and corrosion were of concern. Due to this water profile, scaling (mineral deposits on heat-transfer surfaces) and corrosion (pitting, tube leakage) had already begun to manifest in the cooling loop well ahead of schedule.

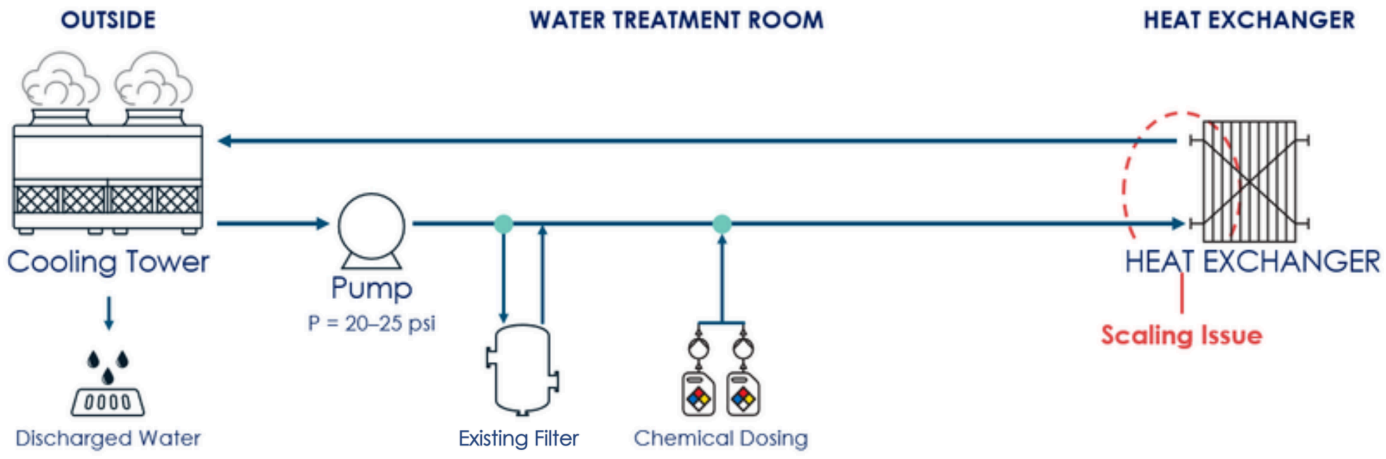
The deployment posed a few opportunities:

- Maintaining autonomous operations without supervision
- Aligning conductivity levels and cycles of concentration
- Improving heat-transfer efficiency
- Lowering risk of under-deposit corrosions
- Ensuring continuous facility operations during retrofit process



Cooling water in the cooling tower basin before treatment

Historic Cooling Tower Water Treatment System



OUTCOMES

90% Blowdown Recovery
Up to 50% OpEx Savings

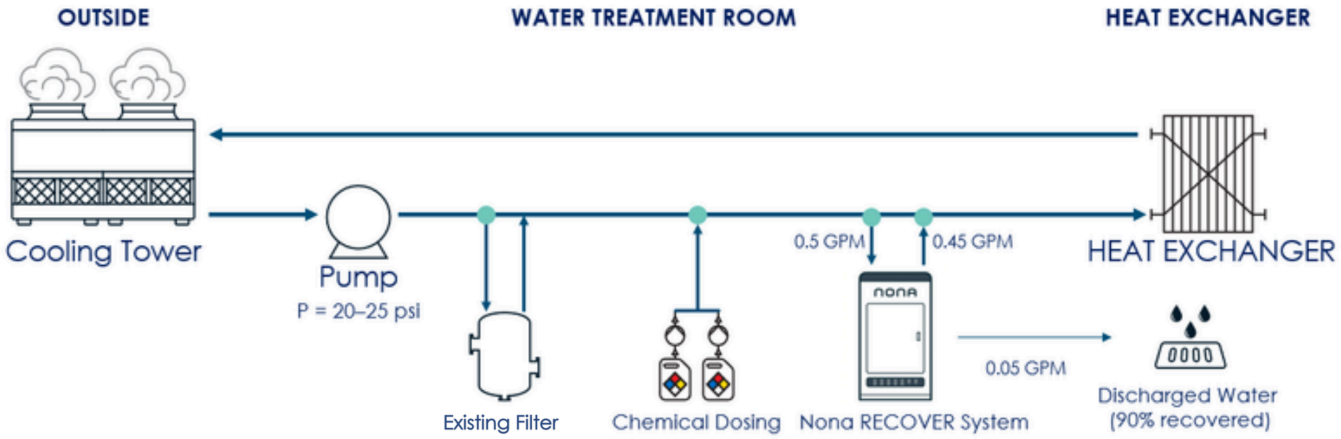
Nona operated the tower at an effective ~12 CoC, **recovering far more water and using fewer chemicals** while keeping effective water quality equivalent to ~3 CoC. This avoided frequent water replacement and operational burden, **leading to up to 50% OpEx** savings compared to a typical operating approach.



Water treatment with Nona RECOVER

Metric	Baseline	NONA | RECOVER	Impact
Sump Conductivity	~4,000–8,000 µS/cm	~1,000 µS/cm (200 µS/cm deadband)	De-risked process with improved maintenance
Cycles of Concentration (CoC)	Unspecified	~12 CoC at ~3 CoCwater quality	Minimized management risk with lower conductivity
Blowdown Volume	750–2,250 gallons per month	90% of blowdown recovered and returned to the loop	Tower drains far less often

Nona Approach



Nona installed RECOVER, a blowdown recovery system that uses the proprietary Ion Concentration Polarization (ICP) process, in the facility's water treatment room to actively control cooling-water conductivity. It's one of the few systems built to recover blowdown while managing conductivity.

The unit drew about 0.5 GPM from the cooling loop, treated it through ICP, and returned 0.45 GPM of treated water while discharging about 0.05 GPM of concentrate: **a 90% recovery rate.**

It ran autonomously, continuously tracking conductivity and cycling on and off against a set point after a short post-install monitoring period, with only a periodic pre-filter change.

Learn how much Nona could save you at info@nona-technologies.com