

WATER OPERATIONS · MANAGER'S BRIEF · 2026

# A manager's guide to AI and the future of work in water.

A plain-language summary of the Water Environment Federation report on building an AI-empowered water workforce — translated for the people who actually run the plant.

## § 01 · THE SHIFT, IN ONE PARAGRAPH

AI is arriving in the water sector quickly, and operations leaders need a point of view before vendors set it for them. The report argues for a **human-first, AI-augmented** model: AI should support workers, improve safety, and protect institutional knowledge — not replace human judgment, run without oversight, or quietly erode public trust. Treated as a co-pilot, it pays back. Treated as an autopilot, it creates risk the utility — not the vendor — will own.

### THE OPERATING MODEL, IN TWO LISTS

#### AI should

- ▼ Support workers, not replace them
- ▼ Improve safety and incident response
- ▼ Preserve retiring operators' knowledge
- ▼ Help close workforce shortages

#### AI should not

- ▼ Replace human judgment in critical ops
- ▼ Operate without human oversight
- ▼ Widen the gap between large and small utilities
- ▼ Erode ratepayer or community trust

Source · WEF / Water-AI Nexus Report — "Principles for AI and the Future of Work in Water: Building an AI-Empowered Water Workforce."

## The four principles.

The report distills its guidance into four principles. Each one pairs a single idea with what it asks of you operationally.

### 1

#### Protect mission-critical work.

AI can assist operators — but humans must remain in control of every critical decision. Let it detect anomalies, recommend actions, and automate paperwork; keep dosing, pumps, and safety calls under human approval.

##### PUT IN PLACE

- ▼ Human-in-the-loop approvals, overrides, and fail-safes on critical processes
- ▼ A cybersecurity review before anything is deployed

### 2

#### Develop AI governance standards.

Write the rules for safe, ethical, consistent use *before* you scale — not after an incident. Cover acceptable use, data security, approvals, and audit trails for any AI-influenced decision.

##### ASK EVERY VENDOR

- ▼ Can every recommendation be audited, and every override logged?
- ▼ How are models validated, and who is liable for a compliance event?

### 3

#### Build AI capacity across the workforce.

Success depends more on workforce readiness than on the technology. Staff don't need to be data scientists — they need to know what AI gets wrong, how to spot it, and when to escalate. Uneven adoption risks a two-tier industry; small plants should plan for shared training.

##### TRAIN PEOPLE TO

- ▼ Recognize outputs that look wrong and validate against their own judgment
- ▼ Use AI responsibly with sensitive data, and escalate when needed

### 4

#### Earn trust through high-value use cases.

Trust is earned the way it is with a new operator: a few clean shifts, then harder problems. Skip the flagship rollout on a critical process; build a portfolio of small, visible wins — and communicate the why, the what, and the won't in writing first.

##### START WITH

- ▼ Shift-report and compliance automation; a search assistant over your SOPs
- ▼ Predictive maintenance on one well-instrumented asset

§ 02 · WHY THIS MATTERS NOW

01 · WORKFORCE

**The silver tsunami**

- ▼ A large retirement wave is underway
- ▼ Qualified operators are hard to hire
- ▼ Knowledge leaves as veterans do

02 · OPERATIONS

**Cost & complexity**

- ▼ Rising energy costs, aging assets
- ▼ Resistance to rate increases
- ▼ Tightening regulation

03 · OPPORTUNITY

**Where AI helps**

- ▼ Automate repetitive paperwork
- ▼ Improve maintenance and uptime
- ▼ Accelerate training and onboarding

**A 90-day plan to start.**

The point isn't to finish in 90 days — it's to have evidence, a governance baseline, and an aligned crew by the end of the quarter.

▼ PHASE 01

**Assess**

Days 0 – 30

- ▼ Inventory repetitive workflows
- ▼ Map knowledge gaps from retirements
- ▼ Review cybersecurity posture
- ▼ Shortlist 3–5 pilots

▼ PHASE 02

**Pilot**

Days 30 – 60

- ▼ Start with reporting automation
- ▼ Stand up an SOP assistant
- ▼ Try maintenance analytics on one asset
- ▼ Lock in approvals and metrics

▼ PHASE 03

**Align**

Days 60 – 90

- ▼ Run AI-literacy training by role
- ▼ Collect employee feedback
- ▼ Expand the pilots that earned trust
- ▼ Draft a 12-month roadmap

THE CLOSING ARGUMENT

**The future of water operations isn't AI vs. workers. It's AI + workers — designed, governed, and led on purpose.**

The plants that win this decade will be the ones whose managers treat AI as a tool for their crew, hold vendors to a real bar on safety and auditability, and invest in the people still making the final call when the alarm sounds at 3 a.m.