

Water quality testing and analysis

Automates water quality testing workflows by collecting samples, performing laboratory analysis, evaluating compliance against regulatory standards, and generating reports. Ensures consistent water quality monitoring while reducing manual oversight and accelerating compliance reporting.

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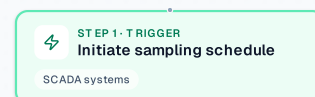
WORKFLOW TRIGGER

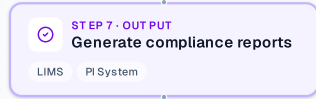
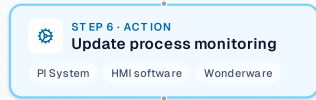
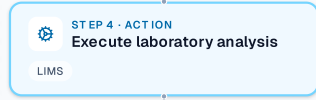
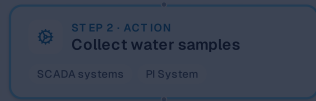


Scheduled water quality sampling time arrives or manual sampling request initiated

Visual Flow

Each node represents an automated step. Connections show how data and decisions move through the workflow.





Step-by-Step Breakdown

Detailed explanation of each automated stage in the workflow.

1

⚡ TRIGGER

Initiate sampling schedule

Automated sampling schedule triggers based on regulatory requirements or manual override request. SCADA system receives sampling command and prepares collection protocols.

2

 ACTION

Collect water samples

Automated sampling equipment collects water samples from designated points across the treatment facility. Sample metadata including location, time, and process conditions are logged.

SCADA systems

PI System

3

 ACTION

Register samples in LIMS

Sample information is automatically registered in the laboratory management system with unique identifiers and testing protocols. Chain of custody documentation is generated.

LIMS

4

 ACTION

Execute laboratory analysis

Automated analytical instruments perform water quality tests including pH, turbidity, chlorine residuals, and microbial analysis. Results are captured and validated in LIMS.

LIMS

5

 DECISION

Evaluate compliance thresholds

System compares test results against regulatory limits and treatment facility standards. Determines if results are within acceptable ranges or require corrective action.

LIMS PI System

6

 ACTION

Update process monitoring

Test results are integrated into real-time process monitoring dashboards and historical trending databases. Operators receive notifications via HMI if intervention is required.

PI System HMI software Wonderware

7

 OUTPUT

Generate compliance reports

Automated regulatory compliance reports are generated and distributed to relevant stakeholders. Non-compliance alerts trigger immediate notification protocols.

LIMS PI System



Outputs

- Water quality test results database

- Regulatory compliance reports

AI Business OS

- Process optimization recommendations



Key Metrics

- Sample processing time
- Compliance rate percentage
- Cost per sample analysis



Tools & Integrations

- SCADA systems
- LIMS
- PI System
- HMI software
- Wonderware

AI Business OS

Actionable AI implementation strategies for business leaders ready to transform their operations.

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