

Chemical dosing optimization

This workflow automatically optimizes chemical dosing in real-time by analyzing water quality parameters, calculating optimal dosage rates, and adjusting chemical feed systems to maintain water quality standards while minimizing chemical costs.

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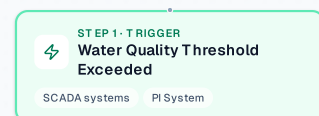
WORKFLOW TRIGGER

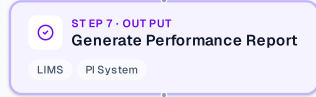
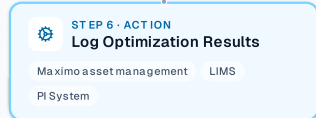
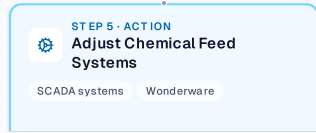
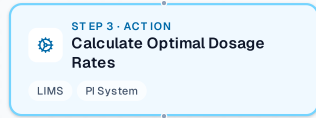


Water quality parameters exceed target thresholds detected by continuous monitoring sensors

Visual Flow

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





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Step-by-Step Breakdown

Detailed explanation of each automated stage in the workflow.

1

⚡ TRIGGER

Water Quality Threshold Exceeded

Continuous monitoring sensors detect pH, turbidity, chlorine residual, or other parameters falling outside acceptable ranges. SCADA system triggers automated response protocol.

2

 ACTION

Collect Current Process Data

System retrieves real-time flow rates, current chemical feed rates, water temperature, and historical dosing performance data. Data is compiled for analysis and optimization calculations.

PI System

SCADA systems

3

 ACTION

Calculate Optimal Dosage Rates

AI algorithms analyze current conditions against historical performance data and regulatory requirements to determine precise chemical dosage adjustments. System accounts for flow variations and water quality trends.

LIMS

PI System

4

 DECISION

Validate Dosage Safety Limits

System checks if calculated dosage rates fall within predefined safety parameters and regulatory compliance limits. Routes to manual approval if outside acceptable bounds.

SCADA systems

LIMS

5

 ACTION

Adjust Chemical Feed Systems

AI Business OS

Automated control signals are sent to chemical feed pumps and valves to implement optimized dosage rates. System monitors immediate response and confirms adjustments are executed.

SCADA systems

Wonderware

HMI software

6

 ACTION

Log Optimization Results

All dosage changes, water quality improvements, and system responses are recorded in the asset management system and process database for compliance reporting and performance tracking.

Maximo asset management

LIMS

PI System

7

 OUTPUT

Generate Performance Report

System produces automated report showing chemical usage optimization, cost savings achieved, water quality compliance status, and recommendations for future adjustments.

LIMS

PI System



Outputs

- Optimized chemical dosage rates applied to treatment process

- Chemical usage and cost reduction report

AI Business OS



Key Metrics

- Chemical cost reduction percentage
- Water quality parameter compliance rate
- Response time to quality deviations



Tools & Integrations

- SCADA systems
- PI System
- LIMS
- Wonderware
- HMI software
- Maximo asset management

AI Business OS

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

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