Application note
3017M Chlorine Analyzer

Ensuring safe drinking water with continuous chlorine monitoring in College Place, Washington

Reliable, real-time monitoring supports public health & regulatory compliance

Water tower, similar to one in College Place, Washington

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Introduction

Maintaining the right chlorine residual is one of the most important safeguards in drinking water treatment. Chlorine disinfects water to eliminate pathogens that are harmful to human health, and after disinfection, chlorine must remain present throughout the distribution system to protect the water as it travels to consumers' taps. Residual chlorine concentrations can fluctuate due to temperature, water age, source water characteristics, or aging infrastructure – making continuous chlorine monitoring essential to verify that chlorine levels remain within regulatory limits.

To ensure reliable disinfection across its system, the city of ***College Place, Washington***, installed *YSI 3017M chlorine analyzers* for continuous free chlorine monitoring at its groundwater wells and central water tower. The analyzers provide accurate, stable measurements that support consistent disinfection and daily regulatory reporting, ensuring safe, high-quality drinking water.

End user: City of College Place Public Works Department, Washington, USA

Xylem Product Used: YSI 3017M DPD Chlorine Analyzer

Project results: Reliable chlorine residual control, reduced maintenance, and improved regulatory confidence.

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A bird's-eye view of College Place, Washington

Overview

The City of College Place, Washington, supplies drinking water to nearly 10,000 residents through a system of six deep wells; each drilled 700-900 feet to draw water from the basalt aquifer that lies beneath the Walla Walla Valley. The city draws exclusively from groundwater sources, dosing sodium hypochlorite for disinfection at each well house to maintain free chlorine residuals of ***0.20 to 0.40 mg/L*** throughout the distribution network – protecting water quality all the way to consumers' taps.

3017M analyzer installed in well house #4

The wells feed a 500,000-gallon water tower, which distributes water through approximately 46 miles of pipeline across the city and into the surrounding Walla Walla County areas. Accurate chlorine measurements are critical for ensuring that chlorine residuals stay within regulatory limits. Chlorine analyzers are installed at four well houses and at the city shop, located beneath the water tower, for continuous verification of free chlorine levels.

Challenge: Inconsistent chlorine data and high maintenance costs

Before adopting the 3017M chlorine analyzers, College Place relied on older chlorine units that often produced low readings, required frequent calibration, and demanded expensive firmware updates. These limitations complicated residual verification and created uncertainty for operators.

The utility sought a ***low-maintenance, accurate***, and ***user-friendly*** solution to ensure consistent chlorine monitoring across multiple remote sites.

Solution: YSI 3017M analyzer delivers reliable, *simple chlorine monitoring*

In 2023, College Place conducted a trial of the 3017M free chlorine analyzer at one well site. Operators were impressed by the analyzers' simple operation and straightforward maintenance.

> "It's a very user-friendly menu – anyone with a little bit of an idea can go in, reset calibration, or run through a prime cycle. It's just a couple clicks of a button."

Dalton Broxson, Water Quality Cross Connection Specialist for College Place Public Works

Following the successful trial, the city purchased three analyzers to replace legacy units and later added two more to their network. Currently, five 3017M analyzers – one at the central shop beneath the water tower and four at remote well houses – continuously verify chlorine residual levels across the system.

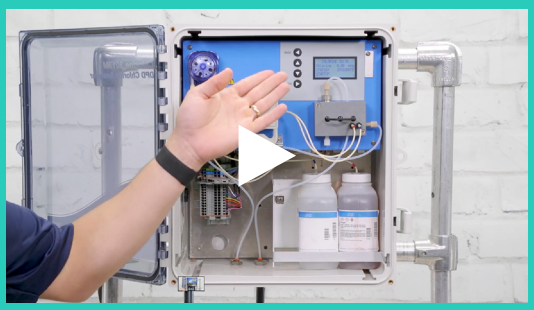
Each analyzer is installed indoors, drawing sample from the well's discharge line. A pressure regulator maintains a steady pressure of 40 psi to the analyzer's sample inlet device. An onboard sample pump pulls sample from the sample inlet device, ensuring a stable reading every 160 seconds.

All analyzers transmit real-time chlorine data to the city's SCADA system at the shop beneath the water tower via 4-20 mA outputs, allowing operators to monitor residuals across all well houses from one central location. This integration enables proactive chemical dosing adjustments and system-wide oversight.

3017M analyzer enclosure

3017M analyzer internal components

Click or scan to learn more and watch how easy the 3017M is to operate and maintain



3017M overview

SCADA overview of College Place's groundwater wells

Easy operation and low maintenance for reliable chlorine control

Operators perform daily visual checks at each well site and verify analyzer readings using handheld chlorine colorimeters. Comparison readings between the 3017M analyzers and handheld instruments typically agree within 0.02 to 0.04 mg/L, confirming excellent accuracy.

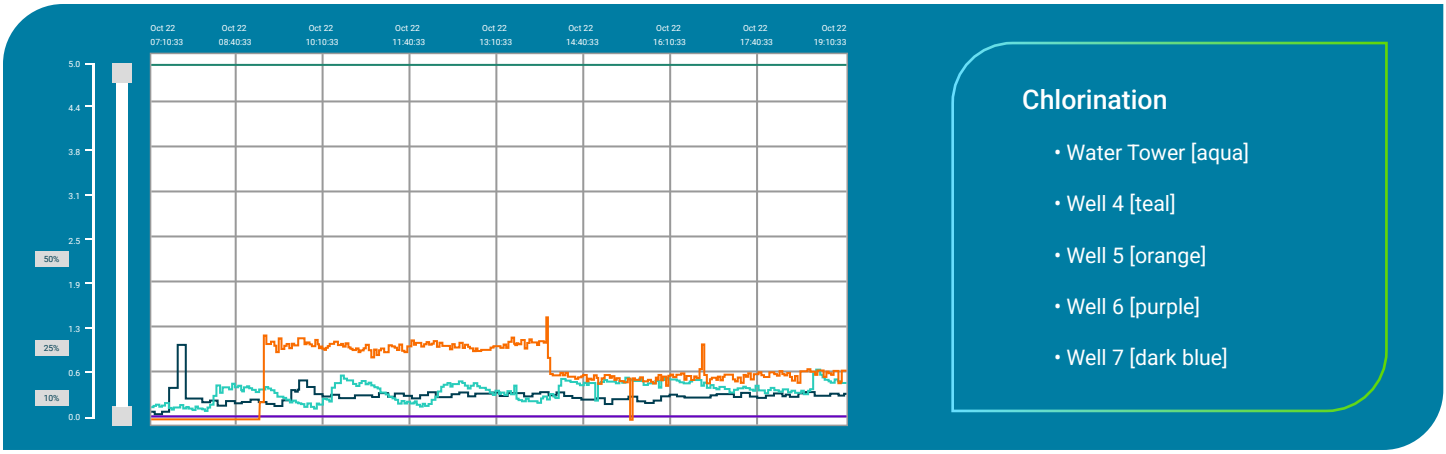
Routine maintenance is minimal and ensures reliable analyzer operation:

- ***Reagents*** are replaced monthly.
- ***Analyzer*** cleaning occurs approximately every three months using a mild chlorine solution.
- ***Tubing*** is replaced quarterly or when visibly discolored.

Operators appreciate the analyzer's intuitive interface and ability to reset calibration when needed, minimizing downtime and eliminating the need for external service calls.

> "We haven't had any problems with losing prime or leaking. If we ever get a bad reading, that's a good sign – it just needs cleaning. It's easy to take apart and clean up."

Dalton Broxson, Water Quality Cross Connection Specialist for College Place Public Works



Daily chlorine levels as tracked by 3017M analyzers in wells and the water tower

Continuous monitoring from five 3017M analyzers shows stable free chlorine residuals between 0.2 and 0.6 mg/L at the water tower, confirming reliable disinfection and analyzer performance. Well 5 represents the primary chlorination injection point, measuring a consistent post-feed concentration near 5 mg/L.

Results: Improved chlorine residual control and regulatory confidence

Since deploying the 3017M analyzers, College Place has seen marked improvements in data reliability, maintenance efficiency, and confidence in chlorine residual reporting.

Compared to the older systems, the 3017M analyzers require no firmware updates or specialized servicing, offer fast and simple calibration with the ability to reset calibration as needed, provide stable, drift-free measurements, and deliver seamless integration with SCADA for real-time monitoring.

Continuous chlorine data from all five analyzers provides operators with a comprehensive view of residual levels across the network, enabling quick adjustments to chemical dose rates and ensuring that chlorine residuals consistently remain within the 0.20 to 0.40 mg/L target range.

The analyzers also serve as reporting instruments for the Department of Health's daily residual reporting requirements, strengthening regulatory confidence in the city's monitoring practices.

Outcome: Reliable monitoring safeguards the community's drinking water

By implementing 3017M chlorine analyzers across its groundwater wells and central water tower, the City of College Place has achieved a robust, low-maintenance solution for continuous chlorine monitoring.

The analyzer's intuitive interface, reliable operation, and seamless SCADA integration enable operators to maintain safe and compliant chlorine levels throughout the distribution system, ensuring high-quality drinking water for the growing community in southeastern Washington.

Sources:

1. Interview - Dalton Broxson, *Water Quality Cross Connection Specialist* - College Place Public Works

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