

## BACTERIOLOGICAL WATER TESTING INFORMATION



**COLIFORMS:** Coliforms are bacteria that originate in the stomach, intestines, and waste of animals and humans. Coliforms are also found in plants and in the soil. Since there are numerous disease-causing organisms in contaminated water, it is not feasible to test all of them. However, water laboratories certified in microbiological analysis of water can accurately and cost-effectively identify the presence of disease-causing organisms in a water sample by testing for Coliform bacteria, the “INDICATOR” organism. Testing for Coliform bacteria in a water sample can be a relative indication of whether or not other disease-causing organisms exist in the sampled water source.

**WATER TESTS:** The *Enzyme Substrate Coliform Test* is the simplest, most reliable method to test water for bacterial contamination. As mentioned, Total Coliforms are bacteria found in the soil and in water contaminated with animal or human waste. *Escherichia coli* (*E. coli*) is a subgroup of the Fecal Coliform group of bacteria but cannot be found living and growing in the general environment. Thus, *E. coli* is recognized as a form of Coliform bacteria that is the best “INDICATOR” of fecal waste contamination and the possible presence of other disease-causing organisms in drinking water.

There are two different types of *Enzyme Substrate Coliform Tests* performed at Erwin Utilities Authority’s Certified Microbiological Water Laboratory, the Presence/Absence (P/A) and Most Probable Number (MPN). Both types of test are used to determine if Total Coliform or *E. coli* bacteria are present in a water sample, but the test costs, uses, and bacterial count vary between tests (see details below).

- **Presence/Absence (P/A) Test: Cost \$35.00**  
This test is used for potable drinking water samples and provides no bacterial count, only a positive or negative result.
- **Most Probable Number (MPN) Test: Cost \$40.00**  
This test is used for non-potable water samples, i.e., wells under the influence of surface water, springs, rivers, lakes, creeks, recreational beaches, irrigation tanks, treated wastewater, or any types of raw (untreated) water sources. This test provides a bacterial count (numerical value) per 100-mL of sample.

Erwin Utilities Authority (EUA) water customers (users of city water) can request to have their water tested free of charge. For these customers, water samples will be collected by a licensed, certified operator of EUA. Private well or spring water source customers can request to have their water tested for a fee. Water customers receiving water from **another utility** must contact their utility to have their water tested. Water sample collection containers CANNOT be mailed to clients and can only be obtained in-person from an Erwin Utilities Authority Water Laboratory Analyst.

**LABORATORY HOURS:** Monday to Thursdays – 7:00 AM to 4:00 PM & Fridays – Closed

**PAYMENT FOR WATER TESTING:** A **credit card/debit card** payment for a water test **must be received at time of service**. Billed invoices, cash, and check payments will NOT be accepted.

**AVAILABILITY OF TEST RESULTS:** Water test results are available 24 hours after analysis by telephone, email, mail, or in-person. The availability of the water test results may change due to holidays or analytical delays. If this is the case, then the client will be informed of the changes prior to the sample analysis. Clients requesting **paper copies** or **mailed** test results will be assessed a **\$5.00 administrative fee per sample** at the time of receipt. If the water laboratory receives a water sample after normal laboratory hours, then the client will be assessed a **\$50.00 after hours fee per sample** at the time of receipt. Water sampling instructions and a *Bacteriological Test Report & Chain-of-Custody* form are included with each water sample container requested.

### ADDITIONAL LABORATORY INFORMATION:

- Erwin Utilities Authority (EUA) and its analysts are NOT liable for the verification of the client’s sample collection method, source, location, mode of transportation, or handling of the sample(s).
- EUA and its analysts are only responsible for the analyses performed on the water sample(s) received from the client and for the final test results of those sample(s).
- EUAs analysts reserve the right to refuse a client’s water sample(s) that has been improperly collected, preserved, suspected to have been fraudulently altered, or collected in an expired or an unauthorized sample vessel (container).
- EUAs analysts will also reject water samples that do **NOT** strictly adhere to the sample preservation, collection, storage, and chain-of-custody requirements for bacteriological analyses. EUA shall maintain documentation of such rejections.
- Repeated water sample rejections will result in the termination of the client’s analysis privileges at EUA and/or a monetary charge of \$35.00 assessed for each sample vessel (container) wasted due to the rejection.
- For quality assurance/quality control purposes, all sample vessels (containers) must have a label with the EUA Water Laboratory header on them and must be accompanied with a completed Chain-of-Custody to be considered valid for analysis.
- All water samples must be collected by the client or a third party following the appropriate Chain-of-Custody requirements. EUA analysts do **NOT** provide water sample collection services unless authorized by the Tennessee Department of Environment & Conservation (TDEC) Division of Water Resources or the United States Environmental Protection Agency (US EPA).

Disclaimer: Erwin Utilities Authority (EUA) and its laboratory analysts are NOT liable for the client’s comprehension of the information on this form. The information listed on this form is intended only to serve as guidance on the analytical water testing services provided by EUA. Approved 4/1/2025

## WATER SAMPLE COLLECTION PROCEDURE, PRESERVATION, STORAGE, AND REJECTION CRITERIA



### SAMPLE CONTAINER:

The water sample container is **STERILE** and must be kept dry and clean prior to collection to help minimize cross contamination and possible testing interference. All water samples must be collected from the **cold-water** faucet.

### READ THE FOLLOWING STEPS PRIOR TO COLLECTION:

1. Remove the screen and aerator from the faucet head.  
*(Water taps used for water sample collection should be free of aerators, strainers, and hose attachments).*
2. Run the cold water for 2-3 minutes at full flow to effectively shear the water lines of any stagnant water.
3. After running the cold water for 2-3 minutes, turn **OFF** the cold water.
4. Using a lighter, flame the faucet head and its threads for approximately 10 seconds to help destroy any bacteria that may interfere with the test results.  
*(Do **NOT** touch the faucet head after flaming it.)*
5. Turn **ON** the cold water at a steady flow to help minimize splashing during the water sample collection.
6. Let the water run for 2-3 minutes.
7. After running the water for 2-3 minutes, tear off the tamper-evident label on the water sample container. Do **NOT** rinse the sample container prior to collecting the water sample.  
*(The white powder in the sample container is required for analysis.)*
8. Unscrew the sample lid. Do **NOT** touch the inside of the sample container or the threads of the lid.
9. Fill the sample container with water to the 100-mL line.
10. Screw the lid securely onto the container to avoid spillage of the water sample during transport to the laboratory.
11. Complete the label on the sample container and the *Water Sample Collection Report & Chain of Custody Bacteriological Sampling Form* and bring this form to the Water Laboratory with your sample.

### SAMPLE PRESERVATION & STORAGE REQUIREMENTS:

If the laboratory receipt time for the sample(s) is greater than one hour from the sample(s) collection time, then the sample(s) must include a Trip Blank and be kept in the dark, cool, and unfrozen at less than 10°C with ice or blue ice during transit to the laboratory. The sample(s) must **NOT** be placed in direct contact with frozen ice packs and should be insulated with bubble wrap, crumpled paper, or equivalent. **Sample(s) NOT meeting this preservation and storage requirement will be rejected and must be resampled.**

A Trip Blank will be provided to the client at the time a sample vessel (container) is obtained. The laboratory analysts will use the Trip Blank to verify the storage temperature of the sample(s).

### REJECTION CRITERIA:

A water sample will be rejected for analysis if any of the following criteria are met:

- The sample vessel was observed to be either overfilled, underfilled, or leaking at the time of sample receipt.
- The potable water sample collected for compliance purposes did not meet the 30 hour hold time.
- The non-potable water sample collected for compliance purposes did not meet the  $\leq 8$  hour hold time.
- The water sample collected for non-compliance purposes did not meet the  $\leq 24$  hour hold time.
- The water sample was observed to have a strong chlorine odor at the time of receipt.
- The water sample was frozen at the time of receipt.
- The water sample was **NOT** processed within 2 hours of laboratory receipt.
- The water sample was **NOT** stored with proper insulation at the time of receipt.
- The water sample was **NOT** held at less than 10°C during transit to the laboratory after 1 hour of collection.
- The laboratory analyst observed a purple-blue color change when the culture media was added to the water sample which indicates a chlorine concentration of greater than 15mg/L.
- **The laboratory analyst identified a problem with the sample other than those listed above.**

*Disclaimer: Erwin Utilities Authority (EUA) and its laboratory analysts are NOT liable for the client's comprehension and accurate adherence to the information and steps listed on this form. The information listed on this form is intended only to serve as guidance on the sample collection, preservation, and storage requirements, and as a reference on the rejection criteria enforced by EUA and its analysts. Approved 4/1/2025*