

# Engineers Without Borders-Tulane University Works with CBT Kit in Ecuador to Assess Ongoing Struggle for Safe Water



ENGINEERS WITHOUT BORDERS-USA  
TULANE UNIVERSITY  
STUDENT CHAPTER

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Using the CBT Kit in Laquigo

## About the CBT Kit



The Aquagenx Compartment Bag Test (CBT) is a portable, simple water quality test kit that detects and quantifies *E. coli* bacteria in a 100 mL sample without needing labs, electricity or expensive equipment to determine the health risk of water.

## Challenge

Engineers Without Borders-Tulane University (EWB Tulane) is working with the community of Laquigo, Ecuador to construct a reliable, independent water system to provide residents with clean water. Laquigo's water supply can no longer serve its growing population of 2,400 people. Over 100 residences do not have access to the water distribution system, which causes hundreds of people to use water from ditches for all their needs. EWB Tulane has to conduct many water quality tests at different points in numerous locations. They need to test samples on-site as quickly as possible without labs and electricity.

## Solution

In October 2016, EWB Tulane used the Aquagenx Compartment Bag Test (CBT) to test water for *E. coli* bacteria at various sites throughout Laquigo, including tap water from several sinks, water from irrigation canals and water directly from spring-like sources higher in the mountains. As supplements to the CBT Kit, they used a homemade system of hand warmers, a cooler and a digital thermometer to monitor and regulate the temperature of the CBT samples to maintain them between 25°C and 44.5°C. An advantage of the CBT Kit is it works at variable temperatures and does not require constant temperature control in an incubator.

## Test Results

The tap water tested negative for *E. coli*, whereas the irrigation canals tested positive. MPN levels of the 100 mL samples from the irrigation canals was over 100/100 mL. Water tested directly from the spring-like sources was split between positive and negative test results, with MPN levels between 2.6 and 100 per 100 mL sample.

## Conclusion

Max Woody, Vice President of EWB Tulane says, "With the CBT Kit, we're able to get quantified test results on-site in Ecuador, rather than bringing water samples back with us. This really simplifies our travel."

"The CBT's quantitative, color-change test results also allow us to inform the people of Laquigo quickly and in-person about their water quality in various locations," says Woody. "We will absolutely continue using the Aquagenx CBT because it's easy to use and affordable."