

A Strong Foundation

By Tom Spoden

Onsite labs cover range of testing & certification needs

A company is only as good as the foundation it is built upon. In the Water Quality Assn.'s (WQA) case, the foundation of the organization is quite literally its laboratories. The Performance Lab, constructed in the basement of WQA's Lisle, Ill., headquarters, conducts the first half of the testing of a unit seeking WQA certification. The Analytical Lab, also at the Lisle location, allows WQA to test samples on site in real time, providing the capability to see how a unit performs as it is running. Both of these labs together allow WQA to offer a unique environment in which it can test and certify products.

Performance Lab

The Performance Lab is the first stage of product testing. In this lab, there are a number of ways a unit can be tested, based on the claims the manufacturer wants to make and which type of unit it is. The scope of testing that the WQA lab is capable of performing is quite large, but the main categories are extraction testing, performance testing and structural testing.

In extraction testing, the unit is exposed to ultrapure water and left to sit for a period of time ranging from a few days to a few weeks, depending on the type of unit. The water is then tested for any contaminants to determine if the unit is leaching something harmful into the water. Extraction testing can be a long and arduous process, because it sometimes turns up results that were completely unexpected for the manufacturer, but it is a necessary step.

During performance testing, the unit is tested against the manufacturer's claims. This means the lab ensures that if the unit is supposed to remove a harmful contaminant such as lead, that it actually does so sufficiently. This testing is done by spiking large tanks of water with different contaminants, then running that water through the unit and testing the produced water. The unit must meet or beat the minimum requirements in order to be certified.

The last stage of testing is structural testing. It is performed on units such as under-sink filters, which will have pressure put on them while they are in use. The testing is done in a number of ways. The first is cycle testing, in which the pressure is raised and lowered thousands of times to ensure that the unit will not leak over its lifetime. The second is hydrostatic testing, in which the pressure is raised and maintained to see if the unit can withstand constant pressure. The third is burst testing, in which the pressure is continually raised until the unit starts leaking, or, in the worst case scenario, explodes. This is done to find out how much pressure the unit can withstand.

Analytical Lab

After all of the performance testing is completed, the second stage of testing begins. This is when the Analytical Lab takes over. Samples are sent to this lab to be run on various instruments to determine if the unit is performing properly. These instruments, including the gas chromatograph-mass spectrometer

and inductively coupled plasma mass spectrometer are able to test for a majority of the analytes manufacturers are seeking. They have incredibly low sensitivities and must be well maintained. The Analytical Lab is kept separate from the Performance Lab to ensure that any contaminants in the air do not get into the Analytical Lab or its instruments.

While the Analytical Lab has a majority of the instruments needed to perform testing, there are some pieces of equipment that only specialized labs have. WQA has partnered with labs around the world to ensure that the scope it is able to test for is constantly being increased. As an ISO 17025-certified lab, WQA ensures that these contract labs conform to all quality control procedures necessary to produce quality data. An example of a test requiring a high level of specialty that only a few labs in the country can achieve is radiological analysis, the test for radioactive isotopes.

The WQA labs not only do testing for certification, but also for research and development for manufacturers. They have many unique testing setups, plus an experienced team of lab analysts and former lab analysts that now work in the higher levels of the association. The labs can pull from this vast knowledge to help manufacturers that want to see how their products are performing, but not go through certification at the time. The labs also are able to make custom test bench setups if manufacturers have new products they want to test. The Analytical Lab also accepts samples to help in the diagnosis of water characteristics.

The WQA labs and staff have the ability and the knowledge to test products to ensure that the health of the consumer is maintained. Ultimately, we are all in this business to help make clean, quality water for our communities. *wqp*

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These 500-gal tanks in the Performance Lab are used to run filter testing.



The gas chromatograph-mass spectrometer runs volatiles analyses.