

# Steps taken to make docks safer

By Nancy Zoellner-Hogland

Dock inspectors now have another tool in their bags to help them protect the public.

Ameren Missouri has given circuit test analyzers free of charge to all authorities that conduct dock inspections.

According to the manufacturer, the circuit analyzers identify wiring problems that can lead to personal shock hazards, electrical fires or equipment performance issues. The test tool can be used to check for various wiring conditions including correct wiring, polarity reversal and no ground per UL-1436. It also tests arc fault circuit interrupter (AFCI) devices to ensure that AFCI breakers protecting the circuit have been installed correctly.

Robert Davis, head of the Village of Four Seasons building inspection department, said they will be using the meter on every future dock inspection.

"You can get a new dock or you can get your dock completely rewired but the one thing we can't inspect is the

side lighting, for instance, and they break that ground wire and use it for something else besides the grounding circuit.

Until now, we haven't really had a way to analyze that. This new meter facilitates that need because it checks the continuity of the entire grounding system. We can hook it up and tell immediately if there's a proper grounding system. It's a great instrument," Davis said.

He explained that a 120-volt circuit, which is standard in most houses, uses three wires – "a black wire, which is 'hot,' a white, which we call the 'common,' and a green wire, which is the ground. All you really need for anything to operate are two of the wires – the black and the white. A lot of homes are wired with those two wires, but when you have that kind of circuitry, you have no safety mechanism to trip the breaker or disconnect the circuitry through the grounding system. Before the GFCl breakers, the ground wire was our safety mechanism as far as docks went."

However, Davis said that

dock as he climbed out of the water.

According to a report made at the scene by the Missouri State Highway Patrol, Marcus Colburn and fellow swimmer Taylor Curley, both of Illinois, were swimming at a dock in Woods Hollow Cove, at the 22.2 Mile Marker when they felt electricity in the water. When Colburn tried to get out of the water by using the dock ladder, he was shocked and fell into the water face-down. The report stated someone ran to the shore and shut off the power to the dock, likely saving Curley from being electrocuted as well.

Davis said Ameren engineers met with him and the Village's other building inspectors, Sam Schulte, Robert Adams and Jeff McClury, in mid-April to demonstrate and teach them how to use the circuit test analyzer. Davis said they're now scheduling appointments to check docks with the meter for a fee of \$50. Call 573-365-3833 to schedule a test.

According to the website [electricshockdrowning.org](http://electricshockdrowning.org), electric shock drowning (ESD) is the result of the passage of a typically low level AC current through the body with sufficient force to cause skeletal muscular paralysis, rendering the victim unable to help himself or herself while immersed in fresh water, eventually resulting in drowning of the victim. As little as 10mA of alternating current leaking from shore power into fresh water, can cause the paralysis of the diaphragm and the swimmer stops breathing. 60mA of current leakage can cause heart failure. Higher levels of AC current in the water will also result in electrocution.

Although ESD can occur virtually in any location where electricity is provided near water, the majority of ESD deaths have occurred near public and private marinas and docks. The typical victim of ESD is a child swimming in or around a marina or dock where electricity is present. The electric-



Ameren Missouri recently trained building inspectors with the Village of Four Seasons on the use of a new tool that will aid in detecting faulty wiring on docks. Photo provided.