



# “Eureka!”

## We’ve Got Leaks and Know How to Solve Them



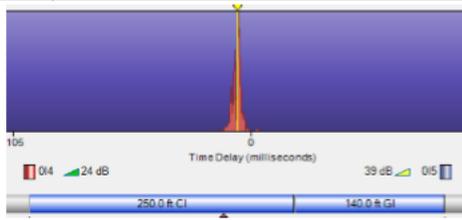
### The Technology.

**Phocus3** is an acoustic noise logger that automatically detects and localizes leaks on any water distribution network. The loggers are deployed underground on existing assets and utilize low power radio and/or infrared communications without the need for costly above ground technology.



The loggers listen for any potential leakage. The data is retrieved and viewed daily, which can be easily downloaded to any PC for further analysis if required.

**Enigma** is a non-real time correlating system that combines noise logging and correlation into one system.



It is the preferred technology for assisting with the pinpointing process of leak confirmation on complex, noisy, and busy areas within the water system.

**Mikron3** is a wireless ground microphone and listening stick kit designed for leak surveying, pinpointing and confirmation.



All 3 pieces of equipment listed above were vital in the successful leak investigation of the Eureka Springs Water System.

### The Situation.

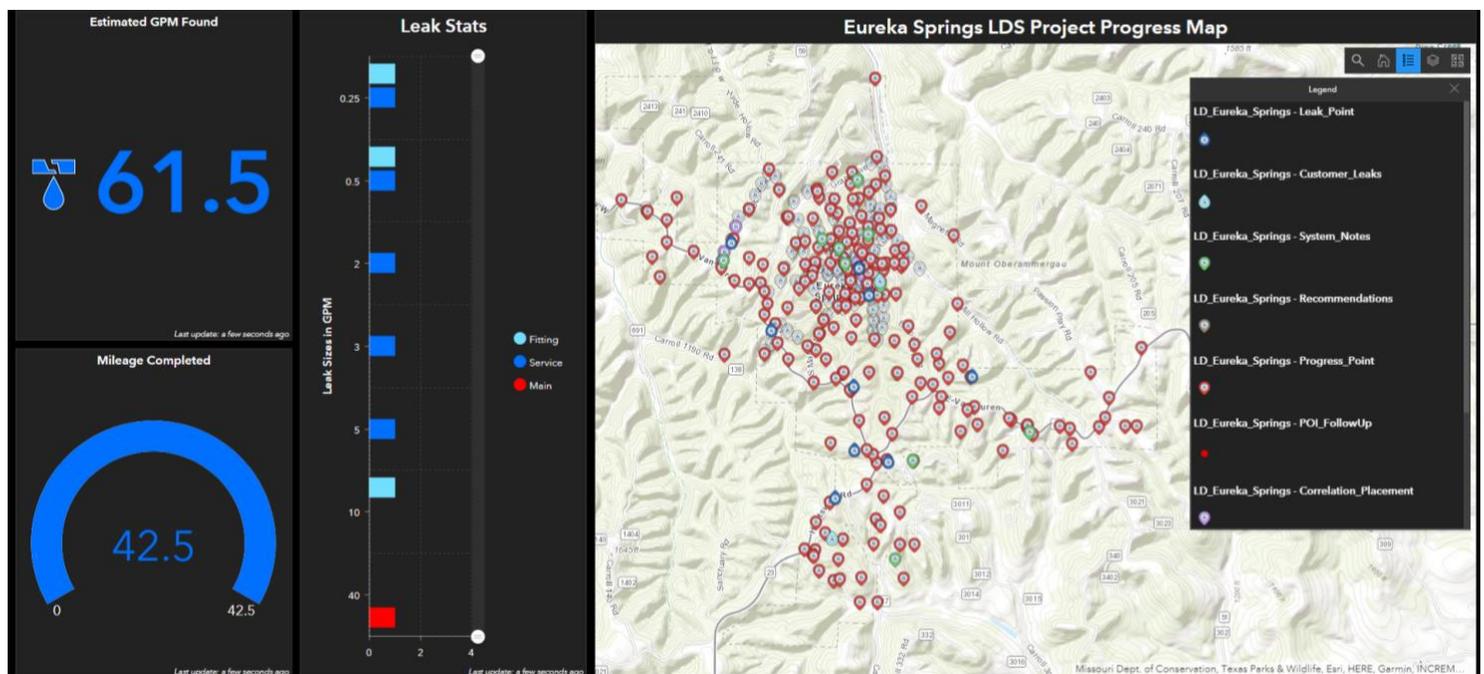
Eureka Springs is a city that, according to the 2010 census, has a population of 2,073. But, on an average day, it is a city that also can have 10,000 - 20,000 or more people “in residence.” It is a community incorporated in 1880 that has always had the tourist industry as its economic backbone. Their success depends upon the ability to create and sustain a mystique, a sense that Eureka Springs is unlike any other place around. Their vitality and future are dependent upon the ability to maintain the infrastructure of the City, its very foundation. For them to remain a marketable destination, the infrastructure must be healthy enough to handle the demands of 20,000 or more people. Eureka Spring’s Water Distribution System began in 1894 with the construction of an 80,000-gallon standpipe and the installation of approximately two miles of six-inch cast iron pipe, fed by two coal-fired steam pumps. The standpipe and the majority of the cast iron water main are still in service today.

The City of Eureka Springs started an internal leak detection program but was still losing over 40% of the water it purchased from the Carroll Boone Water District. While the Public Works Staff had found and repaired several leaks, it was apparent that they required more time and man hours than available to pinpoint and achieve a manageable water loss percentile. So, the City of Eureka Springs requested qualifications from professional firms to be evaluated during a Qualification Based Selection (QBS) process. Matchpoint Water Asset Management (MWAM) was selected as the preferred vendor to conduct the investigation and

assist as the preferred vendor to conduct the investigation and assist the City of Eureka Springs with lowering their water loss percentage.

### The Action.

After coordination with the client for preferred scheduling and preparation, MWAM mobilized their three-technician leak detection team to the City of Eureka Springs and held a project kick off meeting with the client. The meeting helped to further inform the MWAM project field team of the system's current condition and to develop the plan of action for how to attack the leakage issues from a field investigation perspective. MWAM then hit the ground with an initial investigation of the system using acoustic sounding and visible observations to identify any indication of leak evidence. The initial survey included the deployment of 121 acoustic Phocus3 noise loggers, as well as the sounding of 1,160 fittings with the Mikron3 listening stick. As an added benefit during the initial surveying portion of the investigation, two customer leaks and ten system notes were identified, including two possible theft situations. Once the initial survey of the system was underway, correlation leak confirmation along with ground probing and microphone techniques were used to pinpoint the exact areas where leakage was occurring. These areas were marked for client follow up so that appropriate repairs could be made. A total of seven different correlations were conducted throughout the system to assist with the confirmation of leakage on nine separate leak locations. The largest leak located during the investigation was roughly 40 GPM! The initial survey and confirmation process of the leak investigation spanned over nine working days, utilizing 198-man hours, and covered a total of 47.5 miles of water distribution system.



The Esri dashboard featured here was available to the customer throughout the project and depicts the completed statistics and progress map. This is a great tool for quick vision into the project current status and findings.

## The Results.

The combined nine leaks were estimated to be producing a water loss of 61.5 gallons per minute. This equates to approximately 1.45 gallons of loss per mile of water system and a total of 32,324,400 gallons lost per year! The monetary equivalent of the water savings would be approximately \$48,486 per year, which pays for the investment of the leak detection investigation more than twice over!

Dwayne Allen, the Public Works Director, recently reported, "Since the leaks were identified and repaired, the City of Eureka Springs purchased 15,000,000 gallons less than obtained during the same three month period in the previous year. When placed in context dropping from 20,000,000 to 15,000,000 per month becomes significant to us." This was a rewarding project for all involved and another happy customer is reaping the benefits of Matchpoint Water Asset Management's Leak Detection Services. MWAM will continue our efforts to assist the great City of Eureka Springs as they move forward with their continued efforts to reduce and manage their distribution system's non-revenue water loss.

**Thank you to the City of Eureka Springs for, first, choosing Matchpoint, and second, for providing the information and insight necessary to complete this case study.**

## WHY MATCHPOINT?

Our team scoured the planet assembling the finest minds and technologies into our water loss recovery and control business. What transpired was an umbrella of SMART water solutions that empower the stewardship efforts of utilities, municipalities & commercial enterprises throughout North America and the Caribbean.

**Challenge Us.**



Matchpoint Water Asset Management, Inc.  
2919 Orville Wright Way, Suite 100  
Wilmington, NC 28405

Info@matchpointinc.us

www.matchpointinc.us