

**FERGUSON LEAK DETECTION
SOLUTION PREVENTS 18.4
MILLION GALLONS OF NON-
REVENUE WATER LOSS**



PROJECT OVERVIEW

PROJECT/CUSTOMER:
Lehigh County Authority

LOCATION:
Allentown, PA

PRODUCT / SOLUTIONS:
AQS Acoustic Leak Detection
Technology

CHALLENGE:

Lehigh County Authority (LCA) provides 55,000 customers with reliable, clean, and consistent water. With 24.5 million gallons traveling through 662 miles of pipe, they aimed to prioritize active leak detection to reduce the current 21% water loss.

SOLUTION:

LCA chose to partner with Ferguson Waterworks due to our long-standing record of proven support, expertise, and excellence. They trusted our recommendation to pilot the AQS acoustic leak detection technology - ultimately discovering a leak that could have cost LCA millions of gallons of non-revenue water.

OUR ADVANTAGES:

- Ferguson Waterworks is a dedicated project partner offering local expertise, dedicated customer support, and a vast, ready-to-ship inventory.
- Industry-leading Intelligent Utility Solutions that optimize operations and reduce non-revenue water.
- Reliable response, even during emergency situations.
- End-to-end solutions across the water cycle from one trusted source, from Pipes to Platforms.

PROJECT BACKGROUND:

Lehigh County Authority (LCA) provides water service to 55,000 customers, with reliability as a core priority. Their mission is to ensure a consistent, clean water supply that meets current and future community needs while maintaining high service standards.

LCA delivers an average of 24.5 million gallons of water per day through 662 miles of pipe across 14 systems, serving 20 municipalities. To enhance system resilience and meet growing demand, LCA prioritized asset management and capacity-building initiatives. One such initiative was the launch of a proactive leak detection program to recover water lost through non-surfacing leaks.

CHALLENGE:

Initially arming their team with acoustic loggers from a competitive brand, LCA quickly realized their system's complexities required multiple technologies and a knowledgeable project partner. They needed a reliable and robust solution for detecting unreported leaks. This is because unreported leaks may never reach the surface and often go undetected without intervention and technology. In total, they aimed to address the Authority's 21% water loss rate.

WHY DID THE LEHIGH COUNTY AUTHORITY CHOOSE FERGUSON TO HELP IDENTIFY UNDETECTED LEAKS?

Lehigh County Authority needed a project partner. Someone they could trust to help them find the best leak detection solution and reduce non-revenue water. Because of our long-standing relationship, commitment to delivering best-in-class customer service (even during emergencies), and proven record of dependability, LCA chose to work with us. Although LCA was not familiar with the AQS solution, they had a proven track record of success with Ferguson. Therefore, they took assurance that our dedicated subject matter experts along with our team of local associates would provide the expertise, support, and guidance to deliver a successful project. The results speak for themselves.

SOLUTION: WHAT ARE AQS SENSORS?

AQS sensors monitor water distribution networks for leaks on a continuous basis using acoustic technology. This proactive approach detects leaks early, reduces the run time of non-surfacing leaks, and minimizes the probability of catastrophic main breaks.

HOW DID FERGUSON WATERWORKS PREVENT MASSIVE WATER LOSS FOR THE LEHIGH COUNTY WATER AUTHORITY?

After installing AQS leak detection sensors, LCA detected a potentially catastrophic leak. The new system identified a problem on a commercial property located on 1815 S 4th St., Allentown, PA. The property's water line burst before the water meter in an unused and unheated part of the basement. A nearby AQS sensor detected and localized the leak's position. Utility operators responded to the event promptly, thereupon validating its exact location. They repaired the leak within 14 hours. When the pipe was exposed, LCA repair crews approximated that the leak lost 71 gallons per minute. In total, they estimated a 60,000-gallon water loss between detection and repair. Once fixed, they concluded the inside ¾ galvanized line froze during cold temperatures, causing the leak.

FERGUSON'S RECOMMENDATION TO PILOT THE AQS LEAK DETECTION SENSORS PUT A STOP TO AN UNDETECTED PIPELINE LEAK THAT MAY HAVE COST THEM 18.4 MILLION GALLONS OF NON-REVENUE WATER.

LCA personnel confirmed they would not have known about the leak without the AQS system. It remains unclear how long the leak had existed prior to sensor installation—or how much longer it would have gone unnoticed. Utility staff estimated it could have run for at least six months without detection, potentially losing 18.4 million gallons—enough to serve 75% of the Authority's customers for a full day!

During the pilot program, nine leaks were detected—most were non-surfacing service line leaks that would have otherwise gone unnoticed.

HOW IS AQS DIFFERENT FROM OTHER ACOUSTIC LEAK DETECTION SENSORS?

- AQS leak-detection sensors offer above-ground installation with minimal enablement. Other acoustic sensors are installed on valves, which usually require valve locates and clean-outs before deployment.
- Its sensors adapt to various pipe configurations and asset types. In fact, AQS provides above-ground, below-ground, and hydrophone options. Furthermore, they all communicate with each other. As a result, a single system can incorporate a mixture of sensor types.
- Unlike competitors, AQS offers a solution for non-metallic pipe (PVC, transite) and large transmission lines. Their hydrophone technology is proven successful in both applications.
- Because the AQS sensor spacing is larger than most competitor sensors, customers cover larger areas with fewer pieces of equipment. As a result, AQS offers a lower total cost of ownership.
- Focused on customer support and service, AQS incorporates Human-as-a-Service into its subscription fees. As a result, every customer has their own dedicated human to interpret data and regularly interact with. This gives the customer added confidence to investigate leaks and reduces potential false positives.
- Ferguson is more than your intelligent utility solutions distributor, providing local support, custom recommendations, a vast ready-to-ship inventory, and so much more. We are your project partner.

WHY FERGUSON?

Ferguson is more than your local waterworks distributor, we are your trusted project partner across the water cycle. From core material to full technology project implementations, we are your end-to-end solutions provider offering local support, custom recommendations, ready-to-ship inventory and best-in-class service - from Pipes to Platforms.