

Case Study

Permanent Network Monitoring Managing Water Loss

Bluffton, IN

In an effort to manage water loss in Bluffton's distribution system, the leak detection team systematically canvases their water system using the Gutermann Zonescan AI Permanent Loggers. These loggers are deployed valve to valve, searching for any hidden leaks on service lines, main lines, and valves. As part of their proactive leak detection survey, Bluffton's leak detection team discovered an unknown leak.

ZONESCAN AI
Correlating NB-IoT Leak Noise Logger
with Artificial Intelligence



They noticed a very consistent correlation only after having the AI loggers deployed for a few days, which prompted them to investigate further with a ground microphone. Due to the extremely accurate pinpointing ability of the correlation loggers, the leak detection team excavated the location, and a leak on a corporation was discovered. The leak was repaired during normal working hours on January 17th. The following day, Zonescan.net showed the correlation was gone, assuring the utility that the leak repair was a success and no other leaks were present.



Photo of the damaged curb stop body.

"When they dug up the tap on SR 124, we noticed that the curb stop body went bad. With it leaking so bad it ruined the threads in the main and we had to put on a tapping repair clamp."

- Bluffton Water



CORRELATION & LOGGER REPORT

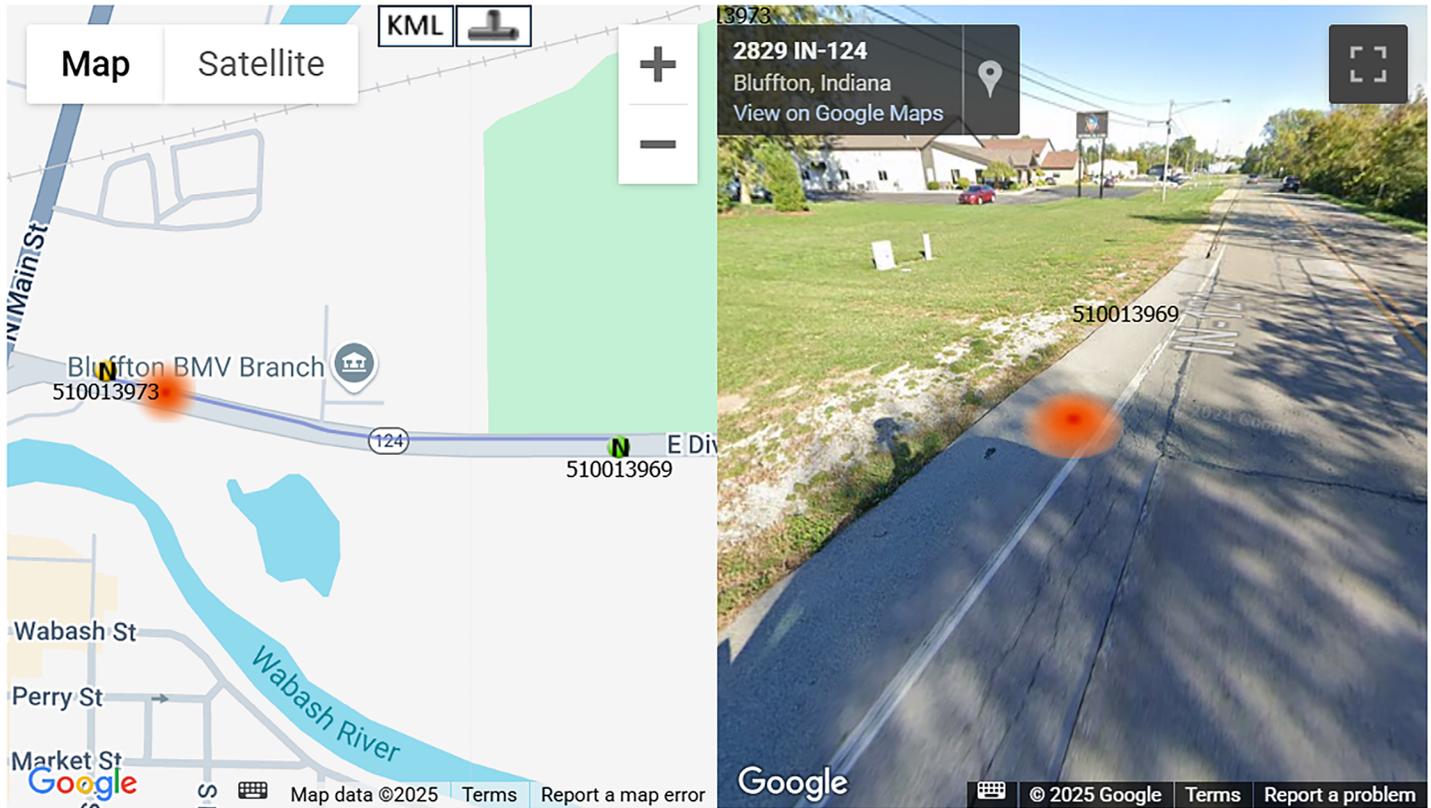
One of the benefits of the Gutermann survey loggers is that you can create a Correlation OR Logger Report at the click of a button, which Bluffton Water did for the pinpointed leak. These Correlation Reports will provide the leak technician with all the necessary information to further investigate and will provide measurements from each logger to a potential leak location. Technicians can “wheel off” the measurement and then carefully listen with an acoustic ground microphone to confirm the pinpointed location on the report.

Below is an example of a leak report generated by the Gutermann Cloud Website.

ZONESCAN NET Correlation Report

Bluffton Jan 17, 2025 (Report created on Jan 17, 2025, 3:26:22 PM)

Correlation: **510013969 - 510013973**



Correlation

Quality	Location	Logger 1	Logger 2	Dist. L1	Dist. L2	Center Dist.	Pipe Len.	Comments
100.0	2745 E Sr 123, 40.742832° -85.169336°	510013969	510013973	1,362.8 ft	222.4 ft	570.2 ft	1,585.2 ft	

The pipe between the loggers had sections of 12" & 16" Diameter Ductile Iron and the total pipe length was 1,585.2ft.

CORRELATIONS TAB:

The GuterMann Cloud compares all data and will automatically display a Correlation “blister” if a potential leak is in between two loggers OR a “single arrow” if the potential leak is outside two loggers. This means that two loggers are hearing a similar leak frequency.

- | Correlations | Logger |
|--------------|--|
| | <input checked="" type="checkbox"/> Probable |
| | <input checked="" type="checkbox"/> Possible |
| | <input checked="" type="checkbox"/> Suppressed |
| | <input checked="" type="checkbox"/> w/o Pipe |
| | <input checked="" type="checkbox"/> Out of Bracket |

It is then the leak technician’s responsibility to further investigate and determine if a leak or no leak is present. This is typically completed with an Acoustic Ground Microphone.

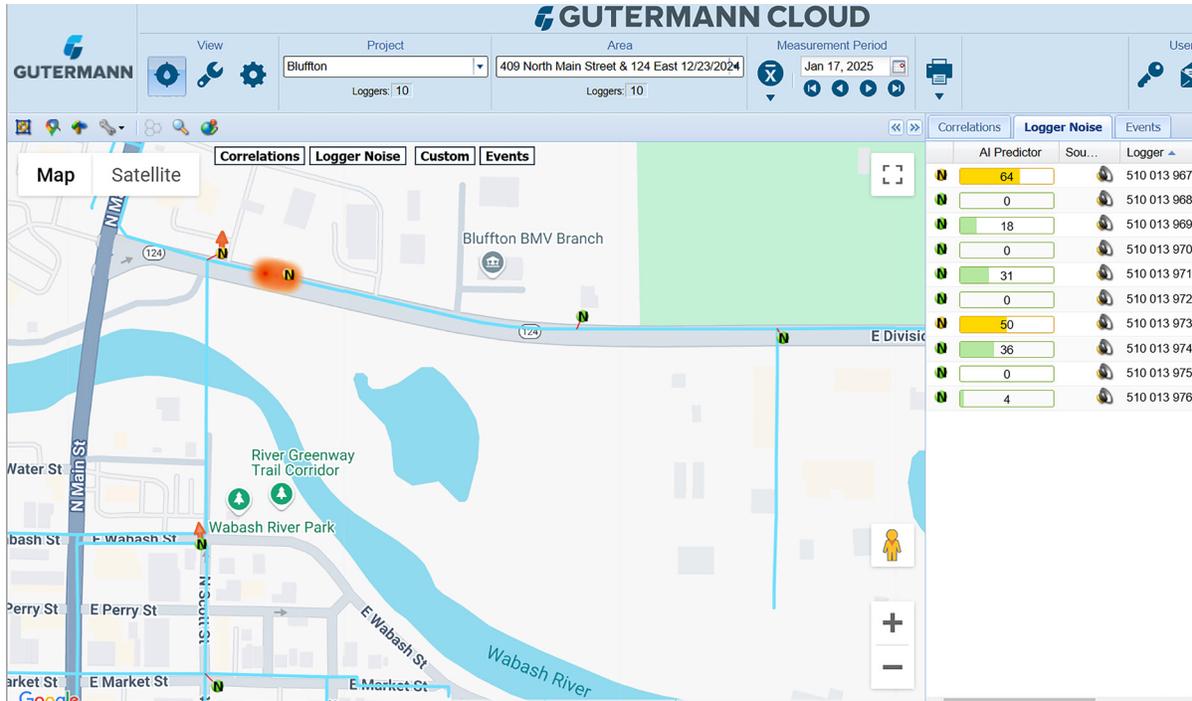
Quality	Logger 1	Logger 2
100%	510 013 969	510 013 973
100%	510 013 973	510 013 974
100%	510 013 967	510 013 973
100%	510 013 967	510 013 974
100%	510 013 967	510 013 969
90%	510 013 971	510 013 973
80%	510 013 969	510 013 974
80%	510 013 971	510 013 974
50%	510 013 967	510 013 971
30%	510 013 973	510 013 976

GUTERMANN

LOGGER NOISE:

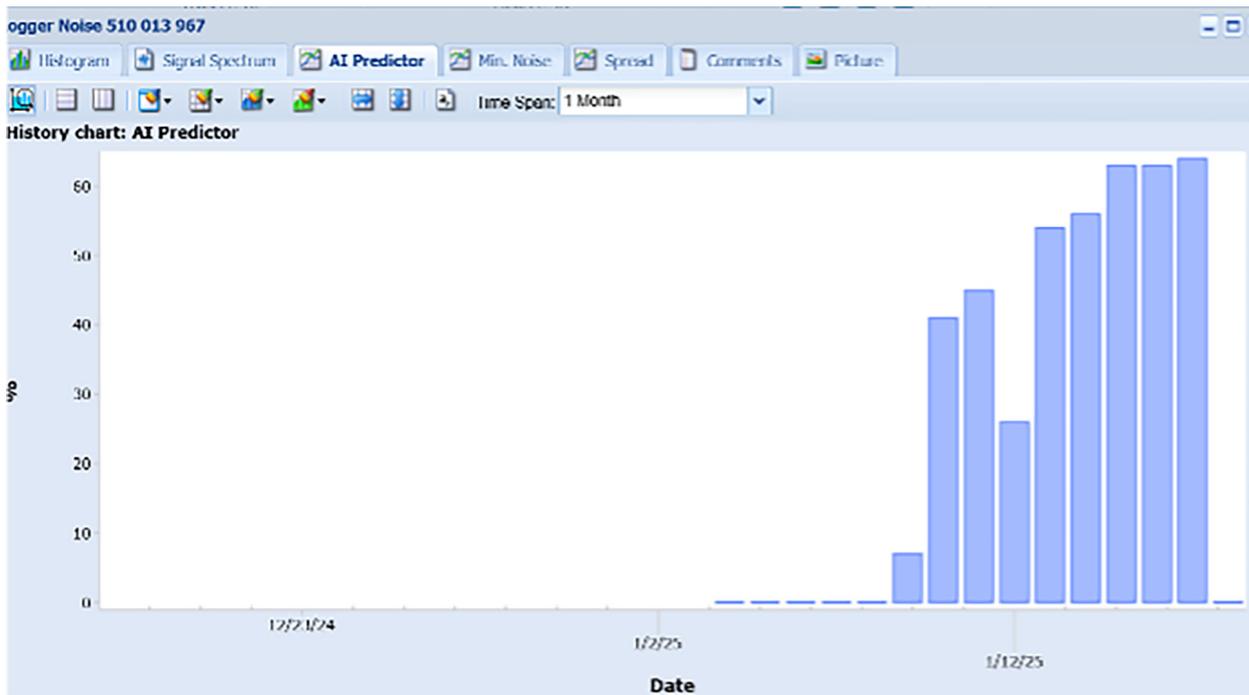


In addition to the Correlation, the Gutermann Cloud will also provide each logger with a “leak score.” The leak score is based on a numbering system of 0-100. 0 being quiet and 100 very loud. The difference in color is preset as follows. Below 40, green / below 80, yellow / 100 and below, red.



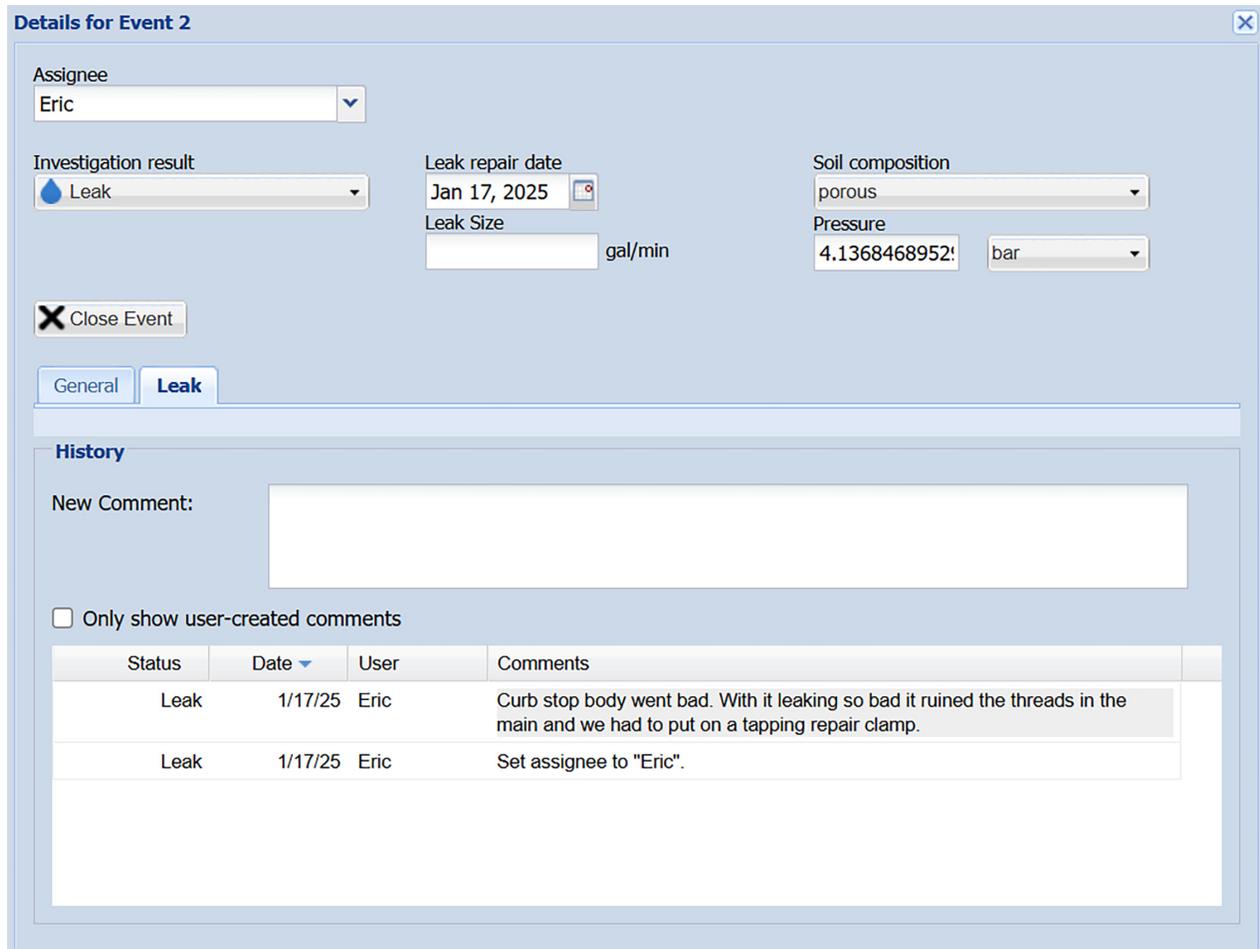
HISTORICAL DATA:

Leak Score History can be viewed over different periods as shown below. Tracking leak run times and trending information.



An EVENT can be created for any correlation and be labeled as “leak” or “no leak”. If a correlation is determined to not be a leak but is reoccurring, then the utility can suppress the correlation (turn it green). Such as a control valve or reoccurring company service draw.

Simply select either “Leak”, “Customer-side leak” or “No leak” from the Investigation drop down menu. Type any description of the investigation into the comments box.



Details for Event 2

Assignee: Eric

Investigation result: Leak

Leak repair date: Jan 17, 2025

Leak Size: gal/min

Soil composition: porous

Pressure: 4.1368468952! bar

Close Event

General **Leak**

History

New Comment:

Only show user-created comments

Status	Date	User	Comments
Leak	1/17/25	Eric	Curb stop body went bad. With it leaking so bad it ruined the threads in the main and we had to put on a tapping repair clamp.
Leak	1/17/25	Eric	Set assignee to "Eric".

TEAM EJP TERRITORY COVERAGE:

Team EJP’s Smart Utility Professionals provide solutions throughout New England, New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Kentucky, West Virginia, and Canada.

FEATURED SOLUTION & BENEFITS

PERMANENT NETWORK MONITORING

ZONESCAN AI

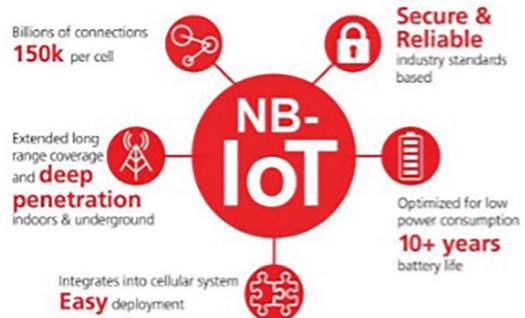
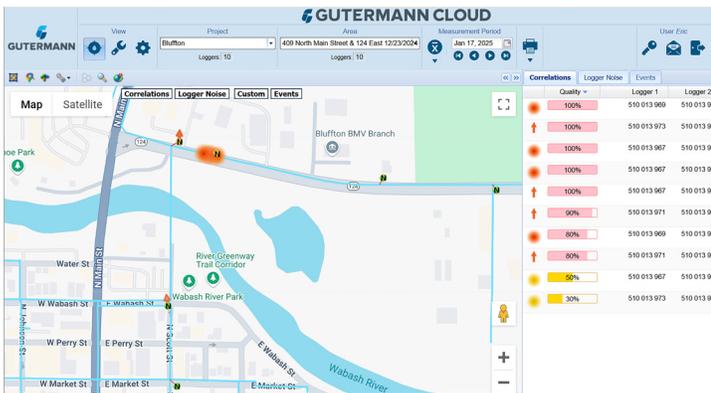
Correlating NB-IoT Leak Noise Logger
with Artificial Intelligence



- ✓ Greater Connectivity / Deeper Coverage
- ✓ Flexible deployment / no repeaters or collectors needed.
- ✓ Built-in low-cost SIM cards.
- ✓ Fully waterproof IP68 with 100% Stainless Steel enclosure
- ✓ Field replaceable batteries
- ✓ 3D motion sensor to detect logger displacement.

- ✓ Humidity and temperature sensors to monitor logger health.
- ✓ High precision leak pinpointing thanks to automatic correlation.
- ✓ Fully automated system with data sent daily to secured cloud-based server (www.zonescan.net) where you can print reports, manage leaks, get alerts via text or email for specific notifications.
- ✓ Ability to import your GIS and piping data in KML format.

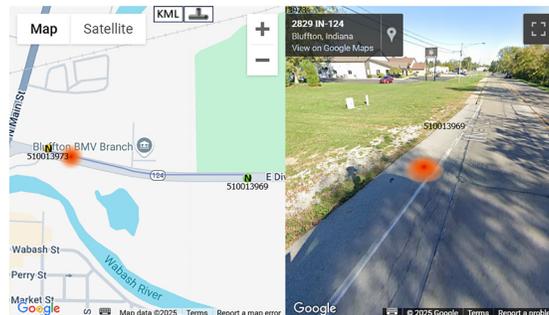
Zonescan.net



ZONESCAN NET Correlation Report

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Correlation Report:
Provides a distance to
the leak from each
logger.