

A Pilot in Northern China: Case Study

Satellite Leak Detection Technology For Water Utilities

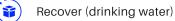
Background

Water loss control is now a high priority for water utilities in China following a new mandate that took effect on January 1, 2022 to reduce non-revenue water (NRW) to 9% across the country by 2025. Therefore, water utilities have taken the initiative to seek and adopt various technologies to improve the efficiency of traditional boots-on-theground leak detection teams.

Key facts

This case study analyzes the results and value proposition of ASTERRA (previously known as Utilis) satellite leak detection technology in a metroplian city in northern China, with 10% unaccounted for real and apparent water losses.





Northern China



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SUMMARY

The pilot was performed between October 7, 2021 and November 17, 2021. It took 40 days to cover a 500 square kilometer district area with a total 8000km pipe network. The utility recognized the benefits of the satellite leak detection service and can demonstrate a very high leak-found rate in comparison to traditional field inspection methods.

TECHNICAL EFFICACY

One satellite survey and the subsequent field inspection program were executed in a 40 day period. The overall results are shown below. These outcomes result in a performance metric of 4.5 previously unreported leaks being found per crew day, almost 5 times more compared to the traditional field inspection methods.

	Unreported Leaks*	Crew Days	Unreported leaks/day
Traditional	237	260	0.91
ASTERRA	180	40	4.5

 $\star Unreported leaks often do not surface but are detectable using traditional acoustic equipment. Source: Tardelli Filho 2004$

RESULT ANALYSIS

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The 180 unreported leaks were non-surfacing leaks. The utility excavated and repaired 30 leaks which were located in main and transmission pipes (17 DN200, 5 DN300, 5 DN400, 2 DN500 and 1 DN600)

The biggest unreported leakage flow rate was 62.5 cubic meters/hour; the smallest unreported leakage flow rate was 0.2 cubic meters/hour.

Identified signs of meter tampering and also found background leaks in unsual or inaccessbile locations such as pipe bridges and underwater pipes

Leaks detected across all asset types (mains, customer, ferrule, valve, hydrant, etc) and across all types of pipe materials (PE, PVC PPR, ABS and metal)