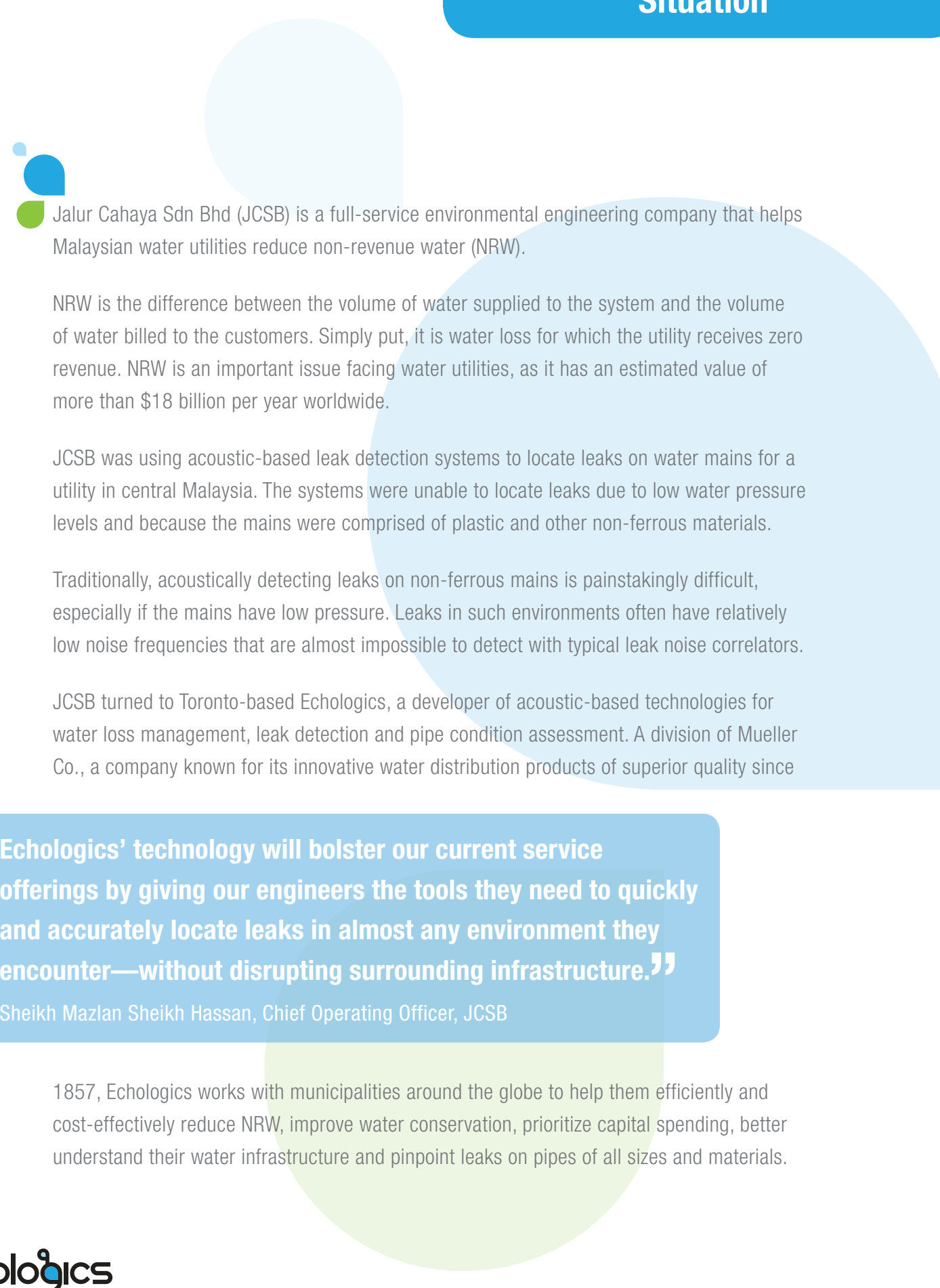




Jalur Cahaya Sdn Bhd Turns to Echologics for Acoustic Leak Detection

CUSTOMER:	Jalur Cahaya Sdn Bhd (JCSB)
SITUATION:	Needed to locate leaks on non-ferrous water transmission and distribution mains.
PIPE MATERIALS:	High-Density Polyethylene (HDPE) Polyvinyl Chloride (PVC) Asbestos Cement (AC)
PIPE DIAMETER:	150mm to 300mm
TECHNOLOGY:	LeakFinderRT™
RESULTS:	Non-invasively located <ul style="list-style-type: none">• Five water main leaks• One illegal connection• One broken meter with customer side leak



Jalur Cahaya Sdn Bhd (JCSB) is a full-service environmental engineering company that helps Malaysian water utilities reduce non-revenue water (NRW).

NRW is the difference between the volume of water supplied to the system and the volume of water billed to the customers. Simply put, it is water loss for which the utility receives zero revenue. NRW is an important issue facing water utilities, as it has an estimated value of more than \$18 billion per year worldwide.

JCSB was using acoustic-based leak detection systems to locate leaks on water mains for a utility in central Malaysia. The systems were unable to locate leaks due to low water pressure levels and because the mains were comprised of plastic and other non-ferrous materials.

Traditionally, acoustically detecting leaks on non-ferrous mains is painstakingly difficult, especially if the mains have low pressure. Leaks in such environments often have relatively low noise frequencies that are almost impossible to detect with typical leak noise correlators.

JCSB turned to Toronto-based Echologics, a developer of acoustic-based technologies for water loss management, leak detection and pipe condition assessment. A division of Mueller Co., a company known for its innovative water distribution products of superior quality since

“Echologics’ technology will bolster our current service offerings by giving our engineers the tools they need to quickly and accurately locate leaks in almost any environment they encounter—without disrupting surrounding infrastructure.”

Sheikh Mazlan Sheikh Hassan, Chief Operating Officer, JCSB

1857, Echologics works with municipalities around the globe to help them efficiently and cost-effectively reduce NRW, improve water conservation, prioritize capital spending, better understand their water infrastructure and pinpoint leaks on pipes of all sizes and materials.

JCSB contacted Echologics' Singapore office to have the company conduct a pilot leak detection survey in areas of the utility's water system where it could not locate known leaks. The pipes ranged between 150mm to 300mm in diameter and were comprised of high-density polyethylene (HDPE), polyvinyl chloride (PVC) and asbestos cement (AC).

Echologics' field specialists arrived onsite within less than two weeks of the request.

The specialists used LeakFinderRT—Echologics' Windows-based leak detection system that is able to non-invasively detect underground leaks on water pipes—irrespective of their material, pressure, diameter, geometry, etc.

During the five day project, a total of five water main leaks, one illegal connection and one broken meter with a customer side leak were non-invasively pinpointed.

Unlike traditional acoustic leak detection systems, LeakFinderRT is based on recent acoustical developments that include an enhanced correlation function, which dramatically improves its

ability to accurately identify and locate narrow-band leak noise that is characteristic of non-ferrous pipe material, low pressures, multiple leak situations, and excessive background noise created by traffic and other environmental factors.

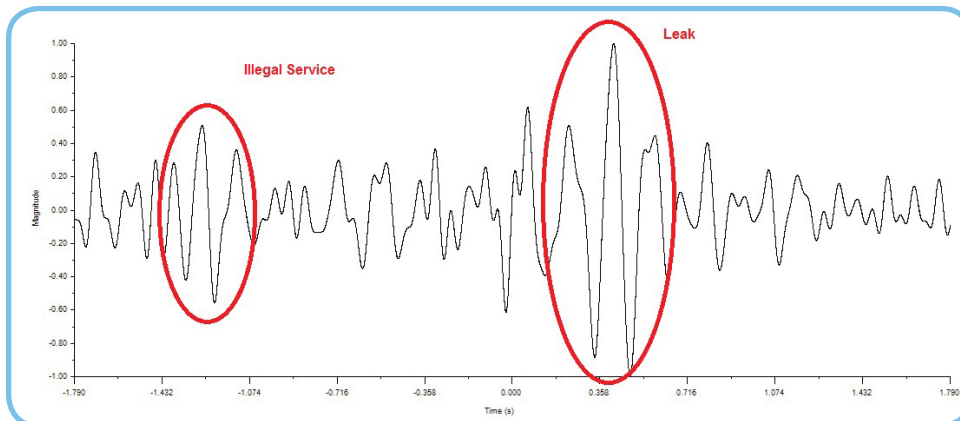
It is completely non-invasive, which means it can accurately detect leaks without breaking ground, inserting tools into the water system or disrupting service. While most leak detection methods require excavation or inserting hydrophones (water microphones) into the pipe, LeakFinderRT relies on standard pipe appurtenances such as hydrants, valves or direct attachments to the pipe's outer wall. Surface mounted sensors are placed at two locations along the suspect water line—in most cases valves or hydrants—between 120m and 1,300m apart. A correlator compares the acoustic signature of the leak with the expected speed of sound in running water; a computer algorithm then calculates the data to accurately pinpoint the location of the leak.

During the five-day project, Echologics acoustically surveyed more than 4,700m of non-ferrous water mains with as little as 0.9bar of flow pressure; sensors were placed less than 700m apart on available fire hydrants and meter stands.

A total of five water main leaks, one illegal connection and one broken meter with a customer side leak were non-invasively pinpointed.

Impressed with the technology's accurate and non-invasive leak detection capabilities, JCSB adopted LeakFinderRT for use by some of its engineering crews. Immediately following the project, it ordered additional LeakFinderRT units as well as two weeks of onsite training from Echologics.

"At Jalur Cahaya Sdn Bhd, we are committed to serving our clients with the best and cost effective solutions that will help them to reduce non-revenue water levels," said Sheikh Mazlan Sheikh Hassan, Chief Operating Officer, JCSB. "Echologics' technology will bolster our current service offerings by giving our engineers the tools they need to quickly and accurately locate leaks in almost any environment they encounter—without disrupting surrounding infrastructure. Our vast experience combined with these capabilities will help us as we partner with other States in Malaysia to help them resolve their non-revenue water woes."



LeakFinderRT correlates the location of a leak and an illegal service connection based on transmission velocities of acoustic signals.



JCSB crews expose the leak that was non-invasively located by Echologics.