

CASE STUDY

March 2026



Buried Pipe System Deployment
Pipeline operator in South China

CASE STUDY 1

OVERVIEW

CLIENT	Pipeline operator in South China
DATE OF INSTALLATION	July 2022
STRUCTURE	DN500 straight pipe, buried 1.5 metres below ground
TYPE OF DEGRADATION	Top-of-Line (TOL) Corrosion

CHALLENGES

With In-Line Inspection, the customer identified an area with lower thickness that is susceptible to corrosion. However, the thickness was not at a critical level that required an immediate shutdown and repair. Therefore, it was decided to monitor the remaining wall thickness of the buried pipe, and schedule the maintenance activity in the future based on the measured corrosion rate.

SOLUTION

The customer decided to deploy Inductosense WAND system to monitor the change of wall thickness over time while they excavated the suspected location to confirm the results collected by ILI. Once excavated, manual UT measurements were taken first, which confirmed TOL corrosion.



WAND™ Sensors were permanently installed over the corrosion area on the pipe along with WAND-ECHO600 extensions protected in flexible conduits. After backfilling, the customer could easily take thickness measurements from a pole-mounted enclosure. This allows the TOL corrosion to be monitored every month, enabling the customer to schedule the maintenance based on the measured corrosion rate.

RESULTS

The solution enabled accurate, repeatable wall thickness measurements without further excavation. The system has been in operation since 2022, allowing the customer to monitor wall thickness over a three-year period. The data showed no significant reduction in thickness or cause for concern, enabling the operator to safely defer maintenance.

This long-term monitoring approach eliminated the need for costly excavation while maintaining confidence in asset integrity. Monthly monitoring of TOL corrosion continues to support data-driven maintenance planning.

CASE STUDY 2

OVERVIEW

CLIENT Terminal operator in East China

DATE OF INSTALLATION September 2023

STRUCTURE Elbows and straight pipes, 1 metre below ground



CHALLENGES

The customer previously used manual UT for inspection and couldn't take any thickness measurements from buried pipes without excavation. The customer was looking for a permanently installed thickness monitoring solution to enable wall thickness monitoring without repeated excavation.

SOLUTION

Inductosense WAND system was selected to be deployed in two locations. WAND-TMS Sensors and WAND-ECHO600s were installed to extend the readings from buried pipes to enclosures above ground, where users can easily access them.

After backfilling, the customer could easily take thickness measurements from a pole-mounted enclosure. This allows the TOL corrosion to be monitored every month, enabling the customer to schedule the maintenance based on the measured corrosion rate.



WAND-TMS SENSOR INSTALLATION



The WAND ultrasonic sensors are intrinsically safe (ATEX Zone 0 rated) and are permanently installed to the surface of pipework and vessels.

WAND-ECHO ATTACHMENT AND POLE SETTING



The ECHO is designed to work with the WAND TM Sensors to extend the measurement position for the data collector. It is ideal for difficult access locations such as underneath insulation or confined access areas.



COMPLETION



MANUAL DATA COLLECTION USING WAND-HDC



COST SAVINGS

The WAND Buried Pipe System (WAND-BPS) not only enabled reliable and accurate thickness measurements to be taken from buried pipes but also provided the customer with significant cost and time savings. In China, the cost per excavation and backfilling is approximately equivalent of a quarter of the cost of one WAND-BPS with four measurement points. This means that the cost of deployment can be recovered by conducting 4 rounds of manual UT measurements. In other regions where the cost of ground work and frequency of measurements are high, customers can see return on their investment much quicker.

KEY BENEFITS

- Significant cost and time savings by deploying permanently-installed WAND Sensor systems with one-time excavation.
- Access to reliable and accurate thickness measurements from easily accessible locations.
- Upgradable from manual to automatic data collection.
- Assist in planning of maintenance and repair activities.
- Reduce the risk of LOPC (Loss of primary containment) and avoid damages to the nearby environment.

