



HEURISTECH

TACKLE PIPELINE CORROSION THE RIGHT WAY

Detection and Location
of Coating Defects
on Buried Pipelines

Contact us
contact@heuris.tech
www.heuristech.us

ABOUT US

Heuristech uses **Differential Reflectometry Mapping (DRM)** to assess coating on buried pipeline networks. This technology allows to detect and characterize coating defects, including **delaminations**.

DRM is non-invasive and ideally suited to assess pipelines **in cities, under roads or waterways, and in other challenging environments**.

Thanks to this technology, our customers substantially **cut corrosion costs** and acquire quickly a precise **knowledge of their network state**.



KEY OBSERVATIONS:

WHAT IS AT STAKE IN 2020 ?

“Due to the network structure and environment, I’m more or less blind until a leak occurs!”

As pipeline infrastructure is aging, associated **corrosion costs** are skyrocketing. Corrosion costs in the US is now **six times higher** than in 2003! (1)

Some portions of the network are **impossible to survey** with traditional surface methods. Each leak bears a cost above **\$300k** and damages both soils and phreatic tables.

There is an **economic and ecological emergency** to amend corrosion management. And **improved techniques are needed** to mitigate costs and avoid environmental disasters.

(1) ASCE: "Failure to Act: The Impact of Current Infrastructure Investment on America's Economic Future" (2013)

A 2 STEPS APPROACH

THANKS TO HEURISTECH SURVEY & ANALYSIS, YOU WILL FIND WHERE YOUR DEFECTS ARE WITHIN TWO WEEKS AND AT LIMITED COSTS.

STEP 1: DATA COLLECTION

(time/km : about 2h)

1. No need to switch on/off either cathodic protection current flow or product flow
2. Heuristech tools connect with **existing points of access**: manholes or cathodic leads
3. Heuristech will **train your technicians** to perform DRM measurements and upload data on our platform

STEP 2: DATA ANALYSIS

(< 2 weeks)

1. Data is processed by Heuristech algorithm and analysts
2. We map and characterize coating defects of your network
 - **Including delaminations**
 - Indication **accuracy** ~4m
2. **Corrosion speed estimation**
 - Corrosion defects ranking
 - Pipe integrity threats
 - Cathodic protection load

OUR DRM TECHNOLOGY

Differential Reflectometry Mapping (DRM) is Heuristech proprietary technology, patented and developed during three years of research at Texas A&M University.

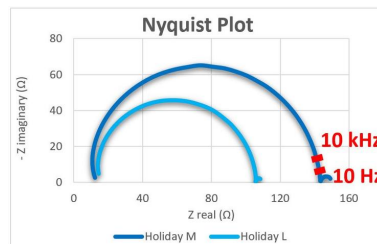
Electromagnetic waves are sent into the pipe and the location of the defect is worked out with the time delay of the signal reflexion (same principle as a radar).

FREQUENCY

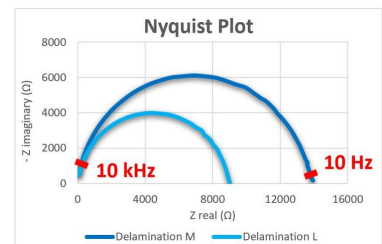
At Heuristech we believe that the future of pipe coating defect detection is high frequency with reflectometry.

$$Z_D = R_S + \frac{1}{\sqrt{1/R_p^2 + (\omega C_p)^2}}$$

PIPE HOLIDAY EIS

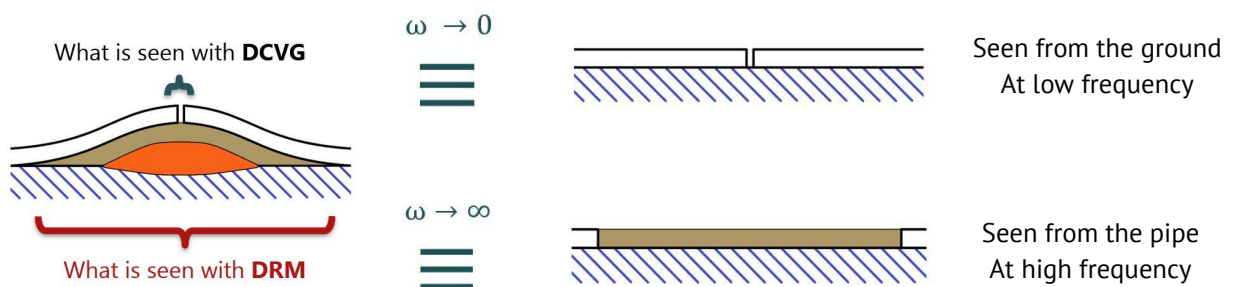


PIPE DELAMINATION EIS



IMPEDENCE

The impedance of a delamination is much smaller when measured with reflectometry and therefore, much easier to detect.



CASE STUDY

THE MISSION IS CONDUCTED WITH THE ELECTRICAL UTILITY OF A MAJOR US EAST COAST CITY.

Context:

The client has two main challenges unresolved : on one hand, having precise information on their pipeline network state, and on the other hand detecting delamination type defects before the leaks occurs. The client tried ACVG / DCVG with no success since its network is burried under roads und water ways. Piggies are no solution either because cables and bents prevent their travel in the pipeline.

Heuristech Actions:

Heuristech performs the survey on a 5000-foot section, chosen by the client.

- 1 week of measurement
- 1 week of analysis concluded by 2 detailed reports with the exact location of each defect and its severity grade


Results:

- 5000 feet (1,5 km) surveyed
- 23 defects detected, localized, graded (including delaminations)
- 11 critical defects excavated in priority

Heuristech found defects that 3 others methods could not see.
Without Heuristech, what would have been done is the excavation of the entire section for tremendous costs.

SAVINGS > \$5 MILLIONS

THEY ALREADY TRUST US



“*Repairing coating defects makes the cathodic protection more efficient, and that improves the durability of our entire network.*”



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PLAN A SURVEY

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