

Phased-Array and Total focusing Method Thickness Measurement Repeatability Comparison Through Time

FRANCOIS LACHANCE¹, Philippe Rioux², Marie-Pierre Despaux³

¹Product Management, Sonatest, Canada, ¹Application, Sonatest, Canada, ¹Product, Sonatest, Canada

Precise corrosion rate assessment is an important metric when it comes to the prioritization and maintenance of industrial equipment. Wrong prioritization could lead to a catastrophic event with important economic impact as well as health and safety issues. An example is the swear explosion at Guadalajara City, Mexico, in April 1992 resulting in the death of 206 peoples, including 4 500 disaster victims. This event is due to galvanic corrosion of a town water pipe, made of coated with zinc, installed too close to a steel hydrocarbon pipeline without respecting standards for corrosion protection. This paper is the continuation of the High Precision Corrosion Monitoring Using Ultrasonic techniques written in 2018 and presented in North America conferences. It's compared Phased-Array and Total Focusing Method C-scan mapping data of a plate induce with galvanic corrosion tough time. Back then, multiple acquisitions have been realized over an extended period of time, then both techniques have been compared based on the imagery quality, amplitude response, 2D measurement dimensional performance, and thickness measurement repeatability through time. This paper would retake measurements taken in 2018 and would include additional data point measurement through time to confirm the tendency observe then. The content would mostly focus on the repeatability of the technique measurement performance.