



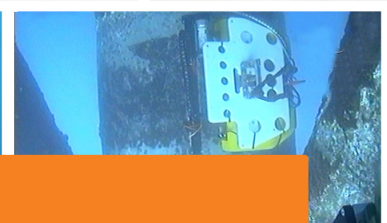
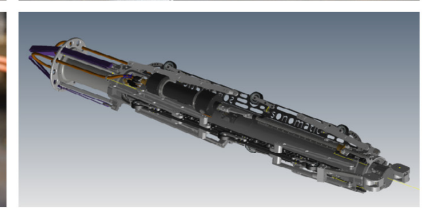
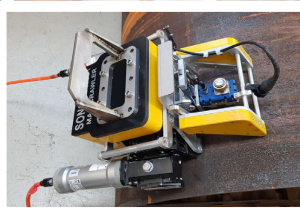
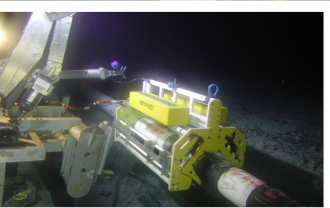
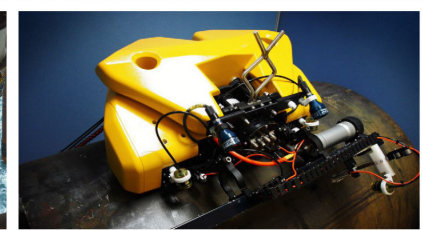
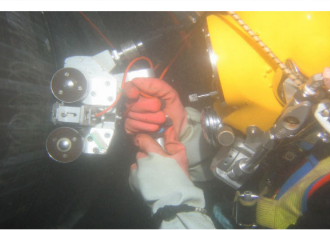
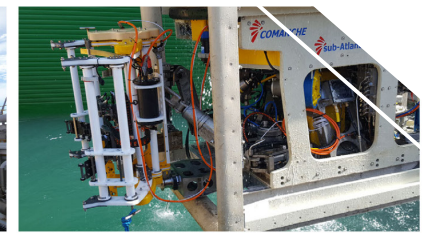
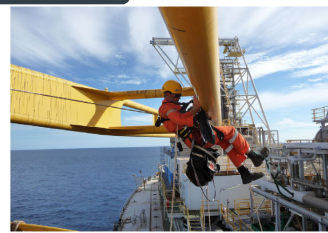
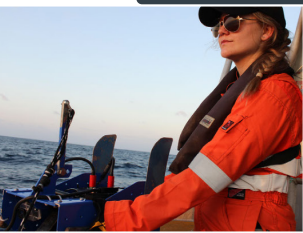
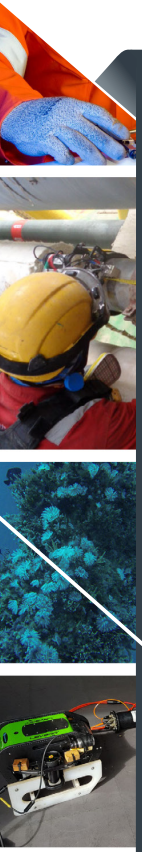
SONOMATIC

DATA SHEET

STORAGE TANK ANNULAR RING IN-SERVICE INSPECTION

THE PURPOSE

This document is composed to assist our clients and the supply chain with a high-level understanding of the benefits and services associated with our Storage Tank Annular Ring In-Service Inspection.



STORAGE TANK ANNULAR RING

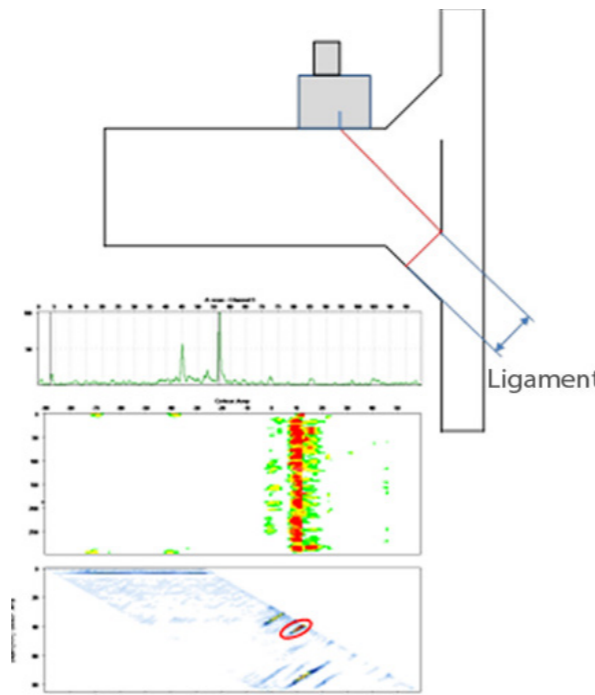
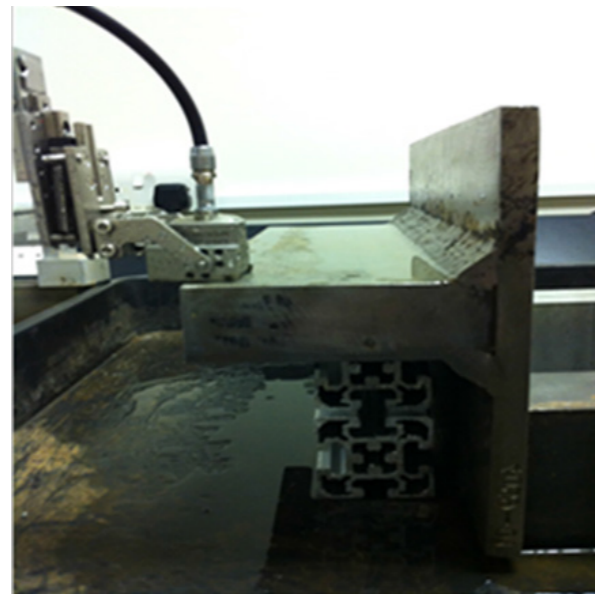
The internal corner of a storage tank is subject to both corrosion and tensile stresses during its service life, making detection of corrosion and any reduction of a ligament a vital part of any inspection regime.

The stresses on the inner fillet weld, combined with excessive levels of corrosion, would potentially lead to catastrophic failure. Deposits in the product can lead to corrosion of the fillet weld itself and/or the upper surface of the annular plate at the weld toe/HAZ. Moisture from beneath the plate can also cause external corrosion at these locations, and to simultaneously measure the internal fillet weld ligament, or throat dimension.

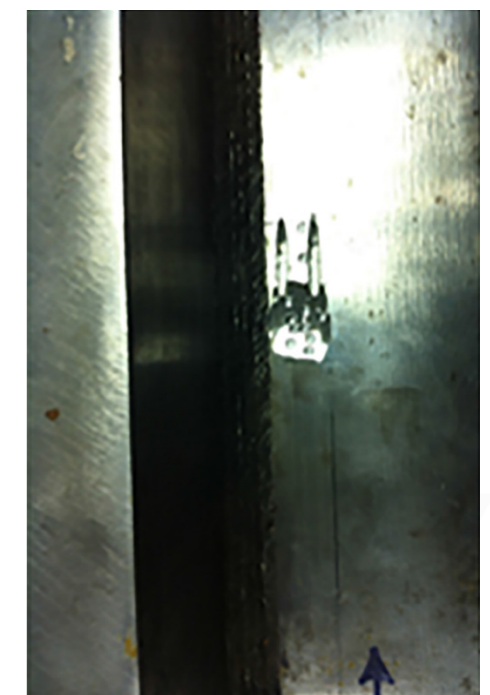
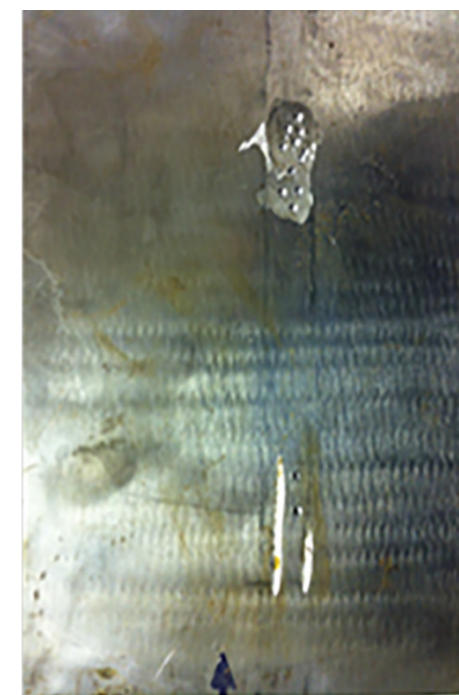
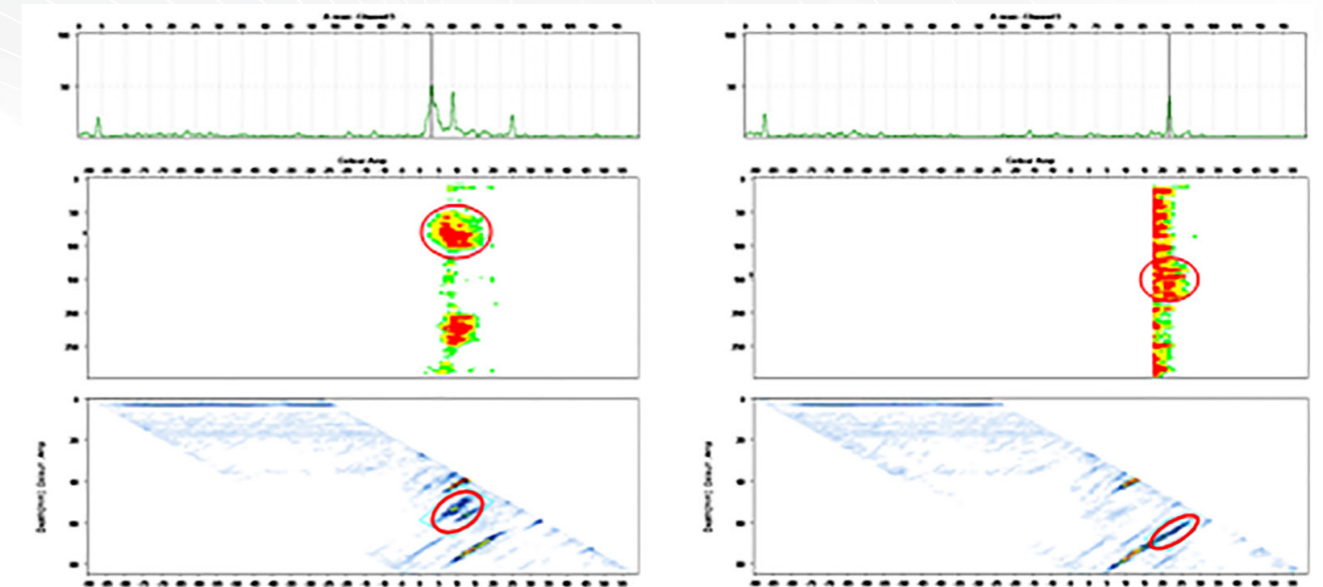
The technique has been developed in the laboratory and is now ready for site validation. It is envisaged that initial scanning will be performed by rapid, single-axis screening with real-time imaging using a fixed stand-off probe. This will be followed by dual-axis scanning of suspect areas to more reliably image the internal cross-sectional profile. Further investigation may be required by for example, local excavation of the material beneath the weld area with coating removal to facilitate visual and high-resolution ultrasonic inspection.

This approach is complimentary to other techniques in Sonomatic's inspection services package such as the 'Raptor' tank wall corrosion mapping system.

The top image is a mock-up of a storage tank wall to annular plate weld attachment area and the lower diagram shows the process used to measure internal fillet weld ligaments.



Close Visual Inspection (CVI) is routinely used in order to determine the condition of the internal fillet weld of the wall to annular plate joint. This clearly requires that the tank is taken out of service and extensive, careful cleaning is required. This form of inspection, being dependent on human reliability factors, is not infallible, and areas of damage may be overlooked. There are many tanks for which this is not practical, and in others it is preferable to either have an understanding of the extent of internal degradation ahead of the tank being taken out of service for internal inspection, or to have a supplementary, alternative inspection tool to improve confidence in the reliability of inspection.



KEY FEATURES

- ✔ Inspection from Tank Wall surface
- ✔ Sensitive to internal and external degradation at the critical wall to floor joint region
- ✔ Real-time single-axis scanning for rapid evaluation
- ✔ Dual-axis raster scanning for detailed analysis
- ✔ Inspection through coatings should be possible without cleaning or surface preparation

QA AND HS&E

Sonomatic operate under an integrated QHSE management system and are committed to the highest quality and safety of service provision | ISO 9001: 2015: 00007140 | ISO 14001:2015:00037371 | ISO 45001:2018:00037372 | ISO 17020: 2012: 4276 | Achilles FPAL Verified: 076712 | SEQual 1988 | British Safety Council Member: S0388440 |



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