Case Study

Project: Screening inspection of pipelines at gas refinery

Requirement: Various pipelines at a refinery were supported by concrete plinths. The standard inspection technique required four hours to determine the condition of the pipeline at a single plinth. A method that could inspect each location more quickly was therefore required.

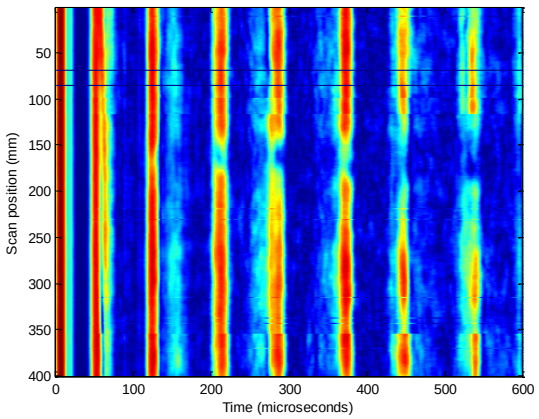
Solution: In order to avoid damaging the pipeline, a technique was required that could complete the inspection without lifting the pipeline from the plinths. For this reason Sonomatic's shear horizontal (SH) electromagnetic acoustic transducer (EMAT) technique was employed.

The SH-EMAT technique uses two probes placed at same axial location on the pipe but separated circumferentially. SH waves are transmitted both clockwise and anti-clockwise around the pipe providing information on the full circumference of the pipe. The probes can then be moved along the pipe in providing information on the entire circumference of the pipe at each axial location. This approach allows sections of pipeline to be scanned rapidly identifying any areas of concern.

EMAT's do not require any couplant and as they are not in contact with the surface of the specimen, are more tolerant to rough surfaces than standard inspection techniques. Sonomatic's EMAT scanner is also incredibly adaptable and was able to be used on different diameter pipes with minimal adjustments. The system is also entirely battery operated and so can be deployed easily without the need for a power supply.

Benefits: The SH-EMAT technique was able to scan 24 locations in approximately 4 hours, this is a significant improvement on the standard inspection technique. This approach was able to identify areas of concern for further monitoring or possible repair.

SH-EMAT scanner on-site



Results obtained using the EMAT scanner