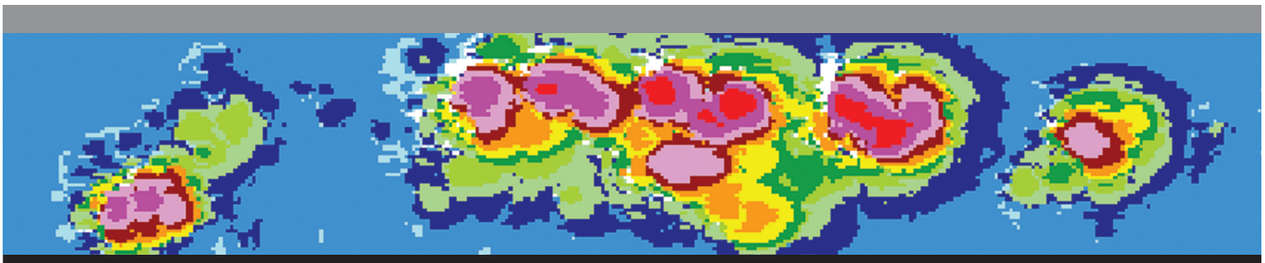
sonomatic®

innovative inspection technologies



New CSI scanner development

Sonomatic is developing a new clamp support inspection (CSI) scanner to implement CHIME* (Creeping Head-wave Inspection Method) and Multiskip Pulse Echo** techniques in locations where the surfaces are not accessible for direction inspection.

The project, taking place in partnership with Shell Global Solutions, began in 2006 with site trials which established how effectively the techniques performed over larger PCS settings — 1.2-1.5 metres, compared with the conventionally-accepted maximum of 1 metre.

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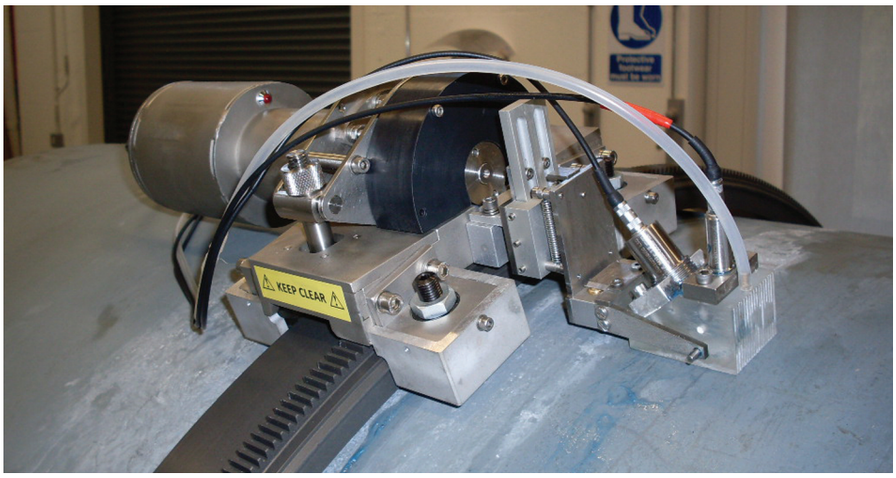
Sonomatic has offices in strategic global locations so we can respond quickly to customers' requirements wherever they may be situated. Our high quality products are matched only by our customer service. In addition to our field services, we offer training and consultancy at our sites in the UK or at clients' premises anywhere in the world. Sonomatic is committed to improving asset performance through applied and innovative technology; to delivering these benefits to our customers in the products and services that we provide; and to working with our customers, as value-added partners, to realise the maximum benefits of inspection technology.

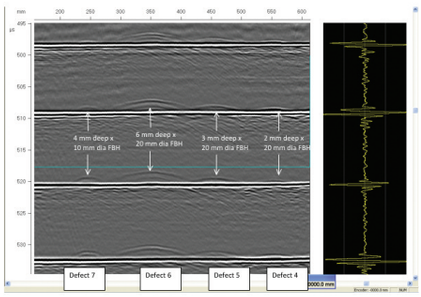


The prototype scanner is being designed specifically for use on slug catchers at Shell's St Fergus gas terminal site in Aberdeenshire, where access is particularly challenging. The early trials identified the following scanner requirements:

- A rigidly-deployed scanner with accurate synchronisation of probe positioning
- Full automation.

Since then, Sonomatic has used sophisticated 3D-CAD software to evaluate the scanner design before building a full-size mock-up, complete with artificial defects, of a typical 36-inch clamped support. The operation of the tool has been extensively trialled on the mock-up and ultrasonic capability assessed.

Holes Scan set 5



Results indicate that the tool's mechanical and ultrasonic performance is compliant with the specification required by SGSI, and inspection will supply meaningful results indicating the condition of the pipe under the support.

The benefits of building the mock-up include:

- Safe and comprehensive testing of all scanner equipment
- In-house training
- No disruption of asset activities
- Reduced time and manpower, with associated cost savings.

The resulting design's features include:

- Accurate and reliable deployment of the ultrasonic techniques
- No human intervention required after initial set-up
- Full encapsulation of driven gears, motor and wheels
- Clear warning signs
- Accurate maintenance of separation distance
- Stability when assembled.

The slug catchers at St Fergus comprise thirteen 36-inch diameter legs, each of which having 11 clamped supports on concrete plinths – a total of 143 supports. The next phase of the scanner's development is a five-day site trial at St Fergus in December 2009 which will involve a team of four from Sonomatic. The trial phase will include the inspection of selected supports as well as testing of the access methods and bolt replacement approach. The trial will identify:

- Any safety issues
- Productivity
- Suitability of access
- Ease of access management between inspection team and bolt replacement team.

This field trial will be followed by full implementation of the scanner for all the remaining slug catcher supports before further development and modification for use in other contexts.

QA and HS&E

It is Sonomatic's ongoing commitment to supply services and products, through the application of technical and engineering excellence, which complement both the customer's and our own QA and HS&E requirements.

Sonomatic's commitment to quality is maintained through continuous assessment and review of our Quality Management Systems to BS EN ISO 9001:2008. Sonomatic actively promotes the development, implementation and improvement of our QMS as a part of our ongoing drive to enhance customer satisfaction by meeting or exceeding customer requirements. In 2009 Sonomatic achieved UKAS accreditation as an Inspection Body to BS EN ISO/IEC 17020 (UKAS IB4276).

*CHIME

CHIME is a semi-quantitative tool provided under licence from ESR Technology. It is used to inspect pipe material located between two UT probes which can be up to 1 metre apart. It is a suitable technique for pipe supports. CHIME classifies indications into four different categories, and Sonomatic has developed the technique to improve accuracy and reliability in the 10%-40% wall loss range.

**Multiskip

Multiskip Pulse Echo is a shear-wave pitch-catch technique in which the material between two probes is inspected for general and localised wall loss. It was developed initially by Shell Global Solutions and subsequently by the HOIS Joint Industry Project. Sonomatic are leaders in developing field applications of the Multiskip technique.