Applus RTD
NDT & Inspection

CHIME

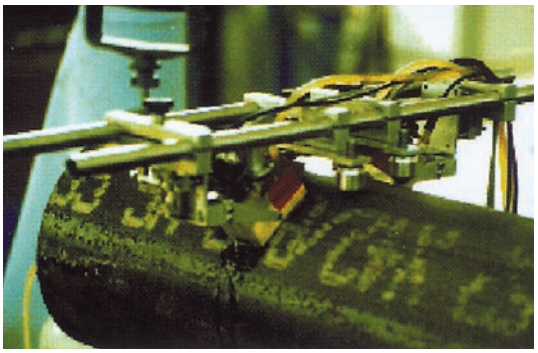
Reliable screening for corrosion and cracking even in inaccessible areas

Key Features of the System

- Large areas can be inspected with a single pass
- Estimate of the extent of corrosion attack
- The full volume can be inspected with probes separated by up to 1 metre
- Sensitive to both internal and external surfaces
- Suitable for pipe diameters 75 mm and above
- Suitable for inaccessible locations such as clamps, saddles, tank floors and half-buried pipes.

All owners and operators are keen to extend the useful life of their plant, and the early detection of corrosion and cracking is vital for accurate assessment of its condition. However, conventional ultrasonic methods for the inspection of large areas, such as vessels or long pipelines, are generally time-consuming and costly. In addition, inaccessible regions such as pipes on pipe supports or under clamps generally cannot be inspected unless the entire assembly is dismantled, often involving expensive shutdowns and significant effort and cost.

The CHIME technique from **Applus RTD** solves these problems by offering large area, single pass screening, which inspects the full volume between the probes (which may be separated by up to 1 metre). It can be used on both pipes and plate and is suitable for inaccessible geometries such as clamps, saddles and pipe supports. This eliminates the need for expensive shutdown but provides full information to indicate areas of corrosion and aid lifetime prediction of plant.



As an additional feature, CHIME can be used for initial screening, then followed up in flagged areas with detailed wall thickness mapping, for example for large-area vessel inspection. **Applus RTD** can offer a full service to customers in the application of CHIME.

The system employs a combination of ultrasonic head-waves and creeping waves, hence its name: **C**reeping **H**ead-wave **I**nspection **Me**thod. Creeping and head waves are generated using a piezoelectric transducer mounted on an angled shoe. The unique way in which the waves propagate provides complete coverage of plate or pipe with little attenuation, allowing the transmitting and receiving probes to be well separated (typically up to 1 metre). Defects due to corrosion or cracking affect the signal magnitude and arrival time of the signal peaks.

The latest development for CHIME is its addition to the Ultrasonic C-Scan system, a versatile digital ultrasonic imaging system for a range of applications. Its combination with this sophisticated software package enables the operator to record the data easily, provide colour or greyscale images, and to email or export it on disk for analysis.

CHIME has been developed within the Harwell Offshore Inspection R&D Service (HOIS). It has already proved successful in field trials on offshore and petrochemical plant, and is now gaining in popularity worldwide in all kinds of plant, especially for rapid, large area flagging for sites of corrosion.

Applus RTD provides the following services as individual packages or combined to provide a total Asset Integrity Management programme.

- **Advanced (non-intrusive) Inspection Services**
- **Sub-sea Inspection Services**
- **Engineering Design Solutions**
- **Risk Based Inspection Planning**
- **Inspection Management Services**
- **In Service Inspection**
- **Plant Life Management**
- **Metallurgical Services.**

Importantly, **Applus RTD** can also call upon extensive in-house expertise and resources for advanced inspection and conventional NDT, providing a total capability for management of through life plant integrity.

Applus RTD, in collaboration with our local and international partners, has extensive experience in the application of these services to a wide range of industries including:

- **Oil & Gas**
- **Petrochemical**
- **Refining**
- **Ore Processing and Handling**
- **Power Generation.**

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