

AGEING PIPELINES – DIRECT INSPECTION AND CONDITION ASSESSMENT



AESL – SPECIALISTS IN PIPELINE CONDITION ASSESSMENT

Many pipeline operators manage pipelines with variable performance and maintenance histories. Pipeline structural performance depends upon geometry, materials properties and loading regimes. Deteriorating pipewall condition can critically increase local stress levels. Thus to predict structural performance capability, loading and deterioration levels must be understood. The AESL condition assessment process is targeted at meeting this requirement.

- Soil properties are assessed at each location where excavation is carried out to all pipewall inspection. Soil property results allow detailed assessment of corrosion drivers.
- Pipe coating condition is assessed prior to its removal to enable pipe wall inspection. Coating assessment is based on a defined grid.
- Pipe wall inspection is carried out using patented magnetic flux technologies, to accuracy levels appropriate to the criticality of defects. Again the defined grid is used.

DETERMINING PIPELINE CONDITION

Many pipelines cannot be inspected using 'pig' mounted NDT systems. AESL have developed a pipeline condition assessment process based on selective inspection at a number of locations. A number of techniques for inspecting the pipeline and its environment are applied and statistical analysis is used to define the condition of longer sections of pipeline, or of the complete pipeline. Inspection techniques applied are targeted at determining the corrosion drivers, corrosion protection and pipewall condition, and include:

- Above ground coating surveys, to identify individual coating defects as well as general variations in coating condition.

STATISTICAL MODELLING

The statistical models applied have been developed by AESL to provide appropriate predictions with 'defined' confidence levels. The various inspections techniques have been optimised to provide inputs, appropriate to these statistical models. Process outputs include definition of remaining life, significance of defect predictions and failure probabilities recognising alternative defect types.

Please Contact Ian Bell at

Advanced Engineering Solutions Limited
South Nelson Road
South Nelson Industrial Estate
Cramlington
Northumberland
NE23 1WF
United Kingdom.

Tel: +44(0) 1670 739999
Fax: +44(0) 1670 717999
e-mail: ian.bell@aesengs.co.uk