



## Asset Care Counts

# Using pulsed eddy current testing (PECT) to manage corrosion under insulation (CUI)

**Corrosion under insulation (CUI)** remains one of the greatest concerns for the integrity of many millions of kilometres of insulated industrial piping, together with insulated vessels, **risking production and safe operation on a daily basis.**

Its causes are often simple however its management remains an ongoing challenge due to the insulation itself typically hiding the extent of the problem.

Industry has, no “silver bullet” for the detection and quantification of CUI, but by combining inspection methods, a reliable understanding of the presence and extent of CUI on your plant can be achieved.

ALS continues to develop and deliver both traditional and advanced inspection techniques into our offering for CUI assessment.

**This article discusses Pulsed Eddy Current testing (PECT) and its advantages for assessing CUI**



### Common CUI scenarios that need to be assessed to ensure asset integrity

- Areas exposed to mist overspray from cooling towers
- Piping close to steam vents
- Insulated piping close to deluge systems
- Carbon steel piping operating between -5 deg C to 120 deg C
- Dead Legs, and piping attachments through insulation
- Steam traced lines, may have team leaks
- Damaged insulation
- Cracks in fireproofing
- Evidence of brown staining on insulation



## How we evaluated PECT for assessing CUI

We researched and trialed PECT systems looking for their ability to detect different corrosion geometries (e.g. pitting, general corrosion etc) and enhance scanning productivity.

Following from these trials, we selected specific PECT systems that provided the best outcomes for screening of piping, vessels and tanks.

Finally, we trained our staff in application of the technique to ensure a reliable high-quality service as would be expected by our clientele and required of our ISO accreditations.

Combined with other many inspection methods, our capability for cost effectively CUI was enhanced with the addition of PECT services.

## Applications

- CUI (vessels and piping)
- Corrosion under fire proofing of supporting legs of storage spheres.
- Inspection of column skirts.
- Flow accelerated corrosion (power plants) Splash zone of offshore structures and risers.
- Sheet piling (port structures, jetties), Subsea pipelines.
- Remaining ligament under corrosion.
- Repair wraps, Well casings, Ship hulls.
- High-temperature wall thickness monitoring.

## Where can PECT add benefits?

Using a different current form to create a wide frequency band width, an ability to inspect items without direct contact is generated.

This leads to advantages such as:

- The technique can penetrate thick insulation or fireproofing.
- Composite repair materials can be scanned through where wall loss has already occurred.
- Chicken wire and re-bar do not affect analysis.
- Scanning can be performed with plant on line.

Through our experienced team:

- Scanning can be performed using rope access minimising the need for expensive scaffolding.
- Results can be seen in real time.
- Many meters of piping can be scanning per shift.
- CUI, internal pitting type corrosion and general wall loss can be detected.



## Combining inspection effectively to meet your asset management needs

Adding PECT into your tool belt for understanding CUI in your insulated systems is one way ALS is advancing effective assessment.

Another way is by ensuring that you effectively use PECT effectively, and combined it appropriately, with the full range of inspection and engineering solutions available to manage your insulated piping and vessels.

ALS inspection and engineering staff can help you understand:

- The real risk of failure due to CUI.
- The most cost-effective technique(s) to use to examine for CUI.
- The extent of examination that is needed to appropriately manage CUI for your asset's risk profile.



### BRISBANE

7 Brisbane Rd Riverview QLD 4303  
T: +61 7 3816 5500

### NEWCASTLE

106 Stenhouse Rd  
Cameron Park NSW 2285  
T: +61 2 4922 2400

### MELBOURNE

450 Dynon Rd West Melbourne VIC 3003  
T: +61 3 8398 5900

### SYDNEY

U1a & 2, 171-175 Newton Road  
Wetherill Park NSW 2164  
T: +61 2 8786 3100

### PERTH

109 Bannister Road Canning Vale WA 6155  
T: +61 8 9232 0300

### RAYONG (Thailand)

88/2 Moo 3, Pala, Ban Chang  
Burapapat Rd, Rayong 21130  
T: +66 98998 2204

Contact us today to speak to our integrity experts at: [assetcarecontactus@alsglobal.com](mailto:assetcarecontactus@alsglobal.com)