Subsea Pulsed Eddy Current Array (PECA)

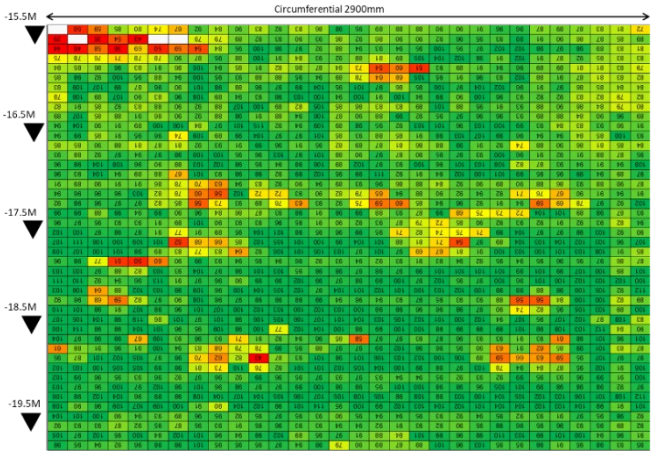
PEC is an electromagnetic method to determine the wall thickness of electrical conductors. The PEC probe is placed on an insulated or weight coated pipe. A magnetic field is created by an electrical current in the transmitting coil of the probe. This field penetrates through the coating and magnetizes the pipe wall. The electrical current in the transmission coil is then switched off, causing a sudden drop in the magnetic field. As a result of electromagnetic induction, eddy currents are generated in the pipe wall. The eddy currents diffuse towards the internal surface of the pipe/plate and decrease in strength.

This is monitored by the PEC probe and used to determine the wall thickness. The thicker the wall, the longer it takes for the eddy currents to decay to zero. Applied operating principles of PEC vary from system to system. Generally, to obtain a quantitative wall thickness reading, PEC systems use algorithms that relate the diffusive behaviour in time to the material properties and the wall thickness.

Mako's system utilizes and array of PEC probes in one subsea housing to provide an even higher speed of inspection than a singular probe. This system is known as PEC Array or PECA.

Applications

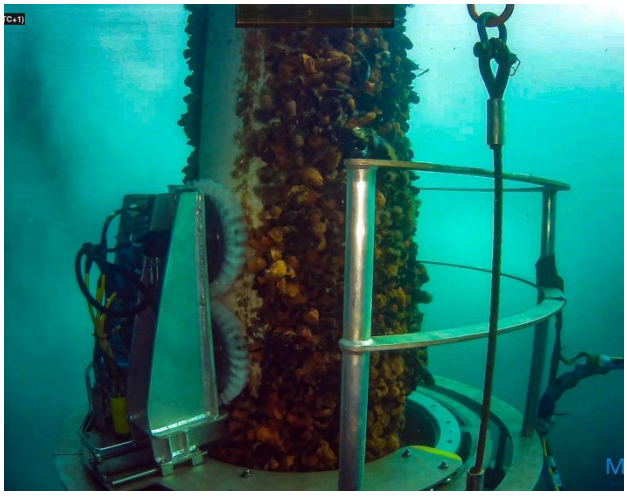
- General wall loss, erosion
- Insulated and weight coated pipes
- Neoprene clad risers and caissons
- Splashzone and Subsea
- Non piggable/scrapable pipe inspection



Mako PECA Data

Advantages

- Rapid data acquisition
- Inspect through thick coatings
- Save on coating removal costs / duration
- Real-time imaging for instant results
- One-touch automated reporting
- Range of application-specific probes
- Fully recorded data



Mako PECA on Splashzone Inspection Tool