

Pulsed Eddy Current Advanced Data Analysis – Unlocking new possibilities

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ABSTRACT: Pulsed Eddy Current (PEC) has proven to be an efficient NDT technique well suited for Corrosion Under Insulation (CUI) on pipes and vessels considering the recent technological advances enabling array of PEC with dynamic acquisition. These breakthroughs now provide a productive solution to perform high-resolution inspection over large areas. Substantial high-resolution scan zones on complex components such as vessels highlight one of the main limitations of PEC which is the cross-sensitivity of the method regarding material property variations. This limitation of PEC technology has led to false calls in the past. The objective of this paper is to present advanced analysis tools which aim to discriminate real defects from material property variations. The novel advanced analysis tools are applied to a variety of manufactured samples with machined defects as well as real field data related to corrosion on insulated vessels. The advanced analysis tools are shown to be efficient in overcoming one of PEC's current limitations as they significantly help reduce potential false calls, thereby greatly improving user confidence during data analysis and unlocking new possibilities for vessel inspection. **STATEMENT OF IMPACT:** This paper addresses one of the remaining limitations of the Pulsed Eddy Current technology. Indeed, the limitation of productivity and fine resolution were enhanced in the previous breakthroughs and we are now improving the limitations associated with cross-sensitivity of the method regarding material properties variations leading to false calls. Tackling this limitation with advanced analysis tools will increase confidence in data and unlock new possibilities for vessels inspection. **KEYWORDS:** • Pulsed Eddy Current • Corrosion Under Insulation • Vessels Inspection • Materials Property Variations • Advanced Data Analysis • Corrosion Under Fireproofing