

Failures of insulating joints and spark gaps on the Hellenic Gas Pipeline System - a case study

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Abstract

The practical experience derived from the field performance of IJs or flanges of the natural gas pipeline system of Greece is briefly presented. The defective insulation incidents on buried IJs were effectively mitigated by a proper surge protection scheme that has been applied. However, after a time period of a seemingly reliable operation, extending over a decade, two buried underground monolithic IJs lost their insulation properties despite being protected by properly installed ISGs. On another IJ the ISG malfunctioned whereas the IJ largely maintained its insulating properties. The causes of these failures are investigated and possible explanations are provided. The ageing and degradation of ISGs and the degradation of the dielectric strength of the joints is also discussed in the paper.