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Pipe Preservation during Trenchless Installations: No Need to Take Unnecessary Risks

ABSTRACT
Corrosion is the first cause of pipeline incidents, and one of the most important responsibilities of a pipeline engineer is to choose the right strategy to protect the pipes from it. In trenchless installations, this aspect is even more important as interventions are not possible during the design life of the pipeline and usually such crossings are located in environmentally sensitive areas.
Currently, pipeline operators and designers choose between very robust versions of three-layer polyolefin (PE/PP) coatings, hoping the additional thickness will compensate material losses due to abrasion during installation, and relatively thin coatings with very high adhesion properties. In such situation, they expect the coating to perform better in combination with a cathodic protection system in the areas where the steel was exposed due to damages to the coating.
In both cases, practical experience has shown that damages cannot be avoided. Currently, specifically on pipes that are installed by trenchless processes, the available methods for identifying which regions in the coating are damaged cannot provide absolute or accurate information on the location, size and geometry of the damages. Moreover, although cathodic protection monitoring at HDD locations can be validated within the entry/exit extremities; the region between is either assumed or speculated and thus a questionable strategy. This paper gives evidence on why these strategies are not valid and provides a technical comparison of properties between pipeline coatings used in trenchless installations. It also introduces an engineered mechanical protection system that has been successfully used by German companies for the past 20 years with an impeccable track record. Such a solution is of particular importance to allow the trenchless industry to achieve longer and safer crossings.