

Analysis and Mitigation of the Interference Between High Voltage Power Line and Buried Pipelines

OUADAH M'hamed, ZERGOUG Mourad

Abstract: Analysis of electromagnetic interference between high voltage overhead power transmission lines and nearby gas/oil pipeline has been a topic of growing interest for many years. When pipelines are located in shared row with power lines, the pipeline can incur high induced voltages and currents due the AC interference. The induced voltage on pipeline can be dangerous for operator to touch the pipeline as well as pipe corrosion can result from AC discharge. This research evaluates and analyzes the electromagnetic interference effects on oil and gas buried pipelines created by the nearby high voltage transmission lines. The aim is to evaluate the AC corrosion likelihoods of pipelines and suggest proper mitigation solutions.

Keywords : AC interference, Induced Voltages, Electric Power Transmission Lines, pipeline, AC Corrosion, cathodic protection, soil resistivity