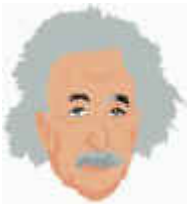


(Exit)

Abstract

Cathodic protection (CP) systems are commonly designed by estimating the overall current demand and then developing an anode configuration sufficient to protect the structure. To a large extent the performance of a CP system is dependent on the skill and experience of the corrosion specialist. As the underground infrastructure becomes more complex these traditional approaches may become less reliable. In an increasingly complex underground infrastructure, stray currents from other sources (such as parallel or crossing pipelines, industrial plants, or electric rail transit facilities) can come into contact with the underground steel structures. These stray currents not only reduce the ability to inhibit corrosion, but in some cases, reverse the CP process and accelerate corrosion in sections of the structure.

Given these factors it becomes imperative that corrosion engineers are able to predict the interaction of underground electrical fields as part of the design process. The difficulty in making reliable estimates for cases where there is a complex interaction of underground electric fields can be overcome by using corrosion simulation software as a design tool. Not only can corrosion simulation software help with understanding complex corrosion behavior but it can also provide a rapid and economic assessment of CP system designs.

In this paper the background and capabilities of computer simulation is described and applications presented of pipeline CP simulation, interference prediction and optimisation.

Computer Simulation as an aid to CP System Design and Interference Predictions, Robert Adey and John Baynham, BEASY