Cathodic Protection of Underground Buried Metallic Pipelines in Tucson

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Abstract

A pipeline buried in the ground represents a challenge. It is made of steel, a strong but chemically unstable material, and placed in an environment which is nonuniform, nonprotective, and nonyielding. Yet the pipeline must last 30 plus years and continuously deliver water for the end user, you.

Since it is not economical to use gold or platinum as a material for fabricating pipeline, steel is a common choice. And steel corrodes when buried in the earth just as a nail does. Corrosion is the deterioration of a substance (such as the metal pipeline) or its properties because of a reaction with its environment (the soil). Cathodic protection is a great way to protect the underground pipeline from corrosion. Cathodic protection is the reduction or elimination of corrosion by making the metal a “cathode”, hence “cathodic” protection, by means of an impressed direct current or attachment to a sacrificial anode (usually magnesium, aluminum, or zinc).

Cathodic protection is an effective way to mitigate corrosion on buried pipeline lines protecting this valuable asset for years to come.

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