Abstract

Most metals in nature are unstable and have the tendency to move its state to a more stable state in other words converted to its low energy oxides and this process called corrosion. As Corrosion, become one of the major problems and serious risks facing the oil industry that should be taken into account, since the first day of establishment of an industrial or oil plant. The cathodic protection (CP) system as the field experience has been proved is the most effective technique used in combination with coating for reducing corrosion process or eliminating it. This technique as the name suggests relied on making the part to be protected as the cathode of an electrochemical cell. This work highlights the most issues and problems that come with designing CP system such as (coating defect, interference, stray currents, etc.) with the use of the most common instruments used for inspection and testing cathodic protection system to ensure the system integrity and if it is working properly. Additionally, by the use of these instruments many variables and valuable parameters have been taken such as (PH, Soil resistivity, Coating thickness, moisture content, etc.) which will be used later for assessing system performance. The purpose of this article is to supply information and a basic knowledge,
which will assist the corrosion engineer in the installation, operation, and maintenance of cathodic protection systems in an effective way. The corrosion engineer will be skillful to use not only the common electronic millimeters but also very specialized instrumentation.

References

1. Underground pipeline corrosion, p.27 (2014)
12. UNI-T Model UT513 operating manual

Index Terms

Computer Science

Information Systems

Keywords

Cathodic protection, Underground corrosion, impressed current CP system, sacrificial anode CP system, Wireless monitoring.