

Course Outline

CORROSION CONTROL and CATHODIC PROTECTION

by
LDI Instructor

Overview

Oil and gas production facilities are constantly in contact with produced corrosive effluent. Their surrounding such as soil and sea water can also cause corrosion. This Corrosion Control course covers the corrosion problems commonly experienced in the oilfields.

The course will cover topics on metallurgy and material selection. Internal corrosion by CO₂ and H₂S, top of line corrosion, bacteria corrosion, sand erosion, control of internal corrosion by chemicals and corrosion monitoring, external corrosion and its control by painting, coating and cathodic protection will be covered. Drill pipe corrosion control will be also discussed.

The objectives of this course are at the end of the course, participants will:

1. Understand the causes of corrosion.
2. Know the different types of corrosion
3. Learn how to prevent or minimize corrosion
4. Understand the roles of metallurgy and material selection in corrosion control
5. Know the various corrosion monitoring and inspection methods
6. Learn how to protect both onshore and offshore structures from corrosion

COURSE OUTLINE

- Introduction to Oil and Gas Production
- Corrosion Mechanism, Electrochemistry
- Internal Metal Loss:
 - CO₂ and H₂S Metal Loss Corrosion, Top of Line Corrosion
 - Galvanic Corrosion, Bacteria Corrosion, Sand Erosion
- Control of Metal Loss Corrosion (Design, Chemical Treatment, Material Selection, and Coating)
- Monitoring of Internal Corrosion
- Metallurgy and Material Strength
- External Corrosion • Atmospheric Corrosion • Sea water Corrosion • Corrosion in Soil
- Control of External Corrosion • Principles of Cathodic Protection

- Protection of Onshore and Offshore Facilities by Cathodic Protection• Sacrificial Anode System
- Impressed Current System• Cathodic Protection Design
- Examples of Impressed Current Cathodic Protection (ICCP), the Sacrificial Anode Cathodic Protection (SACP), the inspection (the measurement) of the ICCP and SACP systems,
- The equipment used to do the inspections and measurements including pigging or In Line Inspection (ILI), and Acoustic Emission (AE) for Storage tanks
- Drill Pipe Corrosion Control

WHO SHOULD ATTEND

1. Production engineers and supervisors
2. Drilling engineers and supervisors
3. Well service engineers and supervisors
4. Corrosion specialists
5. Oilfield chemists and lab personnel
6. Maintenance personnel
7. Anyone who deals with corrosion