Best Technology Solutions (BTS)

Material Selection & Corrosion Control in Petrochemical Industries Training program

Introduction:

The purpose of this course is to provide the attendees with an overview of corrosion concerns in downstream oil & gas industries specific to refinery process units. It aims to identify and examine corrosion and metallurgical failures that may occur in any process and utility units within the refinery. The attendees will have an opportunity to examine techniques and practices that can be used to control corrosion. This course is designed for engineers engaged in the day to day operation and inspection of refinery. It includes, but not limited to, corrosion and inspection engineers, equipment, process, mechanical, inspection and metallurgical engineers, integrity managers, project engineers and all discipline engineers and technologists who are involved with hydrocarbon production, processing, safety and commissioning. In addition, manufacturers of equipment, suppliers of material to this industry will also benefit attending this course.

Who Should Attend?

Corrosion Control Engineers & Personnel, Process Engineers, Metallurgists, Inspection Personnel, Mechanical Engineers, Material Selection Personnel, Plant Contractors, Operations Engineers, Team Leaders & Supervisors, Maintenance Engineers, Maintenance Supervisors, Senior Plant Supervisors, Mechanical Engineers, Corrosion Control & Monitoring Systems Personnel, Equipment Engineers, Maintenance Engineers and Planners, Team Leaders, Managers & Coordinators, Construction Coordinators, Technologists, Safety Officers, Maintenance Team Leaders & Engineers,

Design Engineers, Service Company Representatives, Oil and Gas Production Facilities Personnel, Chemists, Chemical Engineers, Inspectors and Inspection Engineers & Supervisors, Technicians and Supervisors, Environmental Specialists, New Petroleum Engineers, Asset Management Personnel, Construction Engineers, Refinery Chemists, Chemical Engineers, Personnel who are / will be responsible for detecting, inspecting, monitoring, controlling corrosion in oil and gas piping, pipelines used in production operations and Personnel responsible for metallurgy, corrosion or the prevention of failures in plant and equipment

Course Objectives:

By the end of this course delegates will learn about:

- Develop a comprehensive understanding of materials selection and corrosion control strategy in the downstream oil and gas industries
- Describe techniques that can be utilized for mitigation of each mechanism of corrosion
- Identify and define the dominating categories of refining corrosion
- Identify plants areas susceptible to high-temperature threat and materials that can be used for prevention
- Identify and explain mechanical failure that may occur in equipment and utilize appropriate techniques for prevention
- Describe additional types of corrosion occurs in utility units of petrochemical plants
- Identify the influential parameters in corrosion processes of each unit

Course Outline:

- Introduction to materials classification
- A basic background on corrosion control techniques
- Low temperature corrosion
- High temperature corrosion and other failure mechanisms specific to oil and gas industries
- Sour service failures mechanisms and interpretation of applicable standards i.e. NACE MR0175/ISO 15156 and NACE MR0103
- Corrosion control concerns on oil, gas and water transmission pipelines
- Materials selection and corrosion aspects
- Forms of corrosion in petrochemical industries
- Fundamentals of corrosion protection in aqueous concerning coating
- Process chemical additives
- Electrochemical method and design
- Corrosion under insulation
- Causes of pipeline corrosion
- Metallurgical influenced corrosion
- Mechanically assisted degradation
- Control of environment variables in cooling water systems
- Amine treating units
- Sulphur recovery units
- Corrosion by chlorine, alkalis, hypochlorite and ammonia
- Corrosion by sulfuric, phosphoric, nitric, HF, hydrochloric and organic acids

- Continuation of acid corrosion
- Materials of construction for downstream applications
- Inspection methods and corrosion monitoring techniques in petrochemical plants
- Failure analysis techniques in downstream oil and gas industries
- Applicable international standards
- Role of materials & corrosion engineer in phases of project