CORROSION AWARENESS CONTROL AND MONITORING

FMC226
Facility Integrity, Inspection, Metallurgy and Corrosion Engineering

TRAINIT ACADEMY

COURSE TITLE

CORROSION AWARENESS CONTROL AND MONITORING

COURSE DATE/VENUE

11 – 15 October 2021

London, UK

COURSE REFERENCE

FMC226

COURSE DURATION

05 Days

DISCIPLINE

Facility Integrity, Inspection, Metallurgy and Corrosion Engineering

COURSE INTRODUCTION

In order to proactively improve and enhance the safety reliability and profitability in chemical plants and oil field related plant and machinery, it is necessary to understand where why and how the corrosion related mechanisms cause damage which eventually lead to sudden failures. Such an understanding of failure mode helps to establish plant reliability and safety at optimal cost.

COURSE OBJECTIVE

- To understand the fundamentals of material failure at normal and plant operating condition and why different material behave differently - strategic maintenance methods
- To understand how plant aging can cause catastrophic failures and the methodology of inspection
- Importance of monitoring and modern methods

- Case studies from plant failures and failure analysis to reinforce understanding of theory
- To understand corrosion in other structural materials as concrete fiberglass and non-metals

COURSE AUDIENCE

Candidates who intends taking certification- For those interested in learning fitness for service of plant and equipment- for Managers and staff interested in health safety and environment of unintended plant failure-for planning Managers interested in MRO and plant maintenance and know all about inspection and monitoring

This five-day intensive Short Course is intended for Engineers, Technicians, Managers, Supervisors, Salespersons, Inspectors, anyone needing a basic understanding of corrosion.

COURSE CONTENT

Corrosion

The need for corrosion awareness
The cost of corrosion
Why metals and materials deteriorate
The impact of environment
The school textbook definition of corrosion
The modern definition of corrosion
The atomic theory
Setting up a corrosion cell in the lab.
Why different materials react in different ways and rates
More definitions of corrosion – spontaneous, unseen, irreversible
The mistaken common notion, anode, cathode
Polarization – the slowing down process
Tafel's slope – a clue to control corrosion

Understanding corrosion – forms – causes –soil, water, bacteria, atmosphere, gases and vapours, and steam-operating conditions as pressure, temperature, velocity, stress, product input variations

Avoidance and control of each – explained through

Case studies.

Four-way method of controlling corrosion

What is cathodic protection – how it works – principles

Typical examples of CP

The galvanic and impressed.

The components

Coating – types

- limitations
- failure and detection
- how it works with CP

Inhibitors - types

- limitations
- case studies

Material selection and design

- cost of overdesign
- new materials
- S Steel, High Ni alloys, fibre glass

Estimating corrosion loss

- Faraday's law
- Weight loss, coupon
- ER
- Polarization techniques
- NDT – Eddy – UT, PT, RT
- Microscopy / lab techniques

Corrosion monitoring - coupon

- Pig

- Endoscopies
- Acoustic
- CP
- Coating failure

Corrosion of - SS

- Concrete
- Fiberglass and plastics
- Bacterial
- Non-ferrous Al, Cu alloy

High temp. Corrosion.

COURSE CERTIFICATE

TRAINIT ACADEMY will award an internationally recognized certificate(s) for each delegate on completion of training.

COURSE FEES

$6,150 per Delegate. This rate includes participant's manual, Hand-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

COURSE METHODOLOGY

The training course will be highly participatory and the course leader will present, guide and facilitate learning, using a range of methods including formal presentation, discussions, sector-specific case studies and exercises. Above all, the course leader will make extensive use of real-life case examples in which he has been personally involved. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Case studies & Practical Exercises

- 10% Role Play
- 10% Videos, Software or Simulators (as applicable) & General Discussions