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Oil Field Scales

Course Introduction:

Oil field scales are a critical challenge encountered in the production and processing of hydrocarbons. These scales, primarily composed of mineral deposits, can form in various parts of the production system, including wellbores, pipelines, and processing equipment. Understanding the mechanisms of scale formation, its impact on production efficiency, and effective management strategies is essential for maintaining optimal operational performance in oil fields. This 5-day theoretical training course, "Oil Field Scales - Basic," is designed to provide participants with a comprehensive understanding of the types of scales, their formation mechanisms, and the latest techniques for monitoring and mitigating scale-related issues.

Throughout the course, participants will delve into the chemistry behind scale formation, including factors such as temperature, pressure, and fluid composition. They will explore various types of scales, including calcium carbonate, barium sulfate, and iron sulfide, and learn about the methods used for scale detection and removal. By examining case studies, industry standards, and best practices, attendees will be equipped with the knowledge necessary to implement effective scale management strategies that enhance production efficiency and reduce downtime.

Course Objectives:

By the end of the program, participants will be able to:

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- Understand the fundamental concepts related to oil field scales and their significance.
- Learn about the different types of scales encountered in oil fields.
- Explore the chemical mechanisms and factors influencing scale formation.
- Analyze methods for scale detection, monitoring, and removal.
- Familiarize participants with industry standards and best practices for scale management.

Who Should Attend?

This course is intended for Process engineers and production personnel in the oil and gas industry, Operations and maintenance staff involved in production systems, Corrosion and materials engineers and Environmental and safety compliance officers.

Course Outline:

Day 1: Introduction to Oil Field Scales

- Overview of oil field scales and their significance in production
- Key challenges posed by scale formation in oil fields
- Regulatory requirements and guidelines related to scale management

Day 2: Types of Oil Field Scales

- Overview of common types of scales: calcium carbonate, barium sulfate, iron sulfide, and others
- Characteristics and properties of different scales
- Impacts of various scales on production efficiency and equipment integrity

Day 3: Mechanisms of Scale Formation

- Chemical principles governing scale formation: solubility and precipitation
- Factors influencing scale deposition: temperature, pressure, and fluid composition
- Role of additives and inhibitors in mitigating scale formation

Day 4: Detection and Monitoring of Scales

- Overview of methods for scale detection: visual inspection, sampling, and analytical techniques
- Techniques for monitoring scale deposition in production systems
- Case studies demonstrating successful scale detection and monitoring

Day 5: Scale Management Strategies

- Review of scale removal techniques: mechanical, chemical, and thermal methods
- Best practices for implementing effective scale management programs
- Future trends and challenges in scale management in oil fields

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Course Methodology:

A variety of methodologies will be used during the course that includes:

- (30%) Based on Case Studies
- (30%) Techniques
- (30%) Role Play
- (10%) Concepts
- Pre-test and Post-test
- Variety of Learning Methods
- Lectures
- Case Studies and Self Questionaires
- Group Work

Course Fees:

To be advice as per course location. This rate includes participant's manual, Hands-Outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Course Certificate:

International Center for Training & Development (ICTD) will award an internationally recognized certificate(s) for each delegate on completion of training.

Course Timings:

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Daily Course Timings:

08:00 - 08:20	Morning Coffee / Tea
08:20 - 10:00	First Session
10:00 - 10:20	Coffee / Tea / Snacks
10:20 - 12:20	Second Session
12:20 - 13:30	Lunch Break & Prayer Break
13:30 - 15:00	Last Session