Onshore Pipeline Engineering Design, Construction & Maintenance

Introduction:

Pipelines are a major asset in most Oil & Gas operators, and ensuring its functionality and effectiveness is a paramount operation and business requirement.

This Onshore Pipeline Engineering: Design, Construction and Maintenance training course identifies all onshore pipeline project phases including the design, construction, inspection and maintenance. The training course has been designed to cover all life cycle oil and gas pipeline projects.

This training course will give you the international insight of the onshore pipeline industry to enable you to retain your talent in order to ensure sustainable career growth. This is essential development for those who need to develop their pipeline design, construction, inspection and managerial skills further.

This training course will highlight:

- Onshore pipeline design
- Fabrication and construction of onshore pipelines
- Pipeline inspection, testing and maintenance
- Threats to integrity and safety

- Pipeline integrity management

Who Should Attend?

This training course is suitable for a wide range of professionals but will greatly benefit:

- Piping Engineers
- Pipeline engineers who want to expand their knowledge in the pipeline industry
- Operations Engineers
- Project engineers
- Maintenance engineers and technicians
- Engineers from all disciplines who are new to the pipeline industry
- Managers and executives who are new to the pipeline industry

Course Objectives:

This training course will help participants understand different aspects of onshore pipeline design, fabrication, construction, integrity, inspection and maintenance.

By the end of this training course, participants will be able to:

- Understand how pipelines are designed
- Learn about the challenges of onshore pipeline installation
- Appreciate the different techniques of pipeline testing and repair
- Learn about pipeline integrity management
- Learn about operation and inspection of pipelines

Training Methods:

This training course will utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented including:

- Course manual
- PowerPoint presentations,

- Videos
- Competency assurance tests including pre-assessment and post-assessment tests

The daily seminars will be highly interactive and participative. This involves regular discussion of applications as well as hands-on exposure to techniques using examples from case studies and real projects. Delegates are strongly encouraged to bring and share their own experiences, lessons learnt from the work domain. This adds greater relevancy to the content.

Organizational Impact:

This training course will effectively impact the organization by increasing the service life of its pipeline projects, reduce the maintenance and operations cost and minimize the Safety, Environmental and business risks. The course will further consolidate the following:

- Requirements for pipeline design and construction
- Onshore pipeline integrity management
- Protection, inspection, testing and maintenance of pipelines

Personal Impact:

Upon successful completion of the training course, participants will be able to comprehend and effectively manage the challenges or obstacles encountered during the development of pipeline projects within their organizations.

The training course is very comprehensive and will address all phases of pipeline life cycle so that participants of any engineering discipline will have a rounded knowledge of the oil and gas pipeline industry.

Course Outline:

Day One: Elements of Pipeline Design and Route Selection

- Pipeline Route Selection
- Class location
- Survey and Geotechnical aspects
- Codes and Standards

- Economics and Cost estimate

Day Two: Onshore Pipeline Design

- Pipeline Design
- Expansion and Flexibility
- Buoyancy Control
- Materials Selection and Quality Management
- Wall Thickness/Pipe Grade
- Flow Assurance
- Transient Flow in Liquid and Gas Pipelines

Day Three: Fabrication and Construction

- Right-of-Way
- Ditching
- Concrete Work
- Pipeline fabrication
- Pipe Laying
- Pipeline Pigging
- Pipe Lowering
- Pipeline Welding
- Main Standards for line pipe manufacturing and testing
- Crossings (Road, Highways, Minor Streams, and Utilities)
- Horizontal Directional Drilling (HDD)

Day Four: Protection, Inspection and Testing of Pipelines

- External coatings
- Thermoplastic liners for oilfield pipelines
- Cathodic protection
- Inspection and monitoring
- Direct assessment

- Intelligent pigging
- Eddy current testing in pipeline inspection
- Non-destructive tests (NDT) and Nondestructive examination (NDE) techniques and technologies
- Ultrasonic monitoring of pipeline wall thickness

Day Five: Integrity and Maintenance of Pipelines

- Threats to pipeline integrity and safety
- External corrosion of pipelines in soil
- Evaluation and mitigation of mechanical damage in pipelines
- Erosion-corrosion in oil and gas pipelines
- Black powder in gas transmission pipelines
- Pipeline cleaning
- Managing of aging pipelines
- Pipeline repair
- Pipeline abandonment
- Risk management of pipelines
- Case histories