

**Training Title**

**ADVANCED PIGGING & PLANT ENGINEERING**

**Training Duration**

5 days

**Training Venue and Dates**

REF ME080	Advanced Pigging & Plant Engineering	5	20 – 24 October, 2019	\$4,250	Dubai, UAE
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In any of the 5 star hotel. The exact venue will be informed once finalized.

**Training Fees**

- 4,250 US\$ per participant for Public Training. Fees Includes Course Materials/ Handouts, Tea/Coffee, refreshments, International Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**TRAINING INTRODUCTION:**

Pigging is essential for pipelines. Pigging is needed in all the pipelines life stages, during construction, During Operation, and for inline inspection. Pigs can do cleaning to remove depress and other remains after pipe construction to be ready for service. During operation pipeline cleaning to remove wax and black powder will improve the pipeline performance and reduce pumping power. Pigging is used for inline inspection where the present condition of the pipeline can be measured and monitored using recent techniques like MLF and Ultrasonic tools. This will help collecting data for pipeline assessment. This five days course will discuss different aspects of pipeline pigging and its different applications for the pipelines.

**TRAINING OBJECTIVES:**

1. Delegates will learn about different types and designs of pigs.
2. Delegates will learn different applications of pigs for liquid and gas pipeline
3. Delegates will learn about the pipeline degradation mechanisms and types of failure
4. Delegates will learn the fitness-for-service assessment techniques

**WHO SHOULD ATTEND**

Engineers and Technicians involves in pipeline construction, maintenance and operation.

**TRAINING METHODOLOGY:**

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions, and motivate everybody find the right answers. You will also be

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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. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### COURSE CONTENTS:

#### Ch 1 Pig Design

Types of Pipeline Pigs

Utility Pigs

In-Line Inspection Tools

Gel Pigs

Pig selection

Pig Design Aspects

Pigs Performance

Pig Pressure

Pig Velocity

Pig Wear & Sealing

Pipeline Design for pigging

Onshore and Offshore Pipelines

Pipeline Fittings

#### Ch 2 Pig Launchers

Components of Pigging Unit

Pig Launching & Receiving Chambers

Pigging Obstacles

Launchers Accessories

Scraper Traps

Launching and Receiving Procedures

Pig Tracking Systems

#### Ch 3 pigging Applications

Pigging During Pipeline Construction

Debris Removal

Gauging

Cleaning

Flooding for Hydrotest

Dewatering & Drying

Methods of Pipeline Drying

Case Study – Flooding & Drying

Pigging During Operation

Separation of Products

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Improving Flow Efficiency  
Corrosion Inhibition  
Meter Proving  
Pigging Frequency  
Case Study – Wax & Black Powder Removal  
Specialist Applications  
Intelligence Pigging  
Calliper Survey  
Magnetic Flux Pig  
Ultrasonic Pig  
Internal Coating  
Epoxy Lining  
Pressure Barriers

**Ch4 Intelligent Pigs MFL**

Pipeline Deterioration  
Inspection & Testing Methods  
Inline Inspection  
Types of Flaws  
Parameters Affecting ILI Tools Performance  
Equipment Design  
Probability of Detection  
Magnetic Flux Leakage Technology  
Factors Affects Capabilities  
MFL versus Ultrasonic  
Case Study

**Ch 5 Pipeline Assessment**

Causes of Pipeline Failures  
Pipeline Accident Reports  
Fitness-for-Service Assessment  
Piping Degradation – Type of Flaws  
Damage Mechanisms  
Pre-Service Flaws  
In-Service Flaws  
Galvanic Corrosion  
Cathodic Protection  
Sweet Corrosion – Inhibitors  
Sour Corrosion  
Types & Areas of Deterioration  
Piping Service Classes  
Inspection Intervals  
Remaining Life Calculations  
Pipeline Assessment – Metal Loss Defects  
Level of Assessment  
Assessment Procedure

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## External and Internal Corrosion

**NOTE:**

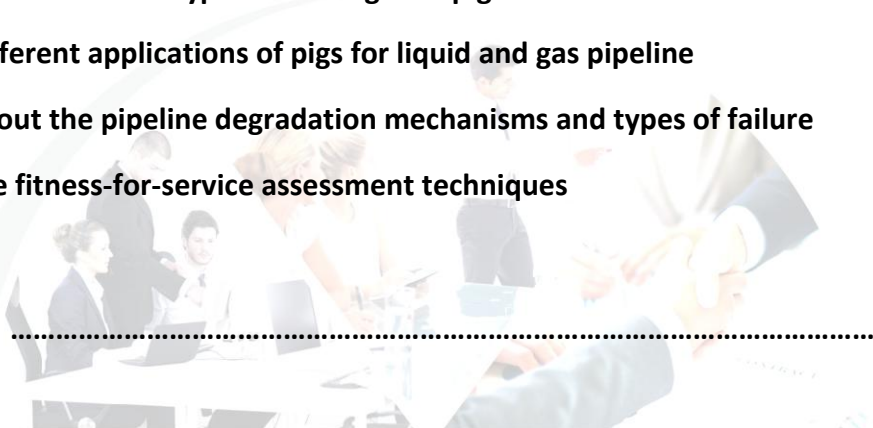
**Pre & Post Tests will be conducted**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**

**TRAINING OUTCOME**

**Upon successful completion of this course, participants will be able to:**

- 1. Learn about different types and designs of pigs.**
- 2. Learn different applications of pigs for liquid and gas pipeline**
- 3. Learn about the pipeline degradation mechanisms and types of failure**
- 4. Learn the fitness-for-service assessment techniques**



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