Training Title

INSPECTION AND MAINTENANCE OF SUBSEA PIPELINES AND OFFSHORE STRUCTURE

Training Duration

5 days

Training Venue and Dates

REF OE011	Inspection and maintenance of subsea pipelines and offshore structure	5	11-15 November 2024	$6,500	Milan, Italy

In any of the 4 or 5 star hotel. Exact venue will be informed soon.

Training Fees

- **$6,500 per participant for Public Training including Course Materials/Handouts, Tea/Coffee, Refreshments & Lunch**

Training Certificate

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

TRAINING DESCRIPTION

This course outlines the hazard, consequences and risks associated with operation of offshore structures and pipelines, details the conventional and stress-associated degradation mechanisms and the range of inspection and testing methods that can be applied. The options for degradation control are presented with case histories of both failures and successes. Where pro-active maintenance has been ineffective then the course details typical cost-effective repair procedures that are available. Particular emphasis is placed on pipeline networks where it is necessary to combine statistical analyses with modeling to prioritize the inspection programme. Corrosion monitoring requirements are covered and the possible advantages of advanced monitoring techniques are outlined. Cathodic protection surveying and retrofitting are also detailed in the light of the new CP design code for submarine pipelines. As part of the course the delegates will be expected to partake in an inspection programme planning exercise.

TRAINING OBJECTIVES

Upon the successful completion of this course, each participant will be able to:-

- **Apply and gain an in-depth knowledge on inspection & maintenance of subsea pipelines & offshore structures**

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- **Discuss the philosophy of Inspection, Maintenance and Repair (IMR) and identify the types of risk assessment approach used in IMR**
- **Explain the structural failure modes of jackets including fatigue, risers, dropped objects, pipeline jacking and scour mechanisms and employ the various procedures in the inspection and repair of subsea pipelines and offshore structures**
- **Enumerate corrosion issues such as seawater corrosion & corrosion under marine fouling and explain its recommended practices**
- **Discuss subsea pipelines particularly their construction and list down some case histories of problems encountered during pipeline construction**
- **Employ the latest procedures of hydrotesting, recognize its importance as an inspection tool and describe the concept of free span including the use of sidescan sonar and laser camera systems in evaluation and repair of free spans**
- **Explain the on-bottom stability by describing the design of weight coatings and identifying the impact of climate change on pipeline stability and the additional provisions on bottom stability**
- **Determine the various subsea pipeline failures and the different methods of repair of damaged subsea pipelines and explain the concept of cathodic protection including the design codes, methods of CP surveying, analysis of data & coating condition**
- **Describe internal corrosion comprising its morphology, inspection, monitoring and evaluation, identify the various types of pigging and explain their features, functions and limitations**
- **Implement the statistical methods used in corrosion data evaluation and the various procedures used in the prevention of corrosion**
- **Carryout methods of cathodic protection retrofitting and demonstrate the calculation method to evaluate protection limits**

TRAINING METHODOLOGY

A highly interactive combination of lecture and discussion sessions will be managed to maximize the amount and quality of information, knowledge and experience transfer. The sessions will start by raising the most relevant questions, and motivate everybody finding the right answers. The attendants will also be encouraged to raise more of their own questions and to share developing the right answers using their own analysis and experience.

All attendees receive a course manual as a reference.

This interactive training workshop includes the following training methodologies

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

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WHO SHOULD ATTEND

This course is intended for structural, pipeline and subsea engineers as well as integrity, corrosion, inspection and maintenance engineers. The risk assessment approach will have direct relevance to the work of planning and project engineers and to the managers charged with control and prioritization of the inspection and control programmes.

COURSE OUTLINE

Day 1

- Crude Oil History; Supply and Trading Patterns
- Definitions and Terms
- Quality Variations and Their Causes
- The Complexities of Crude Oil Composition
- Sampling Protocols
- Sampling Containers and Sample Integrity

Day 2

- Composition and Classification
- Inspection Analyses (Cursory Assay)
- Comprehensive Analyses (Full Assay)
- Other Important Crude Oils and Fraction Properties
- Basics of Crude Oil Processing Evaluation

Day 3

- Bitumen and Extra Heavy Crude Oils
- Crude Oil Quality (Case Studies)
- ASTM Crude Oil Proficiency Testing Program
- Challenges Presented to the Analyst by Heavier, Higher Sulfur Feed stock and Opportunity Crude Oils
- Future Needs in Crude Oil Characterization and Analytical Test Method Requirements

Day 4

- **Typical oilfield processing**
- **Production fluid treatment objectives**
- **Production fluid separation**

Emulsion

- **Theory**
- **Stabilization**
- **Destabilization**

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- **De-emulsifier**

Day 5

Oil treatment basics

- **Dehydration**
- **Desalting**
- **Stoke's law of settling theory or gravity separation**
- **De-emulsifier requirements and selection**
- **Group discussion on the chemicals used**

NOTE:

Pre & Post Tests will be conducted

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

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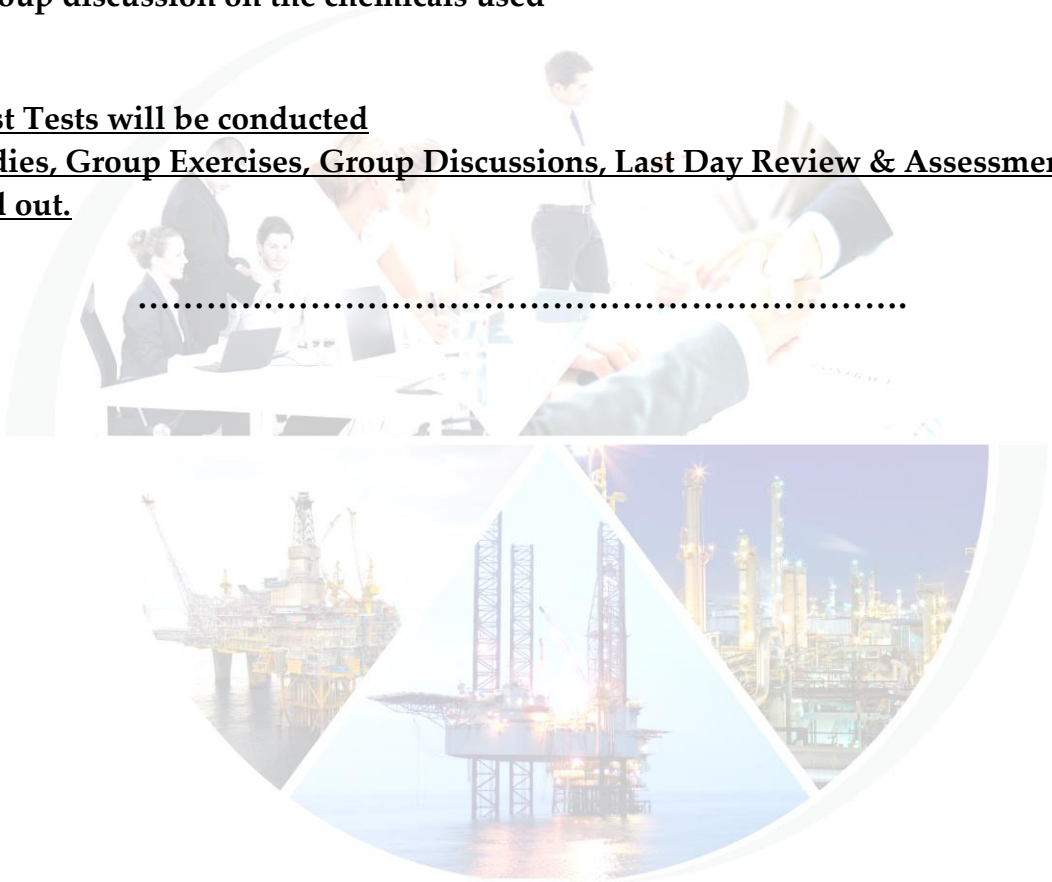

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