

Pipeline Pigging Technical and Operational Aspect

Course general description:

Pipeline Pigging: Technical and Operational Aspects is a critical process in the maintenance, inspection, and cleaning of pipelines that transport oil, gas, water, and other fluids. Pipeline pigging involves sending specialized devices called "pigs" through the pipeline to perform tasks such as cleaning, inspecting, or separating different products. This course is a comprehensive overview of the technical and operational aspects of pipeline pigging, including its types, purposes, tools, challenges, and best practices.

Audience:

This course is intended for professionals working in pipelines management and integrity, including:

- Operations engineers
- Projects engineers
- Maintenance & inspection engineers
- Supervisors and experienced technicians

Course objectives:

To enhance the delegate knowledge, skills, and abilities necessary to give him some practical exposures to the pigging operations including pipeline cleaning and inspection.

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

- Types of pigs
- Function of pigs
- Pigging operation selection upon application
- HSE during pigging operations

Course duration:

5 days

Course location:

Cairo-Dubai-Istanbul

Course contents:

Day-1:

1 - Introduction to Pipelines

2- Codes and standards related to pipelines

3- Pipelines materials, manufacturing and coating

4- Fluid Properties

5-Pipeline Design and Operations

- Gas pipeline
- Liquid pipeline
- Multiphase pipeline

6- Flow in Pipelines

7- Introduction & History of Pigging

- What is a 'Pig'?
- Development and reasons for use
- Different types of pig

Day-2:

8- Pig Traps

- What are they
- Why do we need them
- Different Types
- Trap doors
- Procedures for operation

9-Launch & Receive of Pigs

- Equipment
- How the pipe work and trap design are set for pigging.
- Procedures to launch a pig.
- Safety
- Lifting and loading

Day-3:

10- When & Why do you Pig

- Construction, Maintenance, Inspection

11- Review of Utility Pigs

- Types & Uses; Selection of Pigs
- Internal coating
- Objectives
- Duration; length of run
- Pig efficiency
- The unknown; dust, dirt, wax
- Transmitters and Tracking

12- Feasibility and assessment processes for pigging projects

- Piping Aspects; pig selection and feasibility
- Presence and types of pig traps
- Alternatives to pig traps?
- Temporary or Permanent
- Pipeline Bends, Tees and Valves
- Special fittings
- Distance
- Multiple diameters
- Current and future special pigs designs

Day-4:

13- Operational Conditions; effects on pig selection and feasibility

- Pressure, Flow rate and Temperature
- Dust, debris, Wax.
- Special Pig Design to Overcome these

14-Developing a Cleaning & Proving Pig Program Plan

- Considerations
- Type of product
- Last cleaning run
- Type of debris/ deposits/ waste
- The basics needed to carry out a pig run.

- How many runs will be needed
- Types of pig to be used and in which order
- Issues to consider
- Frequency of pig runs.

Day-4:

15-Planning a Pigging Project up to and including Inspection Pigging.

- Priority of Pipelines
- Risk Assessments
- Budgets, Engineering and Manpower

16- HSE during Pigging Projects

- Environmental and Safety Aspects
- Waste Handling
- NORM
- H2S
- Venting Restrictions
- Noise
- Purging
- Cleaning & Washing Pigs after a pig run
- Pyrophoric Dust
- Other contaminants.
- Pig Speed.

Methodology:

- 50% lectures & concepts
- 10% Videos
- 10% Case studies
- 10% Exercises
- 10% Discussions
- 10% Software (if applicable or examples)

Course code: (TPRS048)