



PIGGING AND IN-LINE INSPECTION



Introduction:

The use of in-line tools for inspection and cleaning is accepted as essential for the safe and profitable operation of all pipelines. Now, Regulations require internal inspections using geometry pigs for detecting changes in circumference and MFL or ultrasonic pigs for determining wall anomalies, or wall loss due to corrosion. Offshore, pipeline operators wage a constant battle for flow assurance against paraffin, hydrate, and asphaltene formation in deepwater lines, and pigging technology combined with chemical treatment is their primary weapon. The course will examine the various "utility" tools for cleaning, sealing and gauging; related tools such as signalers, locators, and tracking systems; the various "intelligent" or "ILI" tools for internal inspection; and the practical aspects of designing and running a pigging program.

Who Should Attend?

The course is especially designed for

- Project managers,

- Engineers,
- Maintenance and technical personnel responsible for pipeline integrity assurance, flow assurance, corrosion control, and safety.

Course Objectives:

This course is designed to provide a comprehensive introduction to all aspects of utility and in-line inspection pigging. Led by four of the most experienced, independent experts in this field today, the course will be conducted as a workshop, and attendees will be actively encouraged to participate.

Course Outline:

Pigging for Operation and Maintenance

- Pigging during construction
- Pigging during operation
- Utility Pigs
- Cleaning pigs
- Sealing pigs
- Gauging pigs
- Dual diameter pigs
- Magnetic cleaning pigs
- Designing a Pipeline for Pigging
- Pig traps and pigging stations
- Location and tracking devices

In-line Inspection (ILI) Tools - Theory, Performance, and Detection Limits

- Metal loss In-line Inspection

- Other In-Line Inspection Tools
- Crack detection pigs
- Mapping
- Geometry and bend-detection pigs
- Wax deposition measurement
- Spanning pigs
- Semi-intelligent pigs

Designing and Implementing an In-line Inspection (ILI) Program

- Selecting an ILI Tool
- Specific Design Considerations for Running ILI Tools
- Launch and Receive trap design
- Bends, tees, and valves
- Issuing an Inquiry
- Schedule requirements

Preparation for ILI

- Controlling Operational Parameters During the Inspection Run
- Strategy for Contract Development and Negotiations
- Developing a good specification
- Contingency Planning for a Stuck Pig
- Offshore risers
- Onshore flowlines, gathering system main sections or laterals

Post In-line Inspection Issues

- Quality Assurance Check of the Data
- Development of Protocols for Response
- Prioritization of the Dig Plan

- ❖ US regulatory requirements
- ❖ Criteria for corrosion-caused metal loss
- ❖ Criteria for dents

Validation of Results:

- Planning and preparation for field NDE
- Comparison between ILI, field NDE and actual:
 - ❖ Corrosion
 - ❖ Dents - effects of re-rounding
- Establish level of confidence

Fitness for Purpose: Assessment

- Assessment of defects
- Establish long-term integrity management program
- Incorporation of results in risk programs
- Potential Repair Consideration