API 570 – Process Piping Inspection Program

2 – 13 August 2027
London (UK)



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Introduction

The API 570 - Process Piping Inspection Program is a professional training course designed to develop technical competence in the inspection, evaluation, and integrity management of process piping systems.

The program focuses on providing participants with a structured understanding of piping systems operating under pressure and temperature conditions, and the inspection practices required to ensure their safe and reliable performance.

This course is intended for engineers, inspectors, maintenance specialists, and technical supervisors who are responsible for piping systems throughout their operational lifecycle.

By combining inspection theory with practical evaluation techniques, the program enables participants to identify deterioration mechanisms, assess piping condition, and support informed maintenance decisions.

The training emphasizes accuracy, consistency, and professional judgment in piping inspection activities.

Course Objectives

The API 570—Process Piping Inspection Program aims to strengthen inspection capabilities and technical decision-making.

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

- Understand the fundamentals of process piping systems.
- Apply inspection requirements and acceptance criteria correctly.
- Identify common damage and degradation mechanisms in piping.
- Perform visual and technical inspections systematically.
- Calculate corrosion rates and estimate remaining service life.
- Evaluate piping fitness for continued operation.
- Prepare clear and accurate inspection reports.
- Support maintenance, repair, and replacement decisions.



Course Outlines

Day One: Process Piping Fundamentals

- Definition and classification of process piping systems.
- Main components and piping configurations.
- Operating conditions and design limitations.
- Inspector roles and responsibilities.
- General inspection requirements.
- Discussion of basic inspection scenarios.

Day Two: Design and Materials

- Principles of process piping design.
- Common materials used in piping systems.
- Material properties and service limitations.
- Welding types and joint considerations.
- Review of piping drawings and specifications.
- Practical examples of material selection.

Day Three: Damage Mechanisms

- Internal and external corrosion mechanisms.
- Erosion and erosion-corrosion effects.
- Stress-related cracking mechanisms.
- Thermal and mechanical damage.
- Early indicators of piping failure.
- Analysis of real inspection cases.

Day Four: Visual Inspection

- Scope and objectives of visual inspection.
- Inspection access methods and tools.
- Identification of visible defects.
- Surface condition assessment.
- Documentation of visual findings.
- Practical inspection exercises.



Day Five: Non-Destructive Examination

- Principles of non-destructive examination.
- Common examination methods for piping.
- Selection of suitable examination techniques.
- Interpretation of examination results.
- Limitations and accuracy of methods.
- Practical application examples.

Day Six: Thickness Measurement and Corrosion Calculations

- Thickness measurement techniques.
- Determination of minimum required thickness.
- Corrosion rate calculation methods.
- Remaining life estimation.
- Data validation and trend analysis.
- Calculation exercises and examples.

Day Seven: Fitness-for-Service Evaluation

- Acceptance criteria for process piping.
- Fitness-for-service concepts.
- Risk-based assessment principles.
- Repair versus replacement decisions.
- Documentation of technical evaluations.
- Scenario-based discussions.

Day Eight: Repairs and Alterations

- Types of approved piping repairs.
- Planning and execution of repairs.
- Quality control during repair activities.
- Inspection requirements after repairs.
- Conditions for return to service.
- Review of repair case studies.

Day Nine: Reporting and Documentation

- Structure of piping inspection reports.
- Clear and concise technical writing.
- Documentation of inspection data.
- Record retention and traceability.
- Compliance documentation requirements.
- Review of sample inspection reports.



Day Ten: Review and Final Evaluation

- Comprehensive review of course content.
- Technical clarification and discussion.
- Integrated piping inspection case studies.
- Final knowledge assessment.
- Practical evaluation exercises.
- Summary of key learning outcomes.

Why Attend This Course: Wins & Losses!

- Enhances technical knowledge of process piping systems.
- Improves inspection accuracy and consistency.
- Supports informed maintenance planning.
- Reduces risk of piping failures.
- Strengthens inspection reporting skills.
- Improves understanding of inspection standards.
- Builds professional confidence in inspection roles.
- Supports career progression in inspection and integrity roles.

Conclusion

The API 570 - Process Piping Inspection Program provides a comprehensive framework for developing professional piping inspection expertise. It integrates theoretical knowledge with practical inspection techniques to support safe and reliable piping operation. Participants gain the skills required to identify damage mechanisms, evaluate piping condition, and make sound technical decisions.

The program also emphasizes disciplined documentation and reporting practices. As a result, professionals completing this course are better equipped to manage process piping integrity throughout its service life.

