

€ TRAINING

Advanced ASME Plant Inspector Level 1





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Introduction:

This training program provides the fundamental principles of the inspection, assessment, and management of fixed pressure equipment. It's content is delivered in a systematic manner, from the inspection planning process to inspection practices and evaluation of the associated equipment. This intensive program covers the in-service inspection methodologies and requirements for piping, pressure vessels, and above ground storage tanks.

Program Objectives:

At the end of this program the participants will be able to:

- Gain insight into background engineering knowledge, encompassing pressure equipment types and fundamental materials.
- Understand the multifaceted inspection role, elucidating the objectives inherent in inspection reports.
- Familiarize yourself with statutory requirements governing industrial inspection practices.
- Acquire knowledge of equipment failure modes, including principal stress analysis and crack propagation mechanisms.
- Explore damage mechanisms such as fatigue and creep, vital for comprehensive inspection understanding.
- Develop proficiency in detecting and evaluating damage, utilizing techniques like thickness measurement and assessing vessel peaking and distortion, culminating in the practical skill of crafting an assessed inspection plan.

Targeted Audience:

- NDT Technicians/Inspectors.
- Inspection/Integrity/Project Engineers.
- Technical Assistants.
- Project/Inspection Coordinators.
- Plant Supervisors.

Program Outlines:

Unit 1:

Introduction:

- Program overview.
- Reasons for inspection.
- Mechanical Integrity failures in case studies.

Unit 2:

Risk-Based Inspection RBI:

- Introduction to RBI.
- Relevant Codes and Standards.
- RBI Methodology.
- RBI Assessments.
- IOWs and the MOC processes.

Unit 3:

Engineering Materials and Basic Design Principles:

- Materials and their properties.
- Types of stresses and loadings.

Unit 4:

In-service Piping Monitoring:

- Design of piping for pressure containment.
- Piping Classes per API 570.
- Common Damage Mechanisms.
- Principles of corrosion loops/circuits.
- Codes and Standards.

Unit 5:

In-service Pressure Vessel Monitoring:

- Design of Pressure Vessels pressure containment.
- Static Head principle.
- Vessel Components - Shell/Nozzles/Supports/Head.
- Common Damage Mechanisms relating to pressure vessels.
- Steps for Assessing localized and general wall loss to API 510.

Unit 6:

Useful Remaining Life Assessments:

- Corrosion rate calculations.
- Remaining life calculation.
- Safe MAWP calculation.
- Inspection periods.

Unit 7:

In-service Storage Tank Inspection:

- Design.
- Static Head principle.
- Tank Components - Shell/Floors/Roofs.
- Common Damage Mechanisms.
- Assessing wall loss to API 653.
- Determine the maximum fill height.

Unit 8:

Testing and Examination:

- Approaches for Pressure Testing.
- Approaches for Leak Testing.
- NDE.

Unit 9:

Inspection Plans:

- Purposes of an inspection plan.
- Content of plan.
- Writing the plan.

Unit 10:

Inspection Management and Compliance:

- Mastery of inspection management principles, encompassing planning, execution, and oversight for fixed pressure equipment.
- Adherence to regulatory compliance standards, ensuring alignment with industrial inspection practices and relevant codes.
- Effective communication and coordination among stakeholders to streamline inspection activities and ensure compliance.