

Master Class Series



Risk-based Inspection Planning Using ASME and API Standards *(MC124)*

A Practical Training Program
Led by:

Philip Henry

15 Hours • 1.5 CEUs • 15 PDHs

About this MasterClass

This two-day MasterClass provides an in-depth examination of the risk analysis principles, guidance, and implementation strategies presented in the ASME Standard PCC-3, *Inspection Planning Using Risk-Based Methods*. Specific requirements of API 581, *Risk-based Inspection Methodology*, will be discussed as well. The methods presented, although broadly applicable, have been specifically developed for applications involving fixed pressure-containing equipment and components. The course provides guidance to owners, operators, and designers of pressure-containing equipment for developing and implementing a risk-based inspection program.

For more information and to register, visit
<http://go.asme.org/mc124>



ASME MasterClass Series

The ASME MasterClass Series focuses on applications and case studies of a particular topic. Each MasterClass is led by an ASME Master, an expert in his professional discipline, who brings a wealth of knowledge and practical examples to the forum. Participants are expected to have prior knowledge of the topic area to gain the most from this interactive environment.

Sessions are focused on real world examples and case studies, with active class discussion and analysis.

About this MasterClass

The focus of this MasterClass is to provide an understanding of Risk-Based Inspection (RBI) as well as to convey practical information on how to perform RBI to help manage operating risks. Discussion on the background of the analysis methods and their application will be presented through the ASME Standard PCC-3, *Inspection Planning Using Risk-Based Methods*. The class will include detailed example problems from API 581, *Risk-based Inspection Methodology*, that demonstrate how the analytical techniques can be applied, and their limitations.

Upon completion, attendees will be able to

- Explain the fundamentals of risk-based inspection and the implementation strategies presented in ASME Standard PCC-3, *Inspection Planning Using Risk-Based Methods*.
- Identify and evaluate damage mechanisms, damage mechanism resources, and failure modes.
- Apply risk analysis techniques to reduce uncertainty and identify opportunities for risk reduction.

Who Should Attend

This masterclass is intended for pressure vessels engineers, inspection and reliability personnel working for owner-users, or engineering and design construction firms in the refining, petrochemical, and other comparable industries that desire a practical understanding of Risk-Based Inspection (RBI).

About this ASME Master

Philip Henry, P.E.

is Technical Advisor for Equity Engineering Group, Inc., and has over 25 years of experience in the refining and petrochemical industries. He is responsible for engineering consulting services in the areas of Pressure Relief, Heat Transfer and Fluid Flow.



Mr. Henry is a specialist in the design, installation, sizing and selection of pressure relief devices and relieving systems and is currently Chairman of the API Pressure Relieving System Subcommittee's Task Force on STD 520 related to the design and installation of pressure relieving systems. He conducts audits of pressure relieving systems to ensure compliance with OSHA PSM legislation and ASME, API and DIERs Standards, Codes and Publications. He also teaches the official API Pressure Relieving Systems course.

Mr. Henry is actively involved in the development of technology for the API Risk-Based Inspection (RBI) methodology. He is co-author of the re-write of API 581, *Risk-Based Inspection Technology* and is responsible for the development and implementation of Risk-Based Inspection programs for fixed equipment, pressure relief valves and heat exchanger bundles at several refining and petrochemical plants. He has developed consequence models for use within RBI programs.

MasterClass Requirements

Attendees are encouraged to discuss actual scenarios encountered as part of a class discussion.

This MasterClass is structured on the assumption that participants have a basic understanding of ASME PCC-3 and risk-based concepts.

Inspection Planning Using Risk-Based Methods *(MC124)*

AGENDA

The contents are presented in six sessions, tentatively organized as shown. The schedule allows for ample discussion and interaction with attendees. The instructors reserve the right to modify the content to address the audience's needs and preferences.

Introduction

- Basic Concepts
- Introduction Risk-Based Inspection (RBI)
- Risk Analysis Methodologies
- Understanding How RBI Helps to Manage Operating Risks
- Relationships to Jurisdictional Requirements

Planning and Implementing the Risk Assessment

- Getting Started
- Establishing Objectives - Manage Risk or Reduce Cost?
- End-of-Life Strategies
- Screening/Selection of Equipment
- Selecting an RBI Approach
- Estimating Resources and Time Required
- Data and Information Collection

Damage Mechanisms and Failure Modes

- Identification of Damage Mechanisms
- Damage Mechanism Resources
- Failure Modes

Risk Analysis

- Probability of Failure Analysis
- Damage Susceptibility and Rate
- Effectiveness of Inspection
- Consequence of Failure Analysis
- Safety and Health Consequences
- Environment and Economic Consequences
- Determination of Risk
- Risk Thresholds

Risk Management

- Reducing Uncertainty through Inspection
- Identifying Opportunities for Risk Reduction
- Establishing an Inspection Strategy
- Managing Inspection Costs with RBI
- Other Risk Mitigation Activities
- Reanalysis and Evergreening

Roles, Responsibilities, Training and Qualifications

- Team Composition
- Training and Qualifications
- Documentation and Record Keeping