

Course No. 1289

Visual Inspection (VT) Training Course

CORROSION, INSPECTION & NDT
INDUSTRIAL ENGINEERING, MAINTENANCE & OPERATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Visual Inspection (VT) Training Course provides a comprehensive and practical framework for developing the knowledge and skills required to perform systematic visual inspections of industrial equipment, components, structures, and welds. The course focuses on visual inspection as one of the most fundamental non-destructive testing methods for identifying visible defects, deterioration, abnormal conditions, and early indications of equipment damage, while supporting inspection, maintenance, asset integrity, and reliability decisions.

Visual inspection is a critical first-line inspection activity across many industrial environments because it provides direct information about the visible condition of surfaces, components, welds, coatings, insulation systems, and accessible areas. A properly conducted inspection can identify corrosion, pitting, visible cracks, deformation, leakage indications, weld discontinuities, coating deterioration, wear, mechanical damage, and manufacturing or operational defects. Accurate observation, measurement, documentation, and reporting are essential for determining whether additional inspection or corrective action is required.

The course covers the principles of direct and indirect visual inspection, lighting and visibility requirements, access and surface preparation, visual inspection equipment, inspection techniques, defect identification, condition assessment, and professional documentation. Participants will examine visual inspection practices for piping, storage tanks, pressure vessels, static equipment, structures, welds, and industrial components, with particular emphasis on identifying visible conditions that may affect equipment integrity.

The program emphasizes practical application and professional inspection reporting. Participants will learn how to develop visual inspection plans, conduct systematic examinations, document observations and measurements, use photographs, sketches, and inspection maps, and determine when additional non-destructive testing methods may be required. This approach helps organizations improve inspection data quality, support maintenance decisions, strengthen asset integrity programs, and establish consistent visual inspection practices.

Objectives

- Analyze the fundamental principles of visual inspection and explain its role within non-destructive testing and asset integrity programs during the course.
- Identify inspection requirements related to lighting, visibility, accessibility, surface condition, cleanliness, and environmental conditions.
- Evaluate industrial equipment and components systematically to identify visible defects and degradation.
- Apply direct and indirect visual inspection techniques using appropriate inspection tools and equipment.
- Identify corrosion, pitting, cracking, deformation, wear, surface damage, coating deterioration, and other visible defects.
- Evaluate welds and welded components for visible discontinuities and conditions requiring further assessment.
- Inspect piping, storage tanks, pressure vessels, static equipment, structures, and industrial components according to defined inspection requirements.
- Improve the accuracy of defect location, measurement, description, and documentation using photographs, drawings, sketches, and inspection maps.
- Assess visual inspection findings and determine when additional non-destructive testing techniques are required.
- Develop structured procedures for documenting inspection findings and preparing clear, traceable technical reports.
- Strengthen coordination between inspection, maintenance, engineering, corrosion, reliability, and asset integrity teams.
- Conduct and document a complete visual inspection of a selected industrial component and provide appropriate recommendations by the end of the course.

Who Should Attend

The Visual Inspection (VT) Training Course is designed for professionals involved in non-destructive testing, equipment inspection, asset integrity, maintenance, engineering, reliability, corrosion management, and quality assurance. It is particularly suitable for equipment inspectors, quality inspectors, inspection technicians, inspection engineers, asset integrity engineers, corrosion engineers, mechanical engineers, maintenance engineers, reliability engineers, and technical specialists responsible for assessing the external or accessible condition of industrial equipment

and components.

The course is also relevant to inspection, quality, maintenance, asset integrity, engineering, and reliability managers and supervisors, as well as professionals involved in inspecting pressure vessels, storage tanks, piping systems, static equipment, welded components, industrial structures, and process facilities. It is valuable for engineers and technicians who need to identify visible defects, document inspection findings accurately, and determine when more specialized non-destructive testing techniques are required.

Asset managers, technical decision makers, and multidisciplinary engineering teams can benefit from the course by improving the quality and consistency of visual inspection data and integrating inspection findings with maintenance, corrosion management, reliability, and asset integrity programs. The course supports organizations in establishing structured approaches to visual examination, defect documentation, follow-up inspection, and technical decision-making.

Learning Outcomes

- Explain the principles of visual inspection and its role in equipment condition assessment and asset integrity.
- Identify requirements related to lighting, visibility, accessibility, surface preparation, and environmental conditions.
- Develop a structured visual inspection plan based on equipment type, component condition, and service environment.
- Perform systematic direct visual inspections using appropriate tools and inspection practices.
- Apply suitable indirect visual inspection techniques for areas that are difficult to access directly.
- Identify corrosion, pitting, cracking, deformation, wear, coating deterioration, leakage indications, and other visible defects.
- Evaluate visible conditions and discontinuities associated with welds and welded components.
- Inspect piping, storage tanks, pressure vessels, static equipment, structures, and industrial components.
- Document defects using photographs, sketches, dimensional measurements, drawings, and inspection locations.
- Evaluate inspection findings and determine when additional non-destructive testing is necessary.
- Prepare professional visual inspection reports containing observations, defect descriptions,

measurements, locations, photographs, and recommendations.

- Apply an integrated visual inspection methodology and connect inspection findings with maintenance and asset integrity requirements.

Course Outline

DAY 01

Fundamentals of Visual Inspection and Non-Destructive Testing

- Introduction to visual inspection and its role in asset integrity.
- Visual inspection as a fundamental non-destructive testing method.
- Objectives, applications, capabilities, and limitations of visual inspection.
- Direct and indirect visual inspection methods.
- Lighting, visibility, magnification, viewing distance, and observation requirements.
- Influence of environmental conditions and surface cleanliness on inspection quality.
- Surface preparation and removal of contaminants or obstructions.
- Basic visual inspection tools and measurement equipment.
- Use of magnifiers, mirrors, lighting equipment, and access tools.
- Documentation of equipment condition before, during, and after inspection.
- Establishing inspection scope, boundaries, responsibilities, and acceptance requirements.

PRACTICAL APPLICATION

Develop a visual inspection plan for an industrial component, including access, lighting, surface preparation, tools, and inspection requirements.

DAY 02

Visual Identification of Corrosion, Surface Damage, and Equipment Deterioration

- Principles of identifying corrosion through visual inspection.
- General corrosion and visible material loss.
- Pitting and localized corrosion.

DAY 02 — CONTINUED

- Crevice corrosion and galvanic corrosion indications.
- Corrosion Under Insulation and visible indications of insulation deterioration.
- Wear, erosion, abrasion, and surface deterioration.
- Deformation, distortion, buckling, bulging, and dimensional abnormalities.
- Leakage indications and visible evidence of fluid or gas release.
- Deterioration of coatings, linings, and protective systems.
- Evaluation of rust, discoloration, surface changes, and damaged areas.
- Documentation of defect locations, dimensions, distribution, and severity.

PRACTICAL APPLICATION

Examine representative industrial surfaces and components, identify visible degradation mechanisms, and document the observed conditions.

DAY 03

Visual Inspection of Welds, Piping, and Industrial Equipment

- Principles of visual inspection of welds.
- Inspection before, during, and after welding activities.
- Identification of visible weld discontinuities.
- Cracking, corrosion, deformation, and surface defects in welded areas.
- Inspection of piping systems and associated components.
- Inspection of pressure vessels, storage tanks, and static equipment.
- Inspection of flanges, connections, supports, fittings, and equipment interfaces.
- Internal visual inspection and indirect examination techniques.
- Use of remote visual inspection equipment and viewing systems.
- Inspection of difficult-to-access and restricted areas.
- Identification of conditions requiring additional non-destructive testing.

PRACTICAL APPLICATION

Perform visual inspection of selected industrial components and welds and determine which findings require further technical evaluation or specialized inspection.

DAY 04

Measurement, Documentation, and Inspection Reporting

- Principles of measuring visible defects during visual inspection.
- Locating defects using drawings, layouts, sketches, and inspection maps.
- Recording defect length, width, location, orientation, and other measurable characteristics.
- Technical photography and photographic documentation of defects.
- Use of sketches and inspection maps to establish defect locations.
- Structured recording of inspection data and traceability requirements.
- Classification and description of inspection observations and defects.
- Assessment of the need for additional inspection or specialized measurements.
- Preparation of professional visual inspection reports.
- Documentation of observations, measurements, photographs, findings, and recommendations.
- Communication of inspection results to maintenance, engineering, inspection, and asset integrity teams.

PRACTICAL APPLICATION

Prepare a complete visual inspection report containing photographs, measurements, defect locations, observations, conclusions, and technical recommendations.

DAY 05

Visual Inspection Management and Asset Integrity

- Developing visual inspection programs for industrial equipment and assets.
- Integrating visual inspection with periodic inspection, maintenance, and asset integrity programs.
- Establishing inspection priorities based on equipment condition and operating environment.
- Integrating visual inspection findings with other non-destructive testing methods.
- Monitoring identified defects and tracking changes in equipment condition over time.
- Establishing re-inspection and condition monitoring requirements.
- Linking inspection findings to maintenance, repair, and corrective action decisions.
- Developing standardized visual inspection procedures and reporting practices.

DAY 05 — CONTINUED

- Improving inspection records and defect databases.
- Establishing performance indicators for visual inspection programs.
- Strengthening coordination between inspection, engineering, maintenance, corrosion, reliability, and asset integrity teams.

FINAL WORKSHOP

Conduct a complete visual inspection of a selected industrial component, including inspection planning, surface preparation, lighting and access requirements, examination, defect identification, measurement, photographic documentation, defect mapping, determination of additional inspection requirements, preparation of the final inspection report, and recommendations for maintenance, repair, or continued monitoring.

Register or Request More Information

Course page: <https://quest-training.com/courses/visual-inspection-vt-training-course>

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