

Industrial Radiographic Testing Level 2 Practice Course

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Overview

Industrial Radiographic Testing Level 2 Practice Course is a one-week course for NDT and inspection personnel who leave with a Radiographic Examination Practice File. Participants apply industrial radiographic testing principles to X-ray and gamma-ray sources, exposure geometry, film and digital radiography, image quality indicators, discontinuity evaluation, reporting, and radiation protection. The course connects technical decisions with controlled-area and emergency practices. Agile Leaders Training Center delivers this course on Level 2 radiographic testing practice.

Who Should Attend

- Teams responsible for performing industrial radiographic examinations
- Functions responsible for interpreting weld and casting radiographs
- Quality groups responsible for inspection evidence and acceptance decisions
- Asset-integrity teams responsible for nondestructive testing coordination
- Safety personnel responsible for controlled areas and radiation protection

The course assumes participants can follow NDT procedures and basic radiation-safety controls, and it leaves out certification examinations and radiography equipment licensing.

Departments and Industries

The course supports inspection and integrity work across fabrication, energy, and process operations.

- Nondestructive testing and inspection departments
- Quality assurance and quality control functions
- Mechanical integrity and reliability teams
- Welding fabrication, casting, and manufacturing operations
- Oil, gas, power, and chemical processing facilities

Learning Objectives

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

- Apply X-ray and gamma-ray exposure principles
- Use geometric controls and image quality indicators
- Analyze film and digital radiographic image quality
- Evaluate weld and casting discontinuity indications
- Build radiographic instructions and inspection reports

- Prioritize radiation-protection and emergency actions

Course Agenda

Day 1: Radiation Principles and Equipment

- X-Ray and Gamma-Ray Interaction Model
- Inverse Square Law Exposure Calculations
- Source Activity and Decay Calculation Sheet
- Radiographic Equipment and Detector Selection Matrix
- ISO 9712 Level 2 Responsibility Map

Day 2: Exposure Geometry and Image Quality

- Single-Wall and Double-Wall Technique Selection
- Source-to-Object and Object-to-Detector Geometry
- Geometric Unsharpness Calculation Method
- Image Quality Indicator Placement Plan
- Exposure Chart and Technique Sheet Development

Day 3: Film and Digital Image Production

- Film System Selection and Processing Control
- Radiographic Density and Sensitivity Review
- Computed Radiography Imaging Plate Workflow
- Digital Radiography Detector and Display Checks
- Image Artifact Diagnosis Checklist

Day 4: Interpretation, Evaluation, and Safety

- Weld Discontinuity Radiographic Appearance Atlas
- Casting Discontinuity Classification Matrix
- Indication Measurement and Evaluation Record
- Controlled-Area Boundary and Survey-Meter Plan
- Dosimetry, Source Security, and Emergency Action Checklist

Day 5: Radiographic Testing Practice

- Suggested Exercise: Calculate an X-Ray Exposure Technique
- Suggested Exercise: Verify Image Quality Indicator Evidence
- Suggested Exercise: Interpret Weld and Casting Radiographs
- Suggested Exercise: Plan a Controlled-Area Response
- Capstone Exercise: Complete the Radiographic Examination Practice File

Practical Exercises

The course uses suggested activities to connect technique choices, image evidence, safety controls, and documented decisions.

- Suggested activity: calculate source, distance, exposure, and geometric factors for a component
- Suggested activity: compare film and digital images for sensitivity, artifacts, and acceptance evidence
- Suggested activity: classify indications and document an evaluation with traceable findings
- Suggested activity: assemble technique, safety, interpretation, and reporting records into a practice file

FAQs

Who suits industrial radiographic testing training, and what does it assume?

NDT technicians, radiographers, inspectors, and integrity personnel suit the course. It assumes basic procedure-reading ability and familiarity with workplace radiation controls, while certification examinations and equipment licensing remain outside scope.

How does Level 2 radiographic testing differ from visual testing training?

Level 2 radiographic testing uses penetrating radiation and recorded images to evaluate internal conditions. Visual testing relies on direct or remote optical examination of accessible surfaces and visible discontinuities.

How are film and digital radiography compared in industrial radiographic testing?

Film and digital radiography are compared through detector response, exposure technique, sensitivity, spatial resolution, processing, display controls, artifacts, storage, and the evidence required for interpretation.

What controls image quality in industrial radiographic testing?

Image quality depends on source energy, exposure, geometry, detector system, scatter control, processing or digital display settings, image quality indicators, and disciplined technique verification.

How is radiation protection applied during industrial radiographic testing?

Radiation protection applies time, distance, shielding, access control, survey-meter checks, dosimetry, source accountability, warning systems, local rules, and prepared emergency actions.

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Conclusion

Participants take back a Radiographic Examination Practice File containing technique calculations, image-quality checks, interpretation records, safety controls, and a reporting structure. It links exposure decisions to defensible examination evidence. The file supports consistent planning, evaluation, communication, and review of industrial radiographic testing work.

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