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COURSE BROCHURE

Pressure Vessel In-Service Inspection Training Course

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Registered in the United Kingdom and Saudi Arabia

Pressure Vessel In-Service Inspection Training Course

Pressure Vessel In-Service Inspection is a 1-week training course for inspectors and integrity engineers who must decide whether an operating vessel can stay in service, and it ends with a vessel fitness-for-service dossier for one real unit. Ageing plant, tighter shutdown windows and fewer experienced inspectors make each thickness reading and repair decision carry more weight. Jupiter Prime Training runs this course for pressure vessel inspection teams.

Why Pressure Vessel In-Service Inspection Matters Now

Three forces shape pressure vessel inspection today. Plant owners stretch run lengths between turnarounds, so every interval must be justified by measured wall loss rather than habit. Experienced inspectors are retiring faster than replacements gain field judgement. A site that reads corrosion trends correctly avoids both unplanned leaks and needless vessel replacement; one that misreads them risks loss of containment. The course rests on recognised pressure vessel inspection codes, risk-based inspection practice and fitness-for-service assessment, described in general terms.

Who Gains Most from Pressure Vessel In-Service Inspection

- Those who plan and record external, internal and on-stream vessel inspections
- Those who calculate corrosion rates and set the next inspection date
- Those who approve weld repairs, nozzle additions and other alterations
- Those who witness hydrostatic and pneumatic pressure tests
- Those who maintain equipment history files and integrity operating windows

Inspection and integrity groups from one refinery, gas plant or chemical site gain most when an inspector and a corrosion engineer attend together.

Pressure Vessel In-Service Inspection Capabilities

Participants turn thickness surveys into defensible verdicts on shells, heads and nozzles.

- Calculate short-term and long-term corrosion rates from thickness monitoring locations — next inspection interval
- Determine required minimum thickness for shells and heads under internal pressure — continued-operation verdict
- Estimate remaining life and select a retirement or monitoring option — operations and turnaround planners
- Classify proposed work as repair, alteration or rerating — authorisation and nameplate records
- Specify pressure test media, test pressure basis and safety zones — test witnesses and site safety
- Assemble inspection findings into an auditable equipment file — plant owner and insurers

Key Pressure Vessel In-Service Inspection Terms

- Thickness monitoring location — a fixed, marked point on a vessel where wall thickness is measured repeatedly to trend metal loss.
- Corrosion allowance — extra wall thickness added at design to absorb expected metal loss.
- Remaining life — the time left before wall thickness reaches the required minimum.
- Maximum allowable working pressure — the highest pressure permitted at the top of a vessel at a stated temperature in its current condition.
- Rerating — a change to the design temperature or allowable pressure of a vessel.
- Fitness-for-service — an engineering assessment showing whether equipment with a flaw or damage can operate safely for a defined period.

Pressure Vessel In-Service Inspection Day by Day

Day 1: Damage Mechanisms and the Inspection Basis

- General and Localised Thinning — Choosing Where Wall Loss Will Appear
- Pitting, Cracking and Creep Damage — Matching Mechanisms to Process Conditions
- Corrosion Loops and Circuits — Grouping Vessels by Shared Degradation
- Equipment History Files — Establishing What Earlier Inspections Already Proved
- Integrity Operating Windows — Flagging Process Excursions That Accelerate Damage

Day 2: Inspection Techniques and Intervals

- Ultrasonic Thickness Gauging and Scanning — Placing and Reading Monitoring Locations
- Internal Versus On-Stream Inspection — Deciding When Entry Is Necessary
- Risk-Based Inspection Ranking — Setting Intervals by Likelihood and Consequence
- Pressure Relief Device Checks — Confirming Overpressure Protection Remains Valid
- Inspection Reports and Photographic Evidence — Making Findings Traceable for Auditors

Day 3: Thickness, Corrosion Rate and Remaining Life

- Shell and Head Minimum Thickness Formulas — Confirming Pressure-Retaining Capacity
- Short-Term and Long-Term Corrosion Rates — Selecting the Governing Rate
- Remaining Life Calculation — Fixing the Next Inspection or Retirement Date
- Local Thin Area Evaluation — Accepting, Monitoring or Repairing Isolated Wall Loss
- Fitness-for-Service Screening — Deciding When Detailed Engineering Assessment Is Needed

Day 4: Repair, Alteration, Rerating and Testing

- Weld Repair Procedures and Preheat — Approving Defect Removal and Weld Build-Up
- Alterations Such as New Nozzles — Separating Alteration From Routine Repair
- Rerating Calculations and Nameplate Records — Changing Allowable Pressure or Temperature
- Hydrostatic Versus Pneumatic Testing — Choosing Test Medium and Safety Distances
- Post-Weld Heat Treatment and Examination — Verifying Repaired Zones Before Restart

Day 5: Practising the Fitness-for-Service Dossier

- Refinery Separator Case — Applying Damage Mechanism Screening to Real Readings
- Chemical Plant Reactor Case — Calculating Rates and Remaining Life Under Peer Review
- Repair Versus Rerate Exercise — Defending One Option to Operations
- Pressure Test Plan Drafting — Sequencing Hold Points and Acceptance Criteria
- Vessel Fitness-for-Service Dossier — Completing the Record for One Unit

Applying Pressure Vessel In-Service Inspection After the Course

- Re-baseline the corrosion rates and remaining life of one vessel circuit using the governing-rate method taught on the third day.
- Audit one recent repair or rerating file against the repair, alteration and testing checks from the fourth day.

Pressure Vessel In-Service Inspection Questions FAQ

What is pressure vessel in-service inspection and why does it matter now?

Pressure vessel in-service inspection is the planned examination of operating vessels to judge whether they remain safe. It matters now because longer run lengths and fewer senior inspectors leave less margin for misjudged corrosion rates or poorly recorded repairs.

Which roles gain most from pressure vessel in-service inspection training?

Inspectors and integrity engineers gain most. You benefit if you measure wall thickness, set inspection intervals, approve weld repairs or witness pressure tests.

How does pressure vessel in-service inspection differ from a vessel design course?

It looks at vessels already operating rather than new construction. A design course sizes a vessel from scratch; here you judge measured metal loss, remaining life, repairs and reratings on equipment with years of service history.

What do you bring back from pressure vessel in-service inspection training?

You bring back a completed fitness-for-service record for one vessel. It holds corrosion rates, thickness checks, remaining life and a repair or rerating decision.

Pressure Vessel In-Service Inspection: The Way Forward

The vessel fitness-for-service dossier first informs whether the chosen unit runs to the next turnaround or needs earlier intervention. Inspectors, corrosion engineers and turnaround planners use it to agree inspection scope and spare-parts orders. After its first use, revisit the corrosion rate assumptions once new thickness readings arrive.