JUPITER PRIME

Consulting • Training • Advisory

جوبيتر برايم للاستشارات والتدريب

COURSE BROCHURE

Process Piping and Vessel Repeat Failure Prevention Training Course

1 – 5 March 2027
Singapore

Process Piping and Vessel Repeat Failure Prevention Training Course

Ref: 2904_110744 **Date:** 1 – 5 March 2027 **Location:** Singapore **Fees:** 9300 GBP

Process Piping and Vessel Repeat Failure Prevention is a 1-week training course for plant inspection and mechanical integrity engineers who must stop the same leak or crack returning after repair, producing a repeat failure prevention register for one process unit. Recurring failures absorb maintenance budgets, extend outages and erode trust between operations and engineering. Jupiter Prime Training links the subject to plant reliability.

Why Process Piping and Vessel Repeat Failure Prevention Matters Now

Three forces shape the subject today. Ageing assets run longer between turnarounds, so a failure that returns twice in one run costs far more than its first repair. Experienced integrity staff are retiring, taking with them the memory of why a nozzle or dead leg keeps leaking. Operations teams push throughput and feed flexibility, which shifts the conditions that caused the first failure. Plants that close the loop on recurrence gain stable runs and credible budgets; plants that treat each event as new pay for the same repair again and again.

Who Gains Most from Process Piping and Vessel Repeat Failure Prevention

- Engineers responsible for inspection findings on vessels, exchangers and piping circuits
- Specialists who set repair scopes on pressure equipment
- Reliability engineers tracking bad actor equipment and chronic leak locations
- Materials and corrosion engineers advising on replacement metallurgy and coatings
- Maintenance planners who schedule repeat repairs and turnaround work packs

A unit integrity group gains most when inspection, corrosion and maintenance planning members attend together.

Process Piping and Vessel Repeat Failure Prevention Capabilities

Participants learn to read a failure history as evidence of an unsolved cause rather than a list of separate events.

- Build a bad actor list from leak, repair and inspection records — unit integrity priorities
- Test whether a repair removed the cause or only the symptom — repair approval decisions
- Specify a permanent fix that changes material, geometry or operating condition — capital requests
- Weigh temporary clamps and wraps against planned replacement — outage planning
- Design monitoring points that confirm a fix has held — inspection scheduling
- Communicate recurrence cost to operations leaders — budget and run-length choices

Key Process Piping and Vessel Repeat Failure Prevention Terms

- Repeat failure — a loss of containment or defect that returns at the same location or for the same cause after repair.
- Bad actor — equipment whose failure frequency or repair cost sits well above its peers.
- Recurrence interval — operating time between a repair and the next failure at that point.
- Symptom repair — a fix that restores containment without changing the condition that produced the defect.
- Permanent fix — a change to material, design or operation that removes the cause of a repeat failure.
- Fix verification — inspection evidence showing a corrective action has stopped the failure returning.

Process Piping and Vessel Repeat Failure Prevention Day by Day

Day 1: Reading the Failure History

- Leak and Repair Record Mining — Which Locations Fail More Than Once
- Bad Actor Ranking by Frequency and Cost — Where Attention Goes First
- Recurrence Interval Trending — Whether Failures Are Accelerating
- Circuit and Corrosion Loop Mapping — Grouping Failures by Shared Conditions
- Repair Cost Roll-Up Across Run Lengths — Making Recurrence Visible to Leaders

Day 2: Why Failures Come Back

- Symptom Versus Cause Repair Review — Judging Past Fix Quality
- Wrong Material Replacement Cases — Like-for-Like Choices That Repeat Defects
- Dead Legs, Injection Points and Mix Points — Geometry That Keeps Failing
- Operating Change and Feed Shift Records — Conditions Moving After Repair
- Insulation, Supports and Vibration Sources — External Causes Often Missed

Day 3: Choosing the Permanent Fix

- Material Upgrade and Cladding Options — Matching Metallurgy to Service
- Redesign of Nozzles, Bends and Small-Bore Branches — Removing Stress Raisers
- Temporary Clamp and Wrap Life Limits — When Stop-Gaps Must End
- Process Condition Limits and Alarms — Keeping Units Inside Safe Bounds
- Fix Option Cost and Risk Comparison — Capital Versus Repeat Repair Spend

Day 4: Proving the Fix Has Held

- Post-Repair Inspection Point Selection — Confirming the Cause Is Gone
- Thickness and Crack Monitoring Trends — Early Signs of Return
- Management of Change for Repairs — Recording Why a Fix Was Chosen
- Recurrence Review Meetings With Operations — Shared Ownership of Chronic Points
- Lessons Capture Across Similar Units — Stopping the Same Failure Elsewhere

Day 5: Practising the Repeat Failure Prevention Register

- Applying Bad Actor Ranking to a Live Unit — Selecting Register Entries
- Applying Cause Review to Each Entry — Separating Symptoms From Causes
- Applying Fix Comparison to Priority Items — Choosing Permanent Actions
- Owner, Deadline and Verification Assignment — Accountability for Each Action
- Repeat Failure Prevention Register for One Process Unit — Completed Team Output

Applying Process Piping and Vessel Repeat Failure Prevention After the Course

- Rank bad actors from your unit's leak and repair records and present the top ten to operations.
- Classify the last three repairs on one chronic location as symptom or cause repairs and propose a verified permanent fix.

Process Piping and Vessel Repeat Failure Prevention Questions FAQ

What is process piping and vessel repeat failure prevention and why does it matter now?

It is the discipline of finding why a failure on piping or vessels keeps returning and removing that cause. Longer runs and changing feeds make each repeat event costlier.

Which roles gain most from process piping and vessel repeat failure prevention?

Inspection and mechanical integrity engineers gain most, together with corrosion specialists, reliability engineers and maintenance planners.

How does process piping and vessel repeat failure prevention differ from a damage mechanism or inspection planning course?

It starts from the plant's own failure history rather than from a catalogue of mechanisms or an inspection schedule. You focus on why past repairs did not hold.

What do you bring back from process piping and vessel repeat failure prevention?

You bring back a ranked list of chronic locations and a register of permanent actions with owners for one process unit.

Process Piping and Vessel Repeat Failure Prevention: The Way Forward

The repeat failure prevention register gives a unit one place to see its chronic locations, the cause behind each and the permanent action agreed. Its first use is deciding which bad actors receive capital at the next turnaround. Integrity and operations leads use it together, and after its first cycle it is worth checking which verified fixes truly held.