

Pipeline Coating Selection and Failure Analysis Training Course

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Overview

Pipeline Coating Selection and Failure Analysis Training Course is a one-week intermediate-to-advanced course for integrity, corrosion, inspection, maintenance, and project teams who leave with a Pipeline Coating Decision and Failure Investigation File. Participants connect external pipeline coatings, service-condition screening, coating system selection, surface preparation, application assurance, holiday detection, and coating failure analysis for buried and submerged assets. The course uses selection matrices, inspection and test plans, defect maps, and cause-evidence records. Agile Leaders Training Center presents this course on pipeline coating selection and failure analysis.

Who Should Attend

- Teams responsible for pipeline integrity strategies and threat control
- Functions responsible for corrosion engineering and coating specifications
- Personnel responsible for coating application inspection and quality records
- Groups responsible for maintenance, repair, and rehabilitation decisions
- Project teams responsible for contractor procedures and acceptance evidence
- Technical assurance teams responsible for investigating coating defects

The course assumes participants can interpret pipeline drawings, coating data, inspection records, or maintenance evidence; it leaves out certification examination preparation and detailed cathodic protection design.

Departments and Industries

The course supports departments and industries responsible for coated steel assets in construction and service.

- Oil and gas pipeline operators and transmission organizations
- Water transmission and utility pipeline organizations
- Pipeline engineering, construction, and commissioning departments
- Integrity, corrosion, inspection, and maintenance functions
- Coating manufacturers, applicators, and quality organizations
- Marine, terminal, and industrial asset teams

Learning Objectives

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

- Apply service-condition criteria to coating system selection
- Build coating specifications and inspection and test plans
- Evaluate surface preparation and application evidence
- Use inspection methods to classify coating defects
- Diagnose failure mechanisms from physical evidence
- Prioritize repair and corrective-action decisions

Course Agenda

Day 1: Establish the Coating Design Basis

- Pipeline Exposure and Service-Condition Screening Matrix
- External Corrosion Barrier and Cathodic Protection Interface Model
- ISO 21809 Coating System Scope Map
- Pipeline Coating Performance Requirement Register
- Coating Selection Decision Criteria Worksheet

Day 2: Specify Coating Systems

- FBE, 3LPE, and 3LPP Option Comparison Matrix
- Field-Joint Coating Compatibility Assessment
- Buried and Submerged Service Selection Method
- Coating Material Data Review Checklist
- Pipeline Coating Specification Structure

Day 3: Assure Preparation and Application

- Surface Cleanliness and Profile Acceptance Checklist
- Application Procedure Qualification Test Plan
- Environmental Condition Control Log
- Coating Inspection and Test Plan
- Application Traceability and Release Record

Day 4: Investigate Defects and Failures

- Holiday Detection and Thickness Survey Method
- Adhesion and Cathodic Disbondment Evidence Matrix
- Blistering, Cracking, and Under-Film Corrosion Defect Map
- Coating Failure Cause-and-Evidence Analysis
- Repair, Rehabilitation, and Corrective-Action Decision Tree

Day 5: Practice Coating Decisions

- Suggested Exercise: Screen Pipeline Service Conditions
- Suggested Exercise: Select a Compatible Coating System
- Suggested Exercise: Review an Application Quality File
- Suggested Exercise: Diagnose a Coating Failure Case
- Capstone Exercise: Present a Pipeline Coating Decision and Failure Investigation File

Practical Exercises

The course uses suggested activities to connect coating evidence with engineering and maintenance decisions.

- Suggested activity: compare FBE, multilayer polyolefin, and field-joint options against a defined service case.
- Suggested activity: review surface-preparation, environmental, application, and inspection records for acceptance gaps.
- Suggested activity: classify holidays, adhesion loss, blistering, cracking, disbondment, and under-film corrosion from evidence.
- Suggested activity: build a repair recommendation and corrective-action record from a coating failure scenario.

FAQs

Who suits pipeline coating selection and failure analysis training, and what does it assume?

Integrity, corrosion, coating, inspection, maintenance, and project personnel suit the training. It assumes participants can interpret basic pipeline, coating, inspection, or maintenance evidence.

How does pipeline coating failure analysis differ from general corrosion control training?

Pipeline coating failure analysis concentrates on coating selection, preparation, application evidence, defect morphology, disbondment, and repair decisions. General corrosion control training covers a wider range of degradation and mitigation methods.

How are external pipeline coatings selected for buried or submerged service?

External pipeline coatings are selected by matching exposure, temperature, construction, mechanical damage, application, field-joint, inspection, and cathodic protection requirements with verified system performance.

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What evidence supports a pipeline coating failure investigation?

A coating failure investigation uses service history, material records, surface-preparation data, application conditions, inspection results, defect location, morphology, adhesion, thickness, contamination, and corrosion evidence.

Why are holidays and cathodic disbondment important in pipeline coating assessment?

Holidays expose steel to the environment, while cathodic disbondment can expand loss of adhesion around defects. Their location, extent, and causes influence integrity assessment and repair priorities.

Conclusion

Participants take a Pipeline Coating Decision and Failure Investigation File back to their organization. It combines service screening, system selection, specification, application assurance, defect mapping, cause analysis, and repair decisions. Teams can use it to improve traceability between coating requirements, field evidence, failure mechanisms, and corrective actions.

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