



Corrosion Engineering in Oil and Gas
Training Course



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Introduction:

This Corrosion Engineering in Oil and Gas training will provide the delegates with a complete theoretical and practical understanding of implementing asset integrity to safeguard assets, people, and the environment.

The Importance of Corrosion Control:

Asset integrity management AIM focuses on the core elements of safety, environmental protection, reliability, regulatory compliance, and data management. An effective Asset Integrity program provides assurance that a facility's equipment and assets are designed, fabricated, procured, installed, and maintained in a manner appropriate for its intended application, throughout the life of the operation.

Targeted Groups:

- Integrity & Static Equipment Engineers/Managers.
- Inspection.
- Operations & Maintenance Professionals/Managers.
- Asset & Project Managers.
- Executives & Managers who are inspired for continual improvement.
- Excellence and maintainable success of their organizations.
- Team leaders and senior engineers working on Asset Integrity Management.
- System development, rollout, and implementation.

Course Objectives:

After this corrosion control course, attendees will be capable of:

- Explore the basic Assets Integrity Management Modules Clarify the organizational interfaces, duties, and responsibilities of the officers involved in the development, implementation, and roll-out of AIMS.
- Learn about major operators' AIMS achievements and compare asset integrity management strategies with best-in-class operators.
- To ensure effective AIMS, and increase employee involvement, empowerment, and leadership while also enhancing communications and cross-disciplinary teamwork.
- Recognize the various control methods and describe how successful mitigation can reduce risk exposure and be used to satisfy the life extension needs of aging facilities.

Targeted Competencies:

- Metallurgy and engineering material properties.
- The cost of corrosion damage in industries.
- Comprehensive understanding of corrosion mechanisms in oil, gas, and water fields.
- Development of core corrosion control and mitigating programs.
- Advanced techniques for corrosion monitoring.

Course Content:

Unit 1: Asset Integrity Elements Overview:

- Integrity elements and their dependency.
- Importance of integrity elements.
- Definitions and Implementation.
- Asset Integrity Life Cycle.
- Concept selection and definition.
- Detailed engineering and design.
- Operation, modification, and maintenance.
- Acquisition and decommissioning.

Unit 2: Asset Integrity Barriers:

- Integrity barrier definition and introduction.
- Hard and soft barriers.
- Bow Tie models.
- Barrier threats and mitigation measures.
- Safety Critical Elements and Equipment.
- SCE and operational Integrity management.
- Safety critical element vs. safety critical equipment.
- Major accident hazards.
- Identifying SCE & performance standards.
- Verification, assurance, and ICP.

Unit 3: Asset Degradation and Damage:

- Asset Degradation and Damage.
- Definition and analysis.
- Damage and its impact.
- BathTub curve.
- Time-independent vs. time-dependent failures.
- Key degradation and damage threats.
- Design concepts, identification, and mitigation measures.
- Operational Corrosion Management.
- Establish Operational Corrosion Management.
- Standards and Recommended Practices.
- Operational Requirements.

Unit 4: Risk Based Inspection:

- Introduction and the history of RBI.
- Benefits and limitations.
- RBI methodology and implementation.
- Written schemes.
- Inspection scheduling.
- Pipeline Integrity Management.
- Pipeline integrity process and elements.
- Pipeline threats and anomalies.
- Pipeline mitigation techniques and overview.
- Pipeline integrity methodology.



Unit 5: Key Performance Indicators:

- KPIs and their function.
- Lagging and leading KPIs.
- Establishing Approach.
- Integrity Strategy.
- Planning and Data Acquisition/CMMS Build.
- Risk Management.
- Asset Integrity Review.
- Review strategy and preparation
- Implementing a review
- Reporting and evaluation of results.

By integrating these components, participants will gain substantial knowledge and skills in corrosion control, qualifying them for certifications and fostering their growth as experts in corrosion engineering.