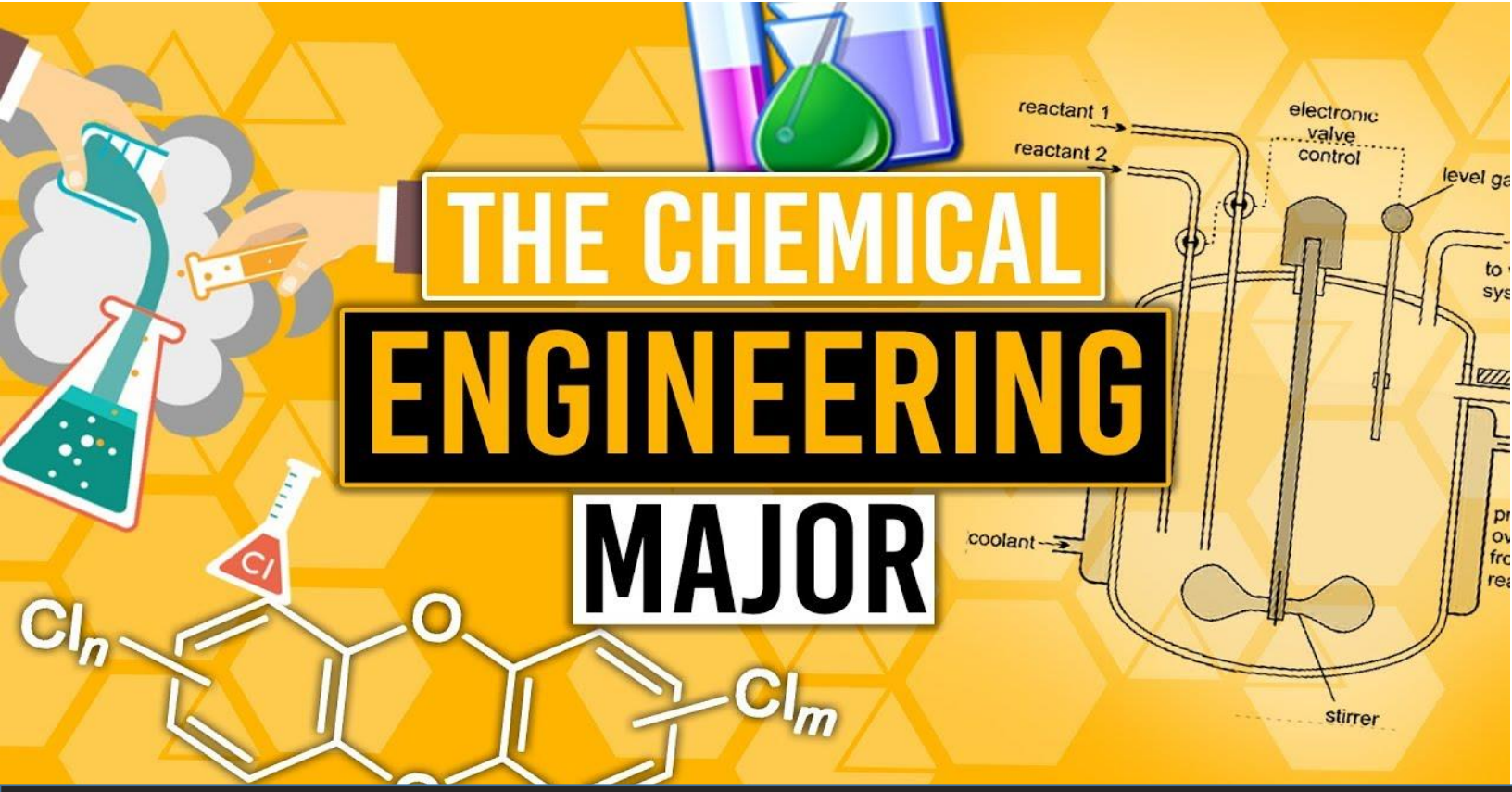

Performing Pipeline Rehabilitation and Maintenance

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BTS
Training & Consultancy

Performing Pipeline Rehabilitation and Maintenance

Introduction:

This course is centered on the practical aspects of pipeline rehabilitation and covers both internal and external rehabilitation. The course goes into depth on how to safely rehabilitate operating pipelines using manual and automated equipment. Movement of in-service pipelines is analyzed in detail including the application and methodology of recommended practice API 1117. Other industry standards applicable to pipeline rehabilitation are discussed as well as how they should be incorporated into project specifications. Approximately half of the course is spent in analyzing case studies of field rehabilitation projects from around the world. Over 400 photographs are used to illustrate how the work was performed and the results obtained. The course presents techniques for performing the work with a combination of in-house personnel and outside contractors to minimize costs while maintaining clear lines of responsibility.

Who Should Attend?

- Engineers involved in:
    - Determining the best way to rehabilitate a section of pipeline.
    - Preparing the project specifications.

    - Performing the necessary engineering calculations to insure the project is carried out safely.

    - Health and safety issues specific to rehabilitation projects.

- Field Operations Personnel and contractors who need to be aware of many alternatives techniques available for pipeline rehabilitation and their cost impact.

- Inspection Personnel involved in evaluation of defects and selection of proper repair techniques.

Course Outline:

Introduction

- Overview of the course
- Outline of Course Materials

In-Plant Rehabilitation of Pipelines

- Removal of existing coatings
- Internal cleaning
- Surface preparation
- Coating application

Field Rehabilitation Options

- Types of techniques that are available
- Factors affecting selection of the best technique
- Practical examples

Out of the Ditch Rehabilitation Projects

- Right-of-way crossings
- Applicable engineering calculations
- Right-of-way preparation
- Excavation and stripping the pipeline
- Removing the existing coating
- Preparing the pipeline surface for the new coating
- Application of the new coating
- Lowering-in and tie-in of the pipeline
- Final right-of-way restoration

In-situ and Short Segment Rehabilitation Projects

- Engineering Evaluation of the project
- API 1117 Standard
- Supporting the line
- Moving the line
- Lowering the line
- Excavation of the pipeline
- Removing the existing coating
- Preparing the pipeline surface for the new coating
- Application of the new coating

New Approach to In-Situ Rehabilitation

- Rehabilitation of Operating Pipelines
- Problems
- New Technology Solution

Internal Pipeline Rehabilitation Projects

- Nature of the problem
- Corrosion, erosion and corrosion/erosion
- Techniques available
    - “Tight fit” or interference sliplining systems
    - “Swedglining systems
- Xhab external pipe strengthening
- Smart Pipe internal pipe strengthening
- Liquid coating systems

Selecting a Field Rehabilitation Coating

- Evolution of field coatings
- Application Properties
- Material Properties
- Costs

Inspection of the pipeline

- ANSI B31-G
- RSTRENG
- Eddy Current mapping of corrosion sites

Making necessary repairs

- Out of service repairs
- In-situ repairs
- Welded repairs
- Composite reinforced repairs
- XWrap hand-applied repair
- Epoxy in-fill repairs

Environmental Issues

- Coatings removal
- Coating application
- Abrasives and dust
- Coating overspray

Industry Standards

- Coating removal (How clean is clean?)
- Testing for water soluble contaminants
- Surface preparation
- Specifying abrasives
- Inspection of coatings

Job Specifications

- Excavation
- Coating Removal
- Inspection and Repair
- Surface Preparation
- Coating Application
- Backfill
- Safety

Tying it all together

- Questions and Answers