



FACT SHEET

API 510 | Inspection and Repair of Pressure Vessels



API 510: scope, inspection, frequency, internal/external/on-stream inspection, repairs, alteration, re-rating.

Who Should Attend?

This course is intended for graduates (or soon to be), designers, freelancers, technicians, and engineers involved in calculation, design, selection, manufacturing, safety, quality and maintenance of systems and equipment in industrial processes.

Previous knowledge of this subject is not required to attend the course.

Training Objectives

The main objective of this course is to transfer to participants the theoretical and practical skills required in projects, obtained from experience and sound engineering practices.

At the end of the course, participants will have a clear vision of the requirements of these regulations.

What to expect?

Get familiar with the **vocabulary, terminology** and fundamental concepts.

Learn the **organization of the code**, scope, and fundamental sections.

Benefit from lessons learned and **best practices** from different international projects.

At the end of this training participants will be able to define the main **requirements** necessary for the **inspection and repair of pressure equipment**.

Course Duration

The duration of this training course is **20 hours**, to be completed in 90 days. The Virtual Campus will be open for 90 days (flexibility).

Methodology

At your own pace

Available 24/7, Self-paced course

“Learn by doing” concept

No scheduled sessions

Included in the course

Study Notes

Summary Videos

Assimilation Questions

Real Case Studies

Access to the Virtual Campus



Contents

Introduction

Pressure relieving devices

Review of inspection recommendations

Scope and references

Definitions

Inspection organization

Inspection, examination and testing

Inspection, Examination and Pressure Testing Practices

Inspection Plans

Risk based inspection (RBI)

Deterioration and failure mechanisms

Types of inspection

Condition Monitoring Locations, CML

Pressure Testing

Test methods and specific inspections

Inspection of In-service Welds

Inspection and repair of flanged joints

Inspection and repair of S&T heat exchangers

Inspection intervals and frequency

Intervals, frequency and extent of inspection

Inspection extent

Risk Based Inspection (RBI)

External inspection

Internal, on-stream and thickness measurement inspections

Inspection data evaluation and recording

Inspection data evaluation and recording

Corrosion rates determination

Remaining life calculations

MAWP determination

Analysis of corroded regions

Fitness for service evaluations (FFS)

Required thickness determination

Reports and Records

Repairs, alterations, and rerating

Repairs, alterations and rerating.

Temporary and permanent repairs

Welding and Hot Tapping

Postweld Heat Treatment (PWHT)

Nondestructive examination (NDE)

Rerating

Case studies in the classroom:

Corrosion rate calculation

Determination of remaining life

Definition of inspection intervals

Calculation of the MAWP of a PV

Calculation of minimum required thicknesses



Instructor

Senior Mechanical Engineer and master's in business administration (MBA). More than 25 years of experience in design, calculation and fabrication of pressure vessels, heat exchangers, storage tanks, piping systems and structures in general.

Duties of the above-mentioned positions cover the entire cycle of an equipment, from the very conception, drawings, design and calculation, technical specifications, technical requisitions, vendor drawings, to the manufacturing phase and installation assistance. Among the developed projects, clients such as SHELL, EXXON, REPSOL, CHEVRON, GALP, CEPESA, TUPRAS and SAUDI ARAMCO can be found.

Vast experience providing specific training sessions in both classroom and online methodologies. More than 75 training courses carried out in different institutions and in-company, courses oriented to graduates, designers, engineers and experienced professionals.

Tailored Training

The most effective training is one that satisfies the needs of each company's business focus and deliverables. **We adapt our training programs to each specific requirement, offering bespoke solutions for each need.** The result, 100% tailored programs, developed to maximize the time investment and deliver tangible and intangible returns to the work teams.

After an assessment phase, a tailored training plan is designed jointly with the client. This plan is specifically tailored to meet the client's needs, focusing on effectively enhancing the capabilities of the work team. **We provide practical, dynamic and hands-on training,** making available the best instructors in each subject.

Arveng Training

Arveng Training has developed effective and practical solutions for today's industrial challenges by delivering specific, high-quality engineering courses utilizing three different approaches: classroom, online, and tailored training. We are proud to have taught more than 500 classroom courses, 1800 online courses, and over 200 in-company sessions. Our training activities have benefitted over 6000 professionals, our greatest accomplishment of all.

We consider our students' time to be of utmost importance. For this reason, all our courses have been designed with the main objective of quickly improving the professional skills of the participants through our expert instructors in different disciplines. **We stimulate creativity, innovation, and initiative to make the participants inquisitive, bringing good engineering practices and lessons learned to the field, that benefits their professional lives in the long term.**

Our Company

Arveng Training & Engineering SL is a leading company providing Training and Engineering services based in **Madrid, Spain**. Our mission and vision are to be a leading training and engineering services company, providing our clients with the best in the sector. We are a team of highly motivated, talented, highly qualified professionals with over 20 years of experience. We aim to exceed expectations by offering efficient, innovative, cost-effective, and transparent services.

Established in July 2010, mainly oriented to the industrial sector, from the very beginning Arveng has always worked with closeness, responsibility, and commitment in all areas of activity.

Through experience gained by partaking in multidisciplinary engineering projects in sectors such as Petrochemical, Energy Generation, and Industrial, we provide answers and solutions to concrete requirements, making the effort to build long-lasting and mutually beneficial relationships.