



This training course is designed to give a detailed discussion on the required engineering knowledge for in-service storage tanks with emphasis on syllabus published by API (Body of Knowledge) for the said examination.

It includes all the code sections referred by API 653 committee to the extent required from examination point of view.

This preparatory course will clarify basic intentions of all code prescribed for study, how to interpret code rulings and at the end, built-up the confidence among the participants for taking decisions.

The course is divided into six main areas: basic storage tank design engineering i.e. API 650, in-service inspection techniques (API 653/ RP 575/ RP 577), in-service degradation mechanisms (API 571), cathodic protection (API RP 651) and lining of tank bottom (API RP 652), calculations of retirement thickness and other skills required for delivery of quality job & safe operation.

The participants will receive comprehensive course notes, illustrated with practical examples, mock-examinations, main punch-points of the course and extensive question banks to give the participants the confidence for getting certified successfully.



### Course Description:

Do you need to become an API 653 Authorized Inspector? If so, this class is for you.

This class will help you prepare for the API 653 exam.

Plus you will gain additional skills and knowledge that are important for your success on the job! We specialize in providing knowledge trainers who keep the classroom interesting.

The course provides participants with the knowledge necessary to:

- ◆ Successfully pass the API 653 storage tank inspector certification exam
- ◆ Effectively use major codes, API 650 and ASME B&PV sections V & IX
- ◆ Perform all tank calculations needed for the API exam
- ◆ Use API's requirements during inspection, repairs, and alterations of tanks
- ◆ Review welding procedures (WPS/PQR) and welder performance qualifications (WPQ)

### Who should join:

This class is designed for inspectors and engineers working in refineries, chemical & industrial plants, gas plants, tank terminals.

### Tentative Course Schedule:

#### DAY 1

#### 1) Welcome & Introduction

#### 2) API 650 - Tank Fabrication Code.

Understand the

following key concepts.

- ◆ Purpose of the Code
- ◆ Scope of the Code
- ◆ Organization of the Code
- ◆ Key tank terminology
- ◆ Uniqueness of major tank components
- ◆ Qualification requirements specified by the Code
- ◆ Fabrication limits
- ◆ Inspection & Testing methods
- ◆ Tips on how to find needed information in the Code

#### 3) API 650 - Calculations & Charts

- ◆ Minimum Design Temperature
- ◆ Impact Testing Limits
- ◆ New Shell Thickness
- ◆ RT's of new Shell Welds



## DAY 2

- 1) Review Homework from Day 1
- 2) **API 653 - In-Service Tank Code.** Understand the following key concepts.
  - ◆ Purpose of the Code
  - ◆ Scope of the Code
  - ◆ Inspection Types & Inspection Schedules
  - ◆ Risked Based Inspection (RBI)
  - ◆ Suitability for Service Evaluations
- 3) **API 653 - Calculations & Charts**  
Learn how to successfully determine the following:
  - ◆ Corrosion Averaging for a Shell Corroded Area
  - ◆ Minimum Thickness of a Shell Corroded Area
  - ◆ Minimum Thickness of a Shell Course
  - ◆ Maximum Shell Pit Depth
  - ◆ Minimum Bottom Thickness at Next Inspection

## DAY 3

- 1) Review homework from Day 2
- 2) **API 653 - In-Service Tank Code.** Understand the following key concepts.
  - ◆ Types and results of Tank Settlement
  - ◆ Brittle Fracture Evaluation for Existing Tanks
  - ◆ Requirements and Limits of Bottom Repairs
  - ◆ Requirements and Limits of Shell & Nozzle Repairs
  - ◆ Requirements and Limits of Roof Repairs
  - ◆ Design & Erection of Reconstructed Tanks
  - ◆ Shell Hot-Tapping Limitations
- 3) **API 653 - Calculations & Charts**
  - ◆ Shell Repairs - Weld Spacing Limits
  - ◆ Bottom Repairs - Weld Spacing Limits

## DAY 4

- 1) Review homework from Day 3
- 2) **API 653 - In-Service Tank Code.**  
Understand the following key concepts.
  - ◆ Use of NDE for In-Service Tanks
  - ◆ Hydro test Requirements and Exemptions
- 3) **ASME B&PV Section V - NDE.**  
Understand the following key concepts.
  - ◆ Purpose of the Code
  - ◆ Organization of the Code
  - ◆ RT Techniques
  - ◆ Purpose & Selection of IQI's
  - ◆ RT Film Density Requirements
  - ◆ Key terms discussed in the Code
  - ◆ Tips on how to find needed information in the Code

## DAY 5

- 1) **ASME B&PV Section IX - Welding Code:**  
Understand the following key concepts.
  - ◆ Purpose of the Code
  - ◆ Roles of the Inspector
  - ◆ Organization of the Code
  - ◆ Welding Positions - Test and Field
  - ◆ Testing Requirements and Acceptance Criteria
  - ◆ Welder Qualification Process and Restrictions
  - ◆ Weld Procedure Qualification Process and Restrictions
- 2) **Review and Evaluate a WPQ (Welder Performance Qualification)**
  - ◆ Repairs, Alterations & Rerating
  - ◆ Underground Piping
- 3) **Review and Evaluate a WPS (Welding Procedure Specification) and the associated PQR (Procedure Qualification Record)**



## DAY 6

- 1) Review homework from Day 5
- 2) API 651 - Tank Cathodic Protection (CP)
  - ◆ Basic Parts of a Corrosion Cell
  - ◆ Types of CP (with Advantages & Limitations)
- 3) API 652 - Tank Coatings
  - ◆ Types of Coatings (with Advantages/Limitations)
  - ◆ Causes of Lining Failure
  - ◆ Coating Installation Requirements

**Evening Session:** API 651 & 652 Homework Covers API 651 & 652 questions that are typical of those on the API exam. Continue on the Study Guide "The API 575 Study Guide".

## DAY 7

- 1) Review Homework from Day 6
- 2) Final Review
- 3) Practice Exam
  - ◆ Closed Book Exam similar to the API 653 Exam
  - ◆ Open Book Exam similar to the API 653 Exam
  - ◆ Evaluate one WPS/PQR

