



API 653 ABOVEGROUND STORAGE TANK INSPECTOR CERTIFICATION PREPARATION PROGRAM

COURSE DURATION: 6 DAYS

An intensive course with daily homework & a final exam (similar to API 653 exam); special emphasis on the use of related codes & calculations. Study Guide is provided for pre-class study.



COURSE DESCRIPTION

The API 653 Above Ground Storage Tank Inspector Certification Preparation program is designed to equip individuals with broad knowledge base relating to **inspection, repair, alteration and reconstruction of above ground storage tanks**.

This program is produced by **MSTS Inspection Training Services** in Oklahoma, U.S. All instructors trained by **Mark Smith** (Master Trainer of MSTS) are selected for their technical and **"wake-ability"** skills. ("Wake-ability" – the ability to minimize snores during long, boring technical training.) Our students generally have a 90% passing rate.

This program benefits employers and the industry as a whole by helping to:

- Provide a continued **high level of safety** through the use of inspectors specialized in above ground storage tanks
- Improve **management control** of storage tank inspection, repair, alteration and reconstruction
- Reduce the potential for **inspection delays** resulting from **regulatory requirements**



Mark Smith

Master Trainer from
MSTS Training Services



PREPARE YOURSELF TO BE A CERTIFIED API 653 INSPECTOR!

COURSE OBJECTIVES

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 API exam
- ✓ Use API's requirements during inspection, repairs, and alterations of tanks
- ✓ Review welding procedures (WPS/PQR) and welder performance qualifications (WPQ)

COURSE OUTLINE

DAY 1

1) Welcome & Introduction

2) API 650 - Tank Fabrication Code

Understand the following key concepts:

- Purpose & 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

Evening Session: API 650 Homework

- Covers API 650 questions that are typical of those on the API exam and practice all Calculations covered in class.



WHO SHOULD ATTEND?

Designed for pressure equipment inspectors and engineers working in refineries, chemical & industrial plants, gas plants, pipeline terminals, and oil fields.

- Inspection / Mechanical Engineer
- Asset Integrity Engineer
- Material & Corrosion Engineer
- DOSH Officer
- Welding Inspector
- Project Engineer
- QA /QC / NDT Engineer
- Quality / Safety Coordinator
- Static Engineer, Technician

Note:

No required class pre-requisites. However, if you wish to pursue the API Certification Exam, a minimal years of experience on subject matter is required depending on your educational qualifications.

Please refer to the Exam Qualification Requirements at:

www.api.org/icp

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

Evening Session: API 653 Homework

- Covers API 653 questions that are typical of those on the API exam and practice all Calculations covered in class. Also complete study Guide "The Inspector's Calcs" (covers Corrosion Rates, Remaining Life, and Next Inspection Date Calculations)

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

Learn how to successfully determine the following:

- Shell Repairs - Weld Spacing Limits
- Bottom Repairs - Weld Spacing Limits

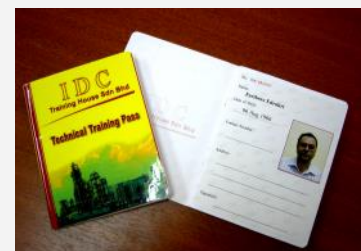
Evening Session: API 653 Homework

- Covers API 653 questions that are typical of those on the API exam and practice all Calculations covered in class. Start "The API 575 Study Guide"



BONUS !!!

Technical Training Passes will be provided



DAY 4

1) Review homework from Day 3

2) API 653 - In-Service Tank Code.

- Use of NDE for In-Service Tanks
- Hydrotest Requirements and Exemptions

3) ASME B&PV Section V - NDE.

- Purpose & Organization of the Code
- RT Techniques, RT Film Density Requirements
- Purpose & Selection of IQI's
- Key terms discussed in the Code
- Tips on how to find needed information in the Code

Evening Session: API 653 & ASME Sect. V Homework

- Covers API 653 & ASME Sect V questions that are typical of those on the API exam. Continue on "The API 575 Study Guide"

DAY 5

1) ASME B&PV Section IX - Welding Code:

- 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)

Evening Session: Section IX Homework

- Covers ASME Sect IX questions that are typical of those on the API exam. Includes evaluating 2 WPQ's, and 1 WPS/PQR.



COURSE DURATION

- 6 Days Training

DAILY SCHEDULE

- 8:30am - 5:30pm (Workshop)
- 6:00pm - 7:30pm
(Evening session - Optional)

ITEMS TO BRING

- Calculator
- Lots of Questions
- A "CAN-DO" Attitude
- Codes/Standards (in hardcopy)
* Please refer to 653 Publications Effectivity Sheet at http://www.api.org/~media/Files/Certification/ICP/ICP-Certification-Programs/653/Nov%202017%20653_PubsEffectSheet%20final%2020170530.pdf

Stationeries such as pen and highlighter will be provided.



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".

Final Review

Practice Exam

- Closed Book Exam similar to the API 653 Exam
- Open Book Exam similar to the API 653 Exam
- Evaluate one WPS/PQR





TRAINER'S PROFILE

STEVEN QUEK

Steven Quek has more than 20 years of professional experiences in integrity, reliability, inspection and corrosion for the chemical processing, refinery, oil & gas industries. He is very knowledgeable about the latest API inspection codes for the industries including ASME design and construction codes, well-versed in corrosion mitigations and monitoring including fitness for service assessments.

Steven Quek is a subject matter expert for risk-based inspection (RBI) and reliability-centred maintenance (RCM) systems. He led teams comprising staffs from Technology, Operations and Maintenance to conduct risk-based inspection analysis, schedule condition monitoring for corrosion mitigations and damage mechanisms, and thereafter continued reviews of S-RBI as living program. While for RCM, he led teams study to achieve cost-effective and technically sound maintenance plans, and thereafter continued reviews of the S-RCM as living program.

He is an experienced trainer on courses such as; API inspection codes, ASME design and construction codes, welding procedures and welders qualifications, fitness for service assessments. Corrosion, damage mechanisms and materials of construction for the chemical processing, refinery, oil & gas industries.

TECHNICAL QUALIFICATIONS

- ✓ Diploma Mechanical Engineering
- ✓ Diploma Imperial College
- ✓ NACE Certified Materials Selection Design Specialist
- ✓ NACE Certified Senior Corrosion Technologist
- ✓ TWI CSWIP 3.2 Senior Welding Inspector
- ✓ API 510 Pressure Vessel Inspection
- ✓ API 570 In-Service Piping Inspection
- ✓ API 571 Corrosion and Damage Mechanisms
- ✓ API 580 Risk-based Inspection
- ✓ API 653 Storage Tanks Inspection & Maintenance
- ✓ Certified Level III Coating Inspection, International Coating Certification Scheme

COURSES CONDUCTED

- ASME VIII 1-2 Design & Construction of Pressure Vessels
- ASME B31.3 Process Piping System
- API 579 / ASME FFS-1 Fitness-for-Services
- Risk and Reliability Management (RRM), by Shell Global Solution
- Shell Risk-Based Inspection (S-RBI), by Shell Global Solution
- Shell Reliability-Centred Maintenance (S-RCM), by Shell Global Solution
- Storage Tanks Inspection & Maintenance, by Shell Global Solution
- SMPO (Styrene Monomer Propylene Oxide) Technology, by Shell Chemicals
- Polyols & MPG (Mono Propylene Glycol) Manufacturing Process, by Shell Chemicals
- MEG (Mono Ethylene Glycols) Process, by Shell Chemicals
- Water Chemicals Treatments, by Shell Global Solution
- Process Safety Designs, by Shell Global Solution
- Root Cause Analysis, by Shell Global Solution
- Manage-Self Program, by Shell Global Solution
- Frontline Leadership Training, by Shell Global Solution
- Presentation Skills and Technical Reports Writing