WV MA AST Compliance Seminar
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BridgeValley ATC

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# API History

1919:  API founded as non-profit national trade association, New York City

1980s: API relocates to Washington, DC

1995:  API Dallas Standards Office relocates to Washington, DC

2007:  Opened offices in Beijing

2011 - 2015:  Singapore and Dubai, UAE, Rio de Janiero offices opened

# Background on API Standards Program

The API Standardization Department was formed in 1923, with the first API standard published the following year on drilling threads.

All industry segments now active in standardization:

- Exploration and Production
- Pipeline Transportation
- Refining
- Marketing

# API Standards

- API now publishes more than 600 technical standards covering all aspects of the oil and natural gas industry

- Over 5000 active volunteers representing over 50 countries

- One-third of all API standards are referenced in the U.S. regulations

# **Standards Development Process**

- The API Standards program is accredited by the American National Standards Institute (ANSI) – *the program was reaccredited by ANSI in July 2016 following a 2015 audit*.

  - Openness, Balance, Consensus, Due Process
  - Regular  program audits (conducted by ANSI)

- Transparent process (anyone can comment on any document in process)

  - All comments must be considered

# Use of API Standards

- De facto international standards

- Adoption by reference common by State and Federal agencies – BSEE, USCG, DOT, OSHA and EPA – *and the State of West Virginia*

-  Written for flexibility as performance based documents

# Important Dates for WV AST Act - from WV DEP web page

- June 12, 2015 – Statute became effective

- July 1, 2015 – All ASTs to be registered with the WV DEP

- Dec 9, 2015 – Spill Prevention Response Plan – or equivalent to be submitted to DEP

*Note – Check with WV DEP for all specific requirements.*

# Important Dates for WV AST Act - from WV DEP web page

- Jan 28, 2017 – Inspections and Certifications must be submitted to WV DEP for regulated ASTs.

*Note – Check with WV DEP for all specific requirements.*

# Tank Evaluations

Who is qualified to certify my tank? (WV DEP web page)

Level 1 and Level 2 tank evaluations can be completed by:

- Qualified registered professional engineer or...under the direct supervision of a registered professional engineer... regulated and licensed,

- Or by an individual certified to perform tank inspections by the ***American Petroleum Institute*** or the Steel Tank Institute, or   Certification under another program ....

*Note – Check with WV DEP for all specific requirements.*

# Certified API Inspector

§47 -63-1. General

**2.6 "Certified API Inspector"**

"Means an individual who holds a current certification by the ***American Petroleum Institute (API) under the terms of the API Std. 653 or API Std. 570 certification programs*** to perform aboveground storage tank inspections and piping, respectively."

*Note – Check with WV DEP for all specific requirements.*

# API Standard 653

API Std. 653, *Tank Inspection, Repair, Alteration, and Reconstruction*

***The Fifth Edition was published November 2014***

- Referenced or adopted in state and federal regulations
- Minimum requirements for maintaining the integrity of tanks after they are placed in service
- Applicable to welded, riveted, non refrigerated, and atmospheric pressure AST's

# API Std. 653 Certification Program

As outlined in Annex D of the API Std. 653:

- The qualification requirements for API 653 applicants are based on the combination of education and experience related to ASTs.

- This experience must have been acquired within the last 10 years while employed by an authorized inspection agency as defined in API 653.

http://www.api.org/icp

# API Standard 570

API Std. 570, *Piping Inspection Code: In-service Inspection, Rating, Repair, and Alteration of Piping Systems*

**The Fifth Edition was published February 2016**

- API 570 covers inspection, rating, repair, and alteration procedures for metallic and fiberglass-reinforced plastic (FRP) piping systems.

- The intent of this Code is to specify the in-service inspection and condition-monitoring program as well as repair guidance.

# API Std. 570 Certification Program

As outlined in the Annex A of the API 570 Standard:

- The qualification requirements for API 570 Piping inspector certification are based on the combination of education and experience related to in-service metallic piping systems.

- This experience must have been acquired within the last 10 years while employed by an authorized inspection agency as defined in API 570.

http://www.api.org/icp

# Operation and Maintenance – WV DEP web

§47-63-5.

"5.3.a Formal internal inspection of regulated ASTs installed prior to June 12,2015 shall be performed in general accordance with requirements of STI SPOOl or ***API Std. 653.***..shall include evaluation of:"

Tank bottom integrity;

Shell thickness;

Weld or seam integrity;

Condition of liner, if present; and

Overall fitness for service of the AST.

# Checklists for Tank Inspection – API Std. 653

**API Std. 653 - Annex C**

- Annex C contains sample checklists...that should be considered for internal and external inspection of tanks.

- NOTE 1 - Users of checklists should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein.

- NOTE 2 - Where applicable, authorities having jurisdiction should be consulted.

*Note – Check with WV DEP for all specific requirements.*

# Tank *In-service* Inspection Checklist – API Std. 653

| Tank In-service Inspection Checklist | | |
|---|---|---|
| **Item** | **Completed** √ | **Comments** |
| **C.1.1** **Foundation** | | |
| Measure foundation levelness and bottom elevations (see Annex B for extent of measurements). | | |
| **C.1.1.1** **Concrete Ring** | | |
| a) Inspect for broken concrete, spalling, and cracks, particularly under backup bars used in welding butt-welded annular rings under the shell. | | |
| b) Inspect drain openings in ring, back of waterdraw basins and top surface of ring for indications of bottom leakage. | | |
| c) Inspect for cavities under foundation and vegetation against bottom of tank. | | |
| d) Check that runoff rainwater from the shell drains away from tank. | | |
| e) Check for settlement around perimeter of tank. | | |
| **C.1.1.2** **Asphalt** | | |
| a) Check for settling of tank into asphalt base which would direct runoff rain water under the tank instead of away from it. | | |
| b) Look for areas where leaching of oil has left rock filler exposed, which indicates hydrocarbon leakage. | | |

# Tank *In-service* Inspection Checklist – API Std. 653

| Tank In-service Inspection Checklist (Continued) | | |
|---|---|---|
| **Item** | **Completed √** | **Comments** |
| c) If pontoon hatches are equipped with locked down coves, check for vent tubes. Check that vent tubes are not plugged up. Inspect lock-down devices for condition and operation. | | |
| **C.1.6**     **Accessways** | | |
| See Tank Out-of-service Inspection Checklist, Item C.2.12. | | |
| **NOTES** | | |

# Tank *Out-of-service* Inspection Checklist – API Std. 653

| Tank Out-of-service Inspection Checklist (Continued) | Completed √ | Comments |
|---|---|---|
| **Item** | | |
| **C.2.1**    **Overview** | | |
| a) Check that tank has been cleaned, is gas free, and safe for entry. | | |
| b) Check that the tank is completely isolated from product lines, all electrical power, and steam lines. | | |
| c) Check that roof is adequately supported, including fixed roof structure and floating roof legs. | | |
| d) Check for presence of falling object hazards, such as corroded-through roof rafters, asphalt stalactites, and trapped hydrocarbons in unopened or plugged equipment or appurtenances, ledges, etc. | | |
| e) Inspect for slipping hazards on the bottom and roof decks. | | |
| f) Inspect structural welds on accessways and clips. | | |
| g) Check surfaces needing inspection for a heavy-scale buildup and check weld seams and oily surfaces where welding is to be done. Note areas needing more cleaning, including blasting. | | |
| h) Review cathodic protection potential readings. | | |
| **C.2.2**    **Tank Exterior** | | |
| a) Inspect appurtenances opened during cleaning such as lower floating swing sheave assemblies, nozzle interiors (after removal of valves). | | |

# Tank *Out-of-service* Inspection Checklist – API Std. 653

| C.2.12.5 | Rolling Ladder | | |
|---|---|---|---|
| | a) Inspect rolling ladder stringers for corrosion. | | |
| | b) Identify and inspect ladder fixed rungs (square bar, round bar, angles) for weld attachment to stringers and corrosion, particularly where angle rungs are welded to stringers. | | |
| | c) Check for wear and corrosion where rolling ladder attaches to gaging platform. | | |
| | d) Inspect pivot bar for wear and secureness. | | |
| | e) Inspect operation of self-leveling stairway treads. | | |
| | f) Inspect for corrosion and wear on moving parts. | | |
| | g) Inspect rolling ladder wheels for freedom of movement, flat spots, and wear on axle. | | |
| | h) Inspect alignment of rolling ladder with roof rack. | | |
| | i) Inspect top surface of rolling ladder track for wear by wheels to assure at least 18 in. of unworn track (track long enough). | | |
| | j) Inspect rolling ladder track welds for corrosion. | | |
| | k) Inspect track supports on roof for reinforcing pads seal-welded to deck plate. | | |
| | l) Check by dimensioning, the maximum angle of the rolling ladder when the roof is on low legs.<br>Max. angle _____ . | | |
| | m) If rolling ladder track extends to within 5 ft of the edge of the roof on the far side, check for a handrail on the top of the shell on that side. | | |
| NOTES | | | |

§47-63-1. General.

**2.56. Risk based inspection (RBI)**

"Means an alternative method to performing internal inspections on a set schedule by requiring a systematic evaluation of both the likelihood of failure and the associated consequences of failure..."

"RBIs must adhere to the requirements set forth in *API Std. 653 and API RP 580.*"

*Note – Check with WV DEP for all specific requirements.*

# API Recommended Practice 580

API RP 580, *Risk-based Inspection*

***The Third Edition was published February 2016***

RP 580 is intended to provide guidance on developing a Risk-Based Inspection (RBI) program for fixed equipment and piping in the hydrocarbon and chemical process industries. It includes:

a) what is RBI,

b) what are the key elements of RBI,

c) how to implement an RBI program,

d) how to sustain an RBI program.

***Note: API offers a certification program on RBI as well.***

# API Aboveground Storage Tank Standards

For committee access:

**mycommittees.api.org/standards/cre/scast/default.aspx**

Next Standards meeting: November 14 - 17, 2016

**www.api.org/events-and-training/calendar-of-events.aspx**

# Use of API Standards for Compliance to WV AST Act

## Questions??

# Use of API Standards for Compliance to WV AST Act

## Thank you!

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