AWWA Tank Standard D101
The Development of the “Inspection of Water Tanks and Related Facilities” Standard

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AWWA Standards are not...

- Specifications
- Endorsement
- Recommendation
Standards vs Specs

- Standards - *minimum* technical requirements (i.e. the “what”)

- Specifications – the contractual relationships (i.e. “when” and “by whom” and through standards and supplemental requirements – the “what”)
AWWA Standards are...

- Guideline
- Solid Base
- Frequently cited in project specifications
- A reliable source of information
Standards-Making Process

Standards Committee

Producer Group    Consumer Group    General Interest

Consensus
Standards-Making Process

- Committee Consensus
- Sent to Standards Council, if approved
- Published for Review and Comment
- Sent to Executive Committee
- Published
- …start the process all over
American Water Works Association
AWWA

Steel Elevated Tanks, Standpipes/Reservoirs
(Steel Tank Committee)

Steve Meier, Chair

D100 Design & Construction
D101 Tank Inspection
D102 Coatings
D103 Bolted Tanks
D104 Cathodic Protection
D106 Sacrificial Anode CP
D107 Composite Tanks
D108 Aluminum Dome Roofs

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Current AWWA Steel Tank Standards

- D100-11 – Welded Carbon Steel Tanks for Water Storage
- D102-11 – Coating Steel Water-Storage Tanks
- D103-09 – Factory-Coated Bolted Steel Tanks for Water Storage
- D104-11 – Impressed Current Cathodic Protection
- D106-10 - Sacrificial Anode Cathodic Protection
- D107-10 Composite Elevated Tanks for Water Storage
- D108-10 – Aluminum Dome Roof
- C652-11 - Disinfection
Standards, Manuals, and Guidelines for Inspection of Water Storage Tanks

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AWWA D101

Inspection of Water Tanks and Related Facilities

- Last Revised – 1953
- Reaffirmed without revision – 1986
- Withdrawn – December, 1998
- Undergoing complete revision
- Subcommittee Chair – Chip Stein
What’s Happening in the D101 Committee??
Types of Structures

- Clearwells
- Concrete Tanks
- Bolted Tanks
- Membrane Covered Reservoirs
- Stainless Steel Tanks (bolted and welded)
- Filter Beds
- Hydropneumatic Tanks (operating at less than 15 psi)
- Clarifiers
- Current Market Demand
Proposed Foreword

- Stated Purpose of Standard
- Asset Management Approach
- Goal of Sustainability
- References to C652, D100, D102, D103, D107, D110
Proposed Section A
Elements of Facilities

- Nomenclatures
- Elements
Proposed Section B
Inspection of New Construction

- Soils/Geotech
- Documentation/Work-In-Process Evaluation Reporting
- Inspections specific to type of construction
  - Welding
  - Concrete Placement
  - Coatings
Proposed Section C

Inspection of Existing Structures

- Frequency
- Coatings
- Structural
- Sanitary
- Safety
- Tank and Site Security
- Reporting Requirements
Inspection Methods

- Underwater Tank Evaluation
- In-Service Cleaning, as it relates to the inspection of the structure
- Rafting
- Commentary Checklist - advantages and disadvantages of Dive, ROV, and Drained Methods
- Commentary, Owner Specify Motivation for having Tank Inspected

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Accessories

- Cathodic Protection
- Mixing Systems
Proposed Section D
Inspection of Existing Tank Rehabilitation

- Submittal Review
- Appurtenance and Welding Repairs
- Repairs
- Surface Preparation
- Emission and Overspray Containment
- Air Monitoring – Environmental and Personnel Air
- Safety
- Coating Application
- Ventilation during Coating Application
- Documentation/Work-In-Process Evaluation Reporting
- Punch Lists
Proposed Section E
First Anniversary Evaluation

- Type – Drained, ROV, Dive
- Disinfection
- Reporting

Minimum requirements for how this evaluation should be conducted and reported
Proposed Section F Qualifications

- Engineering Firm
  - Experience
  - Insurance
  - Licensed Engineer

- Inspector
  - Experience
  - Climbing Ability
  - Association Certifications (NACE, SSPC)
Proposed Appendices

- Bibliography
- Organizations
- Cold Weather Operation of Water Tanks
- Cellular Antennas Considerations
- Site Selection
- Tank Style Analysis
- Tank Sizing Considerations
- Sample Inspection Forms
- Inspection Certifications and Associations
- Commentary
AWWA M42
Steel Water-Storage Tanks

- E. Crone Knoy (deceased), Technical Editor
- Chapter Author – Chip Stein
- Revised in 2012 by Chip Stein

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Steel Water Storage Tanks

- Published by McGraw Hill in conjunction with AWWA
- Technical Editor – Steve Meier
- Chapter Author – Chip Stein
- Chapter Author – Jennifer Coon
What does this mean to ME?
...how tank owners and engineers can utilize the standards to obtain quality tank construction and rehabilitation projects and facilitate communication between all parties.
Questions???