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

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Sales and Marketing Manager
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AWWA Standards are not...
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
Five-Year Review/Revision
Water Storage Tank Standards
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
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- Withdrawn – December, 1998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

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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

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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
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 Report
- 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**
Steel Water Storage Tanks

- Published by McGraw Hill in conjunction with AWWA
- Technical Editor – Steve Meier
- Chapter Author – Chip Stein
- Chapter Author – Jennifer Coon

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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???