Testing Procedure for Secondary Containment Tanks

Wayne Geyer, STI

SWRCB Technical Symposium
Secondary Containment Testing
Sacramento, CA    December 4, 2001
California Regulation SB 989

- CA Code 2637 requires existing secondary containment systems to be tested by January 1, 2003 and every 36 months thereafter. New systems installed after January 1, 2001 must be tested at time of installation, 6 months after installation and every 36 months thereafter.

- Continuous system using vacuum or hydrostatic need not be tested every 3 years
Existing Systems in Operation

- Secondary containment must be tested in accordance with manufacturer’s guidelines and standards.
- If not available, system must be tested using an applicable method specified in an industry code or engineering standard.
- Alternatively, the local agency may approve the test method.
1984 STI Dual Wall Tank Standard
UL 58 Type I Double Wall Tank
UL 58 Type II Double Wall Tanks
Popular in CA: 1980’s

Type II secondary containment tanks

- 48 INCH (1.22 M) MAX. DIAMETER
- 72 INCH (1.83 M) MAX. DIAMETER
- 96 INCH (2.44 M) MAX. DIAMETER
- 120 INCH (3.05 M) MAX. DIAMETER
- 144 INCH (3.65 M) MAX. DIAMETER
UL 1746 Jacketed Tanks
Common Since 1990
Code Requirements on Test of Secondary Containment Systems

• International Fire Code - Per NFPA 30
• Uniform Fire Code - Per manufacturer’s instructions
• NFPA 30 - Interstitial space shall be tested hydrostatically or with air at 3-5 psi or by vacuum at 5.3” Hg for one hour. Care shall be taken to ensure the interstitial space is not subject to excess vacuum or pressure.
Procedure

• Part 1: Test procedure for double wall and jacketed tanks NOT exposed to a water table
• Part 2: Test procedure for double wall and jacketed tanks EXPOSED to a water table
• Both parts use NFPA 30 as its basis
• Maximum 7” Hg applied to interstice in all cases, with acceptable 1” Hg drop - to satisfy NFPA’s 5.3” Hg criteria
HYDROSTATIC PRESSURE ILLUSTRATION
Test Procedure

- Verify interstice is dry
- Pre-test all gauges, valves, & pipe connections
- Attach vacuum pipe system to annular space
- Do not allow any explosive fumes to enter pump
- Apply 7” Hg, turn off pump
- Allow vacuum to stabilize (re-apply vacuum as needed)
- Hold for 1 hour with < 1” Hg drop
Procedure Variations

- High water table in conjunction with 7” Hg can buckle Type II and Type I tanks with extended tank heads
- Reduce vacuum accordingly
Water Table

6’ Above Tank Bottom

- Variable vacuum < 7” Hg applied that corresponds to water table above tank top
- Twelve pages of tables provided to assist contractor with test vacuum
Water Table Above Tank Top

- No Further Test is Required as Hydrostatic Head Fulfills Need to Verify Tightness of Containment
- Additional Vacuum Adds Risk of Damage to Type II Double Wall Tank
Other Features

• Safety requirements
• Conversion Factors
• Examples
• Record-keeping Form
Construction Methods Providing Access to Interstices
Subject to Future Revisions

Simplify Procedure to Test Type I Double Wall and Jacketed Tanks, regardless of water table