

Freshwater Spills Symposium 2002

Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

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Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

- *What Industry Standards Address Spill and Leak Prevention?*
 - API Standards 650, 653 and 620
 - » A Little History
 - » New Construction and Existing Tanks
 - Other API Standards & Publications
 - » Facility Design
 - » Operational Practices
 - » Pipelines

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- *What Regulations Address Spill and Leak Prevention?*
 - Federal Water Pollution Control Act (FWPCA) - 1973
 - Clean Water Act (CWA) - 1977
 - Spill Prevention, Control and Countermeasures Plan (SPCC) - 1977
 - State and Local Regulations

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- *Leak/Spill Prevention vs. Detection vs. Containment*
 - Goal of L.P. is to deter a leak from occurring in the first place.
 - Goal of L.D. is to find a leak as quickly as possible after it has occurred.
 - Goal of L.C. is to contain accumulation of a leak and isolate the contained liquid from contaminating ground or surface water.

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■ *Common Causes of Leaks and Spills*

- Leaks due to Corrosion
- Leaks or spills due to Operation
- Leaks or spills due to Tank Failure
- Improper or Lack of Maintenance
- Sabotage or Vandalism
- Poorly Designed or Maintained Piping
- Fire and Explosion

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- *Some API Documents that address Spills*
 - Standard 650
 - Standard 653
 - RP 651
 - RP 652
 - RP 2350
 - Standard 2610
 - RP 575
 - Publication 306
 - Publication 307
 - Publication 315
- *Some more API Documents that address Spills*
 - Publication 322
 - Publication 323
 - Publication 325
 - Publication 334
 - Publication 340
 - Publication 341
 - Publication 346
 - Publication 1149
 - Publication 1155

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- *Changes to API Standard 650*
 - Added Appendix I
 - Vacuum box testing requirements
 - Air pressure alternative to vacuum box test
 - Tracer gas test alternative added
 - Section 5 requirements revised and supplemented
 - Tank welding requirements clarified
 - Manway flange gasket requirements revised

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- *Changes to API Standard 650 (Cont'd)*
 - Appendix T will be added to summarize inspection requirements
 - Improvements with respect to tank overflow protection incorporated
 - Index and identification of purchaser-required actions included

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- *Changes to API Standard 653*
 - Robotic inspection provisions incorporated
 - Changes to permitted repairs in critical zone
 - Edge settlement criteria changed
 - Remaining bottom thickness criteria changed
 - Floor scan qualifications added
 - Liner attachment details clarified

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- *Changes to API Standard 653 (Cont'd)*
 - Lap welded repair plates permitted
 - Added sump inspection requirements
 - Added roof repair inspection requirements
 - Additional requirements for tracer gas testing to be added
 - Reference to API RP 579 will be added
 - Minimum weld spacing requirements changed

Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

- *API Recommended Practice 651*
 - Cathodic Protection
 - Provides guidance rather than specifics
 - References the “How To” standards, such as NACE RP-01-93 (00)
 - Companion document to API 653
 - No significant changes since initial publication other than update of references

Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

- *API Recommended Practice 652*
 - Internal Lining of Tank Bottoms
 - Provides guidance rather than specifics
 - References the “How To” standards, such as various NACE and SSPC standards
 - Companion document to API 653
 - No significant changes since initial publication other than update of references

Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

- *API Recommended Practice 2350*
 - Overfill protection for storage tanks
 - Addresses operating practices
 - Currently under review by API Safety and Fire Protection Subcommittee
 - New language in several areas to improve effectiveness

Recent Developments in API Storage Tank Standards to Improve Spill Prevention and Leak Detection/Prevention

- *API Recommended Practice 2610*
 - Design, construction, operation, maintenance and inspection of facilities
 - “Big picture” document addresses all components of a facility
 - Guidance standard directing the user by reference to more specific information

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- *Changes to API Standard 2610*
 - References updated and supplemented
 - Definitions of RPB and RPS added
 - Sections revised to reference API 650, Appendix I
 - Section on liners to include consideration of permeability of dike material
 - Revised to address negative aspects of testing piping at high pressures

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■ *Summary*

- There are many industry standards available to use to prevent, detect and contain leaks and spills from aboveground storage tanks and piping.
- These standards are continuously being improved to reflect industry experience and to incorporate new technology to protect the environment from leaks, spills and emissions from tanks and associated components.