



Testing -- Annual Operability and Integrity





Topics to be Covered

- *Types of tests defined in regulations*
- *Petroleum Equipment Institute (PEI) test forms*
- *FIRST test entries*
- *Test form submittals – examples*
- *Tricks of the trade*



Types of Tests

“Operability test” – to determine if:

- **Release detection - electronic and mechanical**
- **Overflow protection**

**are functioning as designed, and
in accordance with manufacturers’ specifications**



Types of Tests

“Operability test”

Required annually, not to exceed 12 months for:

- **Overfill protection**
- **Release detection**



Types of Tests

“Integrity test” – determination of liquid **tightness of system or component using one of the following:**

(a) “*Interstitial* integrity test” – evaluation of interstice

- **Double-walled tank**
- **Double-walled component (piping)**
- **Methods are certified by Nationally Recognized Laboratory**



Types of Tests

“Integrity test” – cont.

(b) “*Primary integrity test*” – evaluation of liquid **tightness** of

- Primary tank (liquid storage area)
- Integral piping (liquid storage area)



Types of Tests

“Integrity test” – cont.

(c) “*Containment integrity test*” – evaluation of liquid **tightness** of

- Hydrant pits
- Isolation valve pits
- Piping sumps
- Dispenser sumps
- Spill containment systems

Includes “Hydrostatic test” that uses liquid pressure and equilibrium



Types of Tests

“Integrity test” – Schedule

- ***Interstitial* integrity tests – at time of installation and subsequent repair for:**
 - Double-walled tanks
 - Double-walled component (piping)
- ***Containment* integrity tests – by 10/13/18, then every 3 yrs. for:**
 - Piping sumps
 - Dispenser sumps
 - Double-walled spill containment
 - (Single-walled spill containment by 1/11/17, then annually)



Types of Tests

“Integrity test” – Schedule cont.

- ***Primary* integrity test – ??**



Types of Tests

“Integrity test” – Breach of integrity

The regulations do not include the word “breach.”



PEI Forms

RP1200: Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities (2017 Ed.)

- **Produced as an industry service**
- **Provides a concise summary of general guidelines for testing**



PEI Forms

RP1200 – cont.

<https://www.pei.org/rp1200>



PEI Forms

RP1200 – cont.

For *interstitial* integrity tests:

- **C-1: Tank secondary containment (vacuum)**
- **C-2: Piping secondary containment (vacuum)**
- **C-3: Spill containment (vacuum & hydrostatic)**



PEI Forms

RP1200 – cont.

For *containment* integrity tests:

- **C-3: Spill containment (vacuum & hydrostatic)**
- **C-4: Piping sumps**



PEI Forms

RP1200 – cont.

For *annual operability* tests:

- **Overflow protection**
 - ✓ **C-5: Ball valves & floats**
 - ✓ **C-6: ATG, alarms**
 - ✓ **C-7: ATG**
 - ✓ **C-8: Liquid sensors/probes**
- **Release detection**
 - ✓ **C-9: Line leak detectors (electronic & mechanical)**