Designation: E3225 – 20

Standard Practice for Performing a Liquid Test of Spill Prevention Equipment and Containment Sumps Used for Interstitial Monitoring of Piping by Visual Examination[1]

This standard is issued under the fixed designation E3225; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 *Spill prevention equipment*, and *containment sumps* are tested periodically to ensure the equipment is *liquid tight* by using vacuum, pressure, or *liquid* testing pursuant to United States of America federal regulations found in § 40 CFR 280.35.

1.2 This practice provides a *liquid test* by *visual examination* conducted by a *professional inspector* to determine if the *spill prevention equipment* and *containment sumps* are *liquid tight*.

1.3 The user is expected to have knowledge of UST installation procedures and UST operational, maintenance and testing requirements of § 40 CFR 280 et seq, related to the tasks performed.

1.4 Section 6 provides the minimum qualifications and educational requirements of a *professional inspector*. The authority having jurisdiction may have additional certification requirements.

1.5 This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title means only that the document has been approved through the ASTM consensus process.

1.6 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Hazards known to this practice are identified in Section 8.

1.8 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *United States of America Environmental Protection Agency (EPA):*[2]

§ 40 CFR §280 Technical standards and corrective action requirements for owners and operators of underground storage tanks (UST)

§ 40 CFR §280.20 Performance standards for new UST systems.

§ 40 CFR §280.35 Periodic testing of spill prevention equipment and containment sumps used for interstitial monitoring of piping and periodic inspection of overfill prevention equipment.

§ 40 CFR §280.36 Periodic operation and maintenance walkthrough inspections

2.2 *United States of America Occupational Safety and Health Administration (OSHA):*[3]

§ 29 CFR §1910.120 Hazardous waste operations and emergency response

§ 29 CFR §1910.146 Permit-required confined spaces

§ 29 CFR §1910.399 Class I locations

2.3 *CERCLA:*[2]

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980. §101(14)

[1] This practice is under the jurisdiction of ASTM Committee E50 on Environmental Assessment, Risk Management and Corrective Action and is the direct responsibility of Subcommittee E50.01 on Storage Tanks.

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[2] Available from United States Environmental Protection Agency (EPA), William Jefferson Clinton Bldg., 1200 Pennsylvania Ave., NW, Washington, DC 20460, http://www.epa.gov.

[3] Available from Occupational Safety and Health Administration (OSHA), 200 Constitution Ave., NW, Washington, DC 20210, http://www.osha.gov.

3. Terminology

3.1 *Definitions:*

3.1.1 *compromised, adj*—a loss of structural integrity or diminished ability to perform as designed.

3.1.2 *containment sump, n*—a subsurface *liquid tight* container designed to contain regulated substances leaked from the *primary fuel path* of an underground storage tank system until the *regulated substance* is detected and removed, including components commonly known as transition sumps, submersible turbine pump (STP) sumps, under dispenser containment (UDC) sumps and piping sumps.

3.1.3 *liquid, n*—a state of matter characterized by the material flowing freely, with a definite volume but indefinite shape which is determined by its container, and which is difficult to compress.

3.1.3.1 *Discussion—liquid* does not include powders or other materials that are composed entirely of solid particles.

3.1.4 *liquid test, n*—the procedure to determine that a *sump* is *liquid tight*.

3.1.5 *liquid tight, adj*—the ability of *sump* to contain a *regulated substance* leaked from the *primary fuel path* of a UST system until the *regulated substance* is detected and removed.

3.1.6 *naked eye, n*—visual perception unaided by a magnifying or light-collecting optical instrument, such as a telescope or microscope and includes vision corrected to normal acuity using corrective lenses.

3.1.7 *primary fuel path, n*—that portion of the UST system that routinely contains a *regulated substance*, including the tank, piping, dispensers, pumps and related components.

3.1.8 *professional inspector, n*—an individual that satisfies independence, education, examination, experience, insurance and licensing, certification or registration requirements of the authority having jurisdiction, to perform a *liquid test* of *spill prevention equipment* and *containment sumps* used for interstitial monitoring of piping by *visual examination*.

3.1.9 *regulated substance, n—(1)* Any substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (but not including any substance regulated as a hazardous waste under subtitle C); and *(2)* Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 °F and 14.7 lb/in.^{2} absolute). The term regulated substance includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

3.1.10 *spill prevention equipment, n—liquid tight* containment basin around the fill pipe of a UST designed to prevent release of *regulated substance* to the environment when the transfer hose is detached from the fill pipe, including components commonly referred to as a catch basin, spill bucket or spill containment.

3.1.11 *sump, n*—when used alone means *spill prevention equipment* or *containment sump*.

3.1.12 *visual examination, n*—the critical *naked eye* observation of a *sump* by a *professional inspector* to determine if the *sump* is *liquid tight*.

4. Summary of Practice

4.1 Perform a *liquid* test according to procedures in Section 7.

4.2 Make a pass or fail determination according to the procedures in 7.5.

4.3 Report the results as in Section 9.

5. Significance and Use

5.1 Periodic testing of *spill prevention equipment* and *containment sumps* used for interstitial monitoring of piping is required by US EPA regulation § 40 CFR §280.35.

5.2 The *spill prevention equipment* and *containment sumps* used for interstitial monitoring of piping must be tested at least once every three years to ensure the equipment is *liquid tight* by using vacuum, pressure, or *liquid* testing according to § 40 CFR §280.35. Under this practice, an annual test is required.

5.3 The phrase *liquid tight* is an ambiguous expression with the acceptable leak rate dependent upon the nature of the *liquid* and the purpose of the evaluated material. This practice defines *liquid tight*.

5.3.1 There is no minimum containment capacity or leak rate criteria for *spill prevention equipment* or *containment sumps* used for interstitial monitoring of piping.

5.4 *Spill prevention equipment* and *containment sumps* are designed to contain a *regulated substance* that is released from the *primary fuel path* of a UST system including leaks that occur when the delivery hose is disconnected from the fill pipe, until the regulated substance is detected and removed. There is no established maximum leak rate, capacity requirement or holding time.

5.5 *Spill prevention equipment* and *containment sumps* must be properly installed pursuant to § 40 CFR §280.20 in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions. Properly installed *spill prevention equipment* and *containment sumps* will perform as designed unless one or more components have become *compromised*. Indications of component *compromise* that could impact the capability of a *sump* to remain liquid tight are visually observable.

5.6 This practice is used to perform a *liquid test* of *sumps* to determine if the *sumps* are *liquid tight*, capable of containing a *regulated substance* leaked from the *primary fuel path* of the UST system until the *regulated substance* is detected and removed.

5.7 *Liquid testing* by *visual examination* is the process of using the *naked eye*, alone or in conjunction with various aids such as portable lighting, camera, or mirrors, as the sensing mechanism from which a determination is made about the condition of the *sump* being inspected.