

Official Code Interpretation

Bureau of Petroleum Products and Tanks
March 2010

CODE SECTION: Comm 10.505(2)(b) Spill and Overfill prevention. This interpretation supersedes all previous interpretations on this subject specific to overfill requirements for underground tanks without tight connect fill.

Comm 10.505(2)(b) Storage tank overfill prevention equipment shall be provided that complies with NFPA 30 section 21.7.1.5 **and** PEI RP100 chapter 7. Existing tank systems shall comply with this paragraph within 2 years after February 1, 2009.

Note: NFPA 30 section 21.7.1.5 requires equipment that will (1) automatically shut off the flow into a tank when the tank is no more than 95 percent full; and (2) alert the transfer operator when the tank is no more than 90 percent full, by restricting the flow into the tank or triggering a high-level alarm.

NFPA 30- 23.13.5 Underground tanks for Class I liquids having a capacity of more than 1000 gal (3800 L) shall be equipped with a tight fill device for connecting the fill hose to the tank.

Issues:

The 95% auto shut-off requirement via a drop tube shut-off mechanism can be easily accommodated on those tanks that take transport gravity drop transfers associated with a tight connect delivery hose arrangement. There is a population of USTs that are filled via hand-held delivery nozzle and do not have tight fill connections, raising the following issues.

- ◆ Previous communications from Madison have stated that the 95% auto shut-off only applies to tanks with a tight connect fill points.
- ◆ The code language and associated note state that all tanks “shall be provided with the 90% alert and 95% shut-off.
- ◆ Some of the subject tanks have a less than 4 inch fill pipe that will not accommodate the typical auto shut-off drop tube.
- ◆ Many of the tanks that are filled via a hand held delivery nozzle do not have any overfill alerting devices.
- ◆ Should there be a size threshold for tanks that may be considered for an exclusion of the requirement?

Additionally, NFPA 30-23.13.5 requires tight fill connections on USTs greater than 1,000 gallon capacity for class I liquids.

Discussion / consideration:

The earlier regulatory positions that the 95% auto shut-off was only required on tight connect fills is based upon the fact that the typical 4 inch auto shut-off valve will not function reliably under hand held nozzle deliveries. The drop tube description written for auto shut-off devices by many of the manufacturers specifically state “tight connect” only; and/or “gravity filling” only. There are models available for delivery pump drops, but these are designated for installation in aboveground tanks.

Hand-held nozzle deliveries are viewed as a delivery with lesser flow rates than a transport drop; typically through a metered truck mounted pump and under the direct control of a delivery person.

The NFPA 30-21.7.1.5 requirement for *tight connect* on USTs goes back at least to 1988 edition of NFPA 30, first adopted in the April 1991 edition of ILHR 10. However, this only applies to Class I flammables. We suspect that 4 inch tight connects were installed on most USTs, but not used where hand-held or small diameter nozzle loose connect deliveries are made.

Overfill prevention for USTs did not appear in NFPA 30 until the 1990 edition. However, Comm 10 did not adopt an NFPA 30 edition that included an overfill requirement until July 2002. New tanks were then required to have the 90/95 overfill protection installed prior to going into operation, but existing tanks were covered under Comm 10.395 - Overfill protection, which was delivery driver sticking. This was carried over into the November 2008 edition of Comm 10 in section 10.505.

The July 2009 edition of Comm 10.505(2) is more explicit. It requires both a 95% capacity auto shut-off as well as a 90% alarm to function *via both* audible alarm and a visual light. (See the December 2009 Official Code interpretation of Comm 10.505(2)(b). However, for pumped deliveries with a tight connect the activation of the auto shut-off during a pumped delivery is very likely to have significant release consequences as a breach in the hose connections or pump/meter may possibly be more damaging than from an overfill. The increase in environmental risk posed by compliance with both NFPA 30 section 21.7.1.5 **and** PEI RP100 chapter 7 is of concern.

After consideration of the points above, it was determined that a code interpretation needed to be based upon both the language of the code and the public safety objective of the code.

Comm 10.225(1) Alternate standards that are equivalent to or more stringent than the standards referenced in this chapter may be used in lieu of the referenced standards when approved by the department or if written approval is issued by the department in accordance with sub. (2).

Determination:

Neither code language nor regulatory policy is intended to increase the risk to the environment, nor to circumvent manufacturer's equipment labeling or application.

For underground tanks without tight connect fill and taking product via a hand-held nozzle, compliance with the PEI RP 100 chapter 7 requirement for 90% visual and audible alerting alone will provide equivalent overfill protection to the environment as compliance with both NFPA 30 section 21.7.1.5 **and** PEI RP100 chapter 7 as referenced under Comm 10.505(2).

The 90% visual and audible alerting is doable and practical in all situations and supported by NFPA 30-21.7.1.5 (3) Other approved methods.

BY: 
Bernice A. Mattsson, Administrator
Division of Environmental and Regulatory Services