

Stage 1 VRS Damage and Anchoring:

Just want to inform you about a couple matters that have grabbed our attention recently.

- 1) A tank recently floated when the concrete surface above the tank was under repair. It was discovered that the tank had no anchoring. If the tank had a little less fuel, and the groundwater continued to rise, the tank may well have floated even with all the surface pressure of concrete and backfill. UST regulations and fire codes require that floatation be prevented. NFPA 30 (23.14) requires supplemental restraint when 70 percent of a tank's storage capacity falls below the flood level. Wet-hole conditions or dewatering a tank pit to install a tank would seem to indicate supplemental restraint or increasing burial depth is necessary. Only if the water table remains consistently below the bottom of the tank excavation, and the area is not subject to periodic flooding or periods of heavy rain is anchoring unnecessary. After the past 15 years, I'm not sure there are many such sites in Iowa. A lot of people live behind levees.

This is what PEI RP/100-11 (6.1-6.7) has to say: "Where installations are located in areas subject to high water tables or flooding, provision should be made to prevent tanks, either full or empty, from floating during a rise in water level—up to the established maximum flood stage" (6.1). Floatout and anchorage calculations can be found in Appendix A of PEI/RP100-11 (p. 34).

When I look at registration forms and see 20000 gallon tanks installed without supplemental restraint, it makes me wonder whether we are designing and planning for worst case scenarios, checking local code requirements, building in a flood-prone area, completing buoyancy calculations, following tank manufacturer's requirements/recommendations, and PEI's recommended practices. Deeper burial depth, hold-down pads, deadman anchors should all be considered when designing and planning an install. When designing and planning an UST installation, owners/operators depend on installers to understand and explain UST requirements as they apply to the owner. Anchoring is as much a part of that process as any other equipment requirement.

- 2) A few months ago, we sent a notice to compliance inspectors describing what to look for during Stage 1 Vapor Recovery System (VRS) inspections. If they found any single or dual-point systems that appeared to be tampered with they were told to contact us. The pictures above are among the first to be reported. A transporter pried open the Dry Break, damaging it in the process, to expedite delivery. It is hard to believe that someone would destroy equipment just to speed delivery. Further enforcement is in store for the company including a fine and/or penalty. The owner of the UST system has also contacted the transporter, and among other things, required the transporter to pay for the replacement Dry Break. If you should observe damaged VRS equipment, take photos and contact us.
- 3) We are working on scheduling courses for installer/inspector. We asked you if you had employees interested in taking an installer/inspector course. Your feedback was largely affirmative so we are planning a course to be held in mid to late fall of this year. We will also hold a refresher course. We will try to confirm dates and provide more information to you this week.

Tom Collins
Environmental Specialist
Underground Storage Tank Section
Iowa Department of Natural Resources
Tom.Collins@dnr.iowa.gov
Phone: 515.281.8879 Fax: 515.281.8895





