

## The Pineapple Connection

It's often referred to as the "Pineapple Connection." This sub-tropical connection occurs when strong, existing storms tap the flow of this continuous stream of warm upper level moisture bringing a succession of wet, warm rain events to the Pacific Northwest. According to the National Weather Service, this phenomenon occurs to some degree at least once nearly every year. Flooding can result from the quick succession of storms, with the situation exacerbated if rains quickly melt snowpack. When this happens again (and it will), will you know if your propane tanks are in the flood plain and if so whether your propane tanks are adequately secured?

In order to raise awareness of the potential of horrendous floods carrying YOUR tanks down river, a recollection of our past history may be in order. In the later part of November 1999, Tillamook received almost 4" of rain in 24 hours. In late November 1996, local flooding, land slides, and power outages occurred during record breaking rainfall across most of Oregon. And those of us that are old enough will never forget December 1964, when hundreds of miles of roads were washed out, scores of bridges wiped out, and hundreds of homes and buildings destroyed by the widespread, severe flooding.

Flooding can also result from other precipitation events such as intense thunderstorms or rapid snowmelt. "We live in the desert; we don't need to anchor tanks here" a familiar assumption, but remember this: In 1956, Bridge Creek, which is normally 12 inches deep in the summer, became a torrent wall of water when nearly 4" of rain fell in just 50 minutes. Twenty buildings in downtown Mitchell were completely destroyed or heavily damaged. Local bridges and roads were lost as well. And the most deadly flood disaster in Oregon's history occurred not from a "Pineapple Connection," but from a severe thunderstorm on June 14, 1903, near Heppner. Eyewitnesses described a 40 foot wall of water raging through town for over an hour, sweeping the entire town away, and drowning nearly 247 people.

Will your tanks be carried away when the next flood hits us? Clearly, NFPA 58-6.6.1.6 is an applicable standard the industry needs to take seriously. This standard says "Where necessary to prevent flotation due to possible high flood waters, containers shall be securely anchored" "Possible high flood waters" and "securely anchored" aren't specifically defined such that we might all completely understand compliance to this standard. But thanks to the FEMA (Federal Emergency Management Agency) and Oregon's DLCDD (Department of Land Conservation and Development) this "gray" area is not so "gray" anymore. FEMA and DLCDD suggest that the industry take advantage of several valuable resources that can assist with decisions about tank placement, flood damage potential, and anchoring of propane tanks.

An excellent avenue to determine possible high flood waters are "flood plain" or "flood hazard" maps. These maps are developed and maintained by FEMA and are obtainable through them at [www.msc.fema.gov](http://www.msc.fema.gov). Representatives from FEMA's Map Service Center may also be contacted by phone at (800) 358-9616. FEMA also provides a tutorial on map reading that can be very helpful. [http://www.fema.gov/fhm/ot\\_firmr.shtm](http://www.fema.gov/fhm/ot_firmr.shtm)

The FEMA flood maps show the flood plain areas regulated under the National Flood Insurance Program or "special flood hazard areas." Special flood hazard areas are those areas projected to be inundated by flood waters during a "100-year" flood. A "100-year" flood is not a flood that occurs only once every 100 years. Instead, it is the flood level with a 1% chance of occurring in any given year. Statistically speaking, there is a 26% chance for a "100-year" flood over the course of a typical 30-year mortgage. FEMA and DLCDD suggest that the special flood hazard areas shown on FEMA's flood maps be the minimum area considered as areas subject to "possible high flood waters" as reference in NFPA 58-6.6.1.6.

Most cities and all counties in Oregon participate in the National Flood Insurance Program (NFIP) and have information on the FEMA-mapped flood plains in their jurisdictions. The planning department in the city or county where a propane tank will be installed will have FEMA flood plain maps for the jurisdiction. You should inquire locally about additional information that might be available regarding local flood hazards. Also, be advised that local governments are required by FEMA and state law to regulate development in special flood hazard areas as defined on FEMA's flood maps. Local regulation is accomplished through local flood plain development permits. FEMA defines development broadly, including placement of propane tanks as a development activity that is to be regulated.

Frankly, the industry really has all the necessary resources to identify "possible high flood waters" referred to in NFPA 58-6.6.1.6 through the acquisition of flood plain maps. Typically other than online viewing, printed resources have nominal fees attached, but should be considered a "value" in retrospect. There are also other excellent resources available to aid the industry when addressing the "shall be securely anchored" portion of the standard.

When it's deemed necessary to adequately secure propane tanks to prevent floatation, FEMA also has a helpful resource titled "FEMA #348, Protecting Building Utilities From Flood Damage," which can be viewed at [www.fema.gov/pdf/nfip/fema-348.pdf](http://www.fema.gov/pdf/nfip/fema-348.pdf). This publication is also available from the FEMA distribution center. Call 1-800-480-2520 and request FEMA publication #348. A quick and condensed alternative is available from FEMA's main page [www.fema.gov](http://www.fema.gov) just type "FEMA 348" in their search engine.

Of all reference materials the industry relies on, the LP-Gas Code Handbook Seventh Edition could be considered the most versatile. It contains the complete text of the 2004 edition of NFPA 58 *Liquefied Petroleum Gas Code* as well as applicable Formal Interpretations issued by the Association. It also contains explanatory commentaries and other supplementary materials which can be extremely valuable. The commentary following 6.6.1.6 is another excellent resource for anchoring propane tanks.

In conclusion, it would be appropriate to look around the world and perceive the massive destruction related to recent natural disasters. Natural disasters are just that, natural, and there is nothing mankind can do to prevent them. We can however, attempt to control some of their effects, and we should think proactively to reduce the catastrophic outcomes.

The industry should not look negatively at government agencies that develop, apply, and enforce laws, codes, and standards that are directly designed to protect property and life during a natural disaster. In fact, the courts have found governments and their agencies have a responsibility to do just that, protect by regulating and enforcement. The "act of God" defense is becoming much less applicable for liability issues to both industry and <sup>1</sup>government with our improved capability to "foresee" and with mapping availability.

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<sup>1</sup> If for some reason the above-listed resources are not adequate and more personal assistance is necessary, then you can contact FEMA or Oregon DLCDC. Christine Valentine is the Coordinator of DLCDC's Floodplain/Natural Hazards Program. Christine represents the state to FEMA for NFIP (National Flood Insurance Program) matters. Contact her at 503-373-0050 or [christine.valentine@state.or.us](mailto:christine.valentine@state.or.us). Our "Oregon" representative at FEMA is Denise Atkinson. Contact her at 425-487-4677 (Bothell, WA) or [denise.atkinson@dhs.gov](mailto:denise.atkinson@dhs.gov).