Specifications (see 180.507(b)(3) of this subchapter	113D60W 223C60W	113C120W	113S120W	113A175W 113A60W	113C120W 113C140W

Values for maximum permitted filling density for LNG were extracted from 49 C.F.R. § 173.318(f)(3) and adjusted for a 15% outage for consistency across standards for cryogenic flammable gases currently transported by both motor vehicle and rail in the U.S. The differences between the cryogenic tank cars specified above are due to gross volume and pressure. As shown by Table 2, the temperature of LNG is between the values for ethylene and hydrogen. LNG is also between the maximum set-to discharge pressures and the maximum permitted filling densities compared to ethylene and hydrogen. These parameters make the transport of LNG comparable to other cryogenic flammable liquids transported in DOT-113C120W tank cars. Transport of LNG by DOT-113C120W tank cars will be within current specifications of other cryogenic flammable liquids transported by DOT-113C120W tank cars posing no additional risks associated with the design specifications to accommodate temperature and pressure of LNG.

Vegetation and Waterways

The behavior of LNG during a loss of containment (LOC) event is typical of any cryogenic liquid. A spill of LNG will vaporize when it contacts ambient air and when in contact with warm solids such as the ground, and leaves behind little to no residue. The cold vapors may condense humid air, causing fog formation and decreased visibility. After vaporization, the cold vapors are denser than ambient air and they will tend to stay close to the ground as they disperse, getting pushed by prevailing winds. The dense vapors can travel significant distances without complete dilution, as the mixing with ambient air is limited near the ground. Due to a large difference in temperature, the rapid transfer of heat from an object into the cryogenic liquid can cause burns if direct contact with skin occurs or if PPE is inadequate to prevent cold-temperature injury due to an exposure.

For small releases, such as a hole in the tank due to a damaged appurtenance or other accident, there will be insignificant difference in the extent of cryogenic damages for either tank cars or cargo tanks. The release will increase in proportion to the hole size in the container, not the volume of container. For catastrophic leaks, the pool size can grow proportionally to the tank volume. If the volume of the cargo tank is 1/3 of the volume of the tank car, for example, the area of the resulting pool spills will be proportional to the volumes. Maximum pool size is dependent upon the rate of release, the ground temperature, the ambient temperature, and the nature of the ground (brush, roadway, drainage ditches, etc.). Negative effects observed in the environment due to pooling of LNG may be expected to be similar to frost damage observed on plants after the first hard freeze of the year, in the area immediately adjacent to the pool.

Other liquefied gases behave similarly to LNG upon accidental discharge into the environment. For example, the U.S. Department of Homeland Security's Chemical Security Analysis Center has conducted experiments to study liquefied chlorine gas releases at the Dugway Proving Ground. Those tests observed that an accidental release of liquefied chlorine gas resulted in a pool of chlorine on the ground. After evaporation of the chlorine pool, there was "no appreciable