

AGENDA
DHCD 2012 Code Change Cycle
Workgroup 2 Subgroup: Fuel Tank Vehicles

January 17, 2013 - 11:00 a.m.

Location: DHCD, 600 E. Main St., 11th floor, Richmond, VA 23219

**Lunch provided by RSVP only. Please email Janice.firestone@dhcd.virginia.gov
by January 14th if you would like to have a lunch ordered for you.**

Agenda

1. Review of draft code change on SFPC 5706.6.2.1 and 6111.2.1 – Parking near residential, educational, and institutional occupancies and other high risk areas (Page 1).
2. Decision of the Virginia State Technical Review Board (Page 9).
3. New Business
4. Adjournment

VIRGINIA DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
DIVISION OF BUILDING AND FIRE REGULATION

Code Change Form for the 2012 Code Change Cycle

Code Change Number: _____

Proponent Information

(Check one): Individual Government Entity Company

Name: _____

Representing: _____

Mailing Address: _____

Email Address: _____

Telephone Number: _____

Proposal Information

Code(s) and Section(s): SFPC 5706.6.2.1 and 6111.2.1

Proposed Change (including all relevant section numbers, if multiple sections):

5706.6.2.1 Parking near residential, educational and institutional occupancies and other high-risk areas. Tank vehicles shall not be left unattended at any time on residential streets, or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility building regularly occupied in whole or in part as a habitation for people, a place of religious worship, schoolhouse, railroad station, store or other structure where people are accustomed to assemble except when parked in accordance with Section 5706.6.2.3. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the fire chief, pose an extreme life hazard.

6111.2.1 Near residential, educational and institutional occupancies and other high-risk areas. L.P-gas tank vehicles shall not be left unattended at any time on residential streets or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility building regularly occupied in whole or in part as a habitation for people, a place of religious worship, schoolhouse, railroad station, store or other structure where people are accustomed to assemble except when parked in accordance with Section 6111.2.2. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the *fire code official*, pose an extreme life hazard.

Supporting Statement (including intent, need, and impact of the proposal):

Creates uniformity among regulations for hazardous materials separation. The new text is derived from the definition of "inhabited buildings" in chapter 2, which currently applies to explosive materials. The change eliminates the undefined term "residential areas", which has been a source of confusion particularly in the absence of local zoning regulations or designations.

Submittal Information

7. The tank vehicle shall comply with the requirements of NFPA 385 and local, state and federal requirements. The tank vehicle's specific functions shall include that of supplying fuel to motor vehicle fuel tanks. The vehicle and all its equipment shall be maintained in good repair.
8. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the tank vehicle or the point of fueling shall be prominently posted on three sides of the vehicle including the back and both sides.
9. A portable fire extinguisher with a minimum rating of 40:BC shall be provided on the vehicle with signage clearly indicating its location.
10. The dispensing nozzles and hoses shall be of an *approved* and *listed* type.
11. The dispensing hose shall not be extended from the reel more than 100 feet (30 480 mm) in length.
12. Absorbent materials, nonwater-absorbent pads, a 10-foot-long (3048 mm) containment boom, an *approved* container with lid and a nonmetallic shovel shall be provided to mitigate a minimum 5-gallon (19 L) fuel spill.
13. Tank vehicles shall be equipped with a "fuel limit" switch such as a count-back switch, to limit the amount of a single fueling operation to a maximum of 500 gallons (1893 L) before resetting the limit switch.
Exception: Tank vehicles where the operator carries and can utilize a remote emergency shutoff device which, when activated, immediately causes flow of fuel from the tank vehicle to cease.
14. Persons responsible for dispensing operations shall be trained in the appropriate mitigating actions in the event of a fire, leak or spill. Training records shall be maintained by the dispensing company and shall be made available to the *fire code official* upon request.
15. Operators of tank vehicles used for mobile fueling operations shall have in their possession at all times an emergency communications device to notify the proper authorities in the event of an emergency.
16. The tank vehicle dispensing equipment shall be constantly attended and operated only by designated personnel who are trained to handle and dispense motor fuels.
17. Fuel dispensing shall be prohibited within 25 feet (7620 mm) of any source of ignition.
18. The engines of vehicles being fueled shall be shut off during dispensing operations.
19. Nighttime fueling operations shall only take place in adequately lighted areas.
20. The tank vehicle shall be positioned with respect to vehicles being fueled to prevent traffic from driving over the delivery hose.
21. During fueling operations, tank vehicle brakes shall be set, chock blocks shall be in place and warning lights shall be in operation.
22. Motor vehicle fuel tanks shall not be topped off.
23. The dispensing hose shall be properly placed on an *approved* reel or in an *approved* compartment prior to moving the tank vehicle.
24. The *fire code official* and other appropriate authorities shall be notified when a reportable spill or unauthorized discharge occurs.
25. Operators shall place a drip pan or an absorbent pillow under each fuel fill opening prior to and during dispensing operations. Drip pans shall be liquid-tight. The pan or absorbent pillow shall have a capacity of not less than 3 gallons (11.36 L). Spills retained in the drip pan or absorbent pillow need not be reported. Operators, when fueling, shall have on their person an absorbent pad capable of capturing diesel fuel overfills. Except during fueling, the nozzle shall face upward and an absorbent pad shall be kept under the nozzle to catch drips. Contaminated absorbent pads or pillows shall be disposed of regularly in accordance with local, state and federal requirements.

5706.6 Tank vehicles and vehicle operation. Tank vehicles shall be designed, constructed, equipped and maintained in accordance with NFPA 385 and Sections 5706.6.1 through 5706.6.4.

5706.6.1 Operation of tank vehicles. Tank vehicles shall be utilized and operated in accordance with NFPA 385 and Sections 5706.6.1.1 through 5706.6.1.11.

5706.6.1.1 Vehicle maintenance. Tank vehicles shall not be operated unless they are in proper state of repair and free from accumulation of grease, oil or other flammable substance, and leaks.

5706.6.1.2 Leaving vehicle unattended. The driver, operator or attendant of a tank vehicle shall not remain in the vehicle cab and shall not leave the vehicle while it is being filled or discharged. The delivery hose, when attached to a tank vehicle, shall be considered to be a part of the tank vehicle.

5706.6.1.3 Vehicle motor shutdown. Motors of tank vehicles or tractors shall be shut down during the making or breaking of hose connections. If loading or unloading is performed without the use of a power pump, the tank vehicle or tractor motor shall be shut down throughout such operations.

5706.6.1.4 Outage. A cargo tank or compartment thereof used for the transportation of flammable or *combustible liquids* shall not be loaded to absolute capacity. The vacant space in a cargo tank or compartment thereof used in the transportation of flammable or

combustible liquids shall not be less than 1 percent. Sufficient space shall be left vacant to prevent leakage from or distortion of such tank or compartment by expansion of the contents caused by rise in temperature in transit.

5706.6.1.5 Overfill protection. The driver, operator or attendant of a tank vehicle shall, before making delivery to a tank, determine the unfilled capacity of such tank by a suitable gauging device. To prevent overfilling, the driver, operator or attendant shall not deliver in excess of that amount.

5706.6.1.6 Securing hatches. During loading, hatch covers shall be secured on all but the receiving compartment.

5706.6.1.7 Liquid temperature. Materials shall not be loaded into or transported in a tank vehicle at a temperature above the material's ignition temperature unless safeguarded in an *approved* manner.

5706.6.1.8 Bonding to underground tanks. An external bond-wire connection or bond-wire integral with a hose shall be provided for the transferring of flammable liquids through open connections into underground tanks.

5706.6.1.9 Smoking. Smoking by tank vehicle drivers, helpers or other personnel is prohibited while they are driving, making deliveries, filling or making repairs to tank vehicles.

5706.6.1.10 Hose connections. Delivery of flammable liquids to underground tanks with a capacity of more than 1,000 gallons (3785 L) shall be made by means of *approved* liquid and vapor-tight connections between the delivery hose and tank fill pipe. Where underground tanks are equipped with any type of vapor recovery system, all connections required to be made for the safe and proper functioning of the particular vapor recovery process shall be made. Such connections shall be made liquid and vapor tight and remain connected throughout the unloading process. Vapors shall not be discharged at grade level during delivery.

5706.6.1.10.1 Simultaneous delivery. Simultaneous delivery to underground tanks of any capacity from two or more discharge hoses shall be made by means of mechanically tight connections between the hose and fill pipe.

5706.6.1.11 Hose protection. Upon arrival at a point of delivery and prior to discharging any flammable or *combustible liquids* into underground tanks, the driver, operator or attendant of the tank vehicle shall ensure that all hoses utilized for liquid delivery and vapor recovery, where required, will be protected from physical damage by motor vehicles. Such protection shall be provided by positioning the tank vehicle to prevent motor vehicles from passing through the area or areas occupied by hoses, or by other *approved* equivalent means.

5706.6.2 Parking. Parking of tank vehicles shall be in accordance with Sections 5706.6.2.1 through 5706.6.2.3.

Exception: In cases of accident, breakdown or other emergencies, tank vehicles are allowed to be parked and left unattended at any location while the operator is obtaining assistance.

5706.6.2.1 Parking near residential, educational and institutional occupancies and other high-risk areas. Tank vehicles shall not be left unattended at any time on residential streets, or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the fire chief, pose an extreme life hazard.

5706.6.2.2 Parking on thoroughfares. Tank vehicles shall not be left unattended on a public street, highway, public avenue or public alley.

Exceptions:

1. The necessary absence in connection with loading or unloading the vehicle. During actual fuel transfer, Section 5706.6.1.2 shall apply. The vehicle location shall be in accordance with Section 5706.6.2.1.
2. Stops for meals during the day or night, where the street is well lighted at the point of parking. The vehicle location shall be in accordance with Section 5706.6.2.1.

5706.6.2.3 Duration exceeding 1 hour. Tank vehicles parked at one point for longer than 1 hour shall be located off of public streets, highways, public avenues or alleys, and:

1. Inside of a bulk plant and either 25 feet (7620 mm) or more from the nearest *lot line* or within a building *approved* for such use; or
2. At other *approved* locations not less than 50 feet (15 240 mm) from the buildings other than those *approved* for the storage or servicing of such vehicles.

5706.6.3 Garaging. Tank vehicles shall not be parked or garaged in buildings other than those specifically *approved* for such use by the *fire code official*.

5706.6.4 Portable fire extinguisher. Tank vehicles shall be equipped with a portable fire extinguisher complying with Section 906 and having a minimum rating of 2-A:20-B:C.

During unloading of the tank vehicle, the portable fire extinguisher shall be out of the carrying device on the vehicle and shall be 15 feet (4572 mm) or more from the unloading valves.

5706.7 Refineries. Plants and portions of plants in which flammable liquids are produced on a scale from crude petroleum, natural gasoline or other hydrocarbon sources shall be

ITEM New Code Change Proposal
LPG Container Separation Requirements
IFC 6111.2 - Group B

Proposal:

Modify Section 6111.2 of the *International Fire Code* as follows:

6111.2 Unattended parking. The unattended parking of LP-Gas cargo tank vehicles not in service shall be in accordance with Sections 6111.2.1 and 6111.2.2 one of the following:

1. Vehicles shall be parked within a LP-Gas Bulk Plant.
2. Vehicles shall be parked off of public streets, highways, public avenues or public alleys.
3. Vehicles shall be parked at other approved locations not less than 50 feet (15. 240 m) from buildings other than those approved for the storage or servicing of such vehicles.

~~**6111.2.1 Near residential, educational and institutional occupancies and other high-risk areas.** LP-gas tank vehicles shall not be left unattended at any time on residential streets or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the fire code official, pose an extreme life hazard.~~

~~**6111.2.2 Durations exceeding 1 hour.** LP-gas tank vehicles parked at any one point for longer than 1 hour shall be located as follows:~~

- ~~1. Off public streets, highways, public avenues or public alleys.~~
- ~~2. Inside of a bulk plant.~~
- ~~3. At other approved locations not less than 50 feet (15-240 mm) from buildings other than those approved for the storage or servicing of such vehicles.~~

Substantiation:

LP-gas tank vehicles are more commonly referred to as "cargo tank vehicles" and they are under the jurisdiction of the U.S. Department of Transportation, Title 49 of the Code of Federal Regulations. The transportation of hazardous materials (propane is classified as a flammable gas, Division 2.1) is regulated by the Hazardous Materials Regulations (Parts 171-185) and the Federal Motor Carrier Safety Regulations (Parts 350-399).

The requirements in 6111.2 address "unattended" parking, in which the operator of the vehicle is not able to react to an emergency situation by either moving the vehicle or controlling the flow of product into or out of the cargo tank. A vehicle that is parked for the purpose of transferring product into or out of the cargo tank would not be "unattended" because paragraph 177.834 (i) of the federal regulations requires the operator to be in attendance during the product transfer operation. Therefore, the requirements in 6111.2 would not be applicable whenever the cargo tank vehicle was being loaded or unloaded.

The requirements in 6111.2.1 address the unattended parking with respect to certain occupancies and other locations that are termed "high-risk" areas. This paragraph is not needed in the code because it imposes requirements that are unwarranted and contradictory. Compliance with 6111.2.1 and 6111.2.2 is difficult; i.e., it is not uncommon for

LP-gas bulk plants to be located within 500 feet of the occupancies and locations that are mentioned in 6111.2.1. Therefore, the parking of cargo tank vehicles *even within the confines of the bulk plant* could constitute a violation.

Furthermore, the federal requirements as shown in 49 CFR Part 397.7(b) make no mention of the occupancies or locations described in 6111.2.1:

§ 397.7 Parking

(b) A motor vehicle which contains hazardous materials other than Division 1.1, 1.2, or 1.3 materials must not be parked on or within five feet of the traveled portion of public street or highway except for brief periods when the necessities of operation require the vehicle to be parked and make it impracticable to park the vehicle in any other place.

The requirements in current paragraph 6111.2.2 are reasonable and do not impose an undue burden on operators of LP-gas cargo tank vehicles. Those requirements are more consistent (but not identical) with those in paragraph 9.7.2 of NFPA 58. Therefore, this wording is retained in 6111.2.

The 50-foot separation distance has been shown to be a valid separation distance to protect the cargo tank from exposure to nearby fires. The 50-foot separation is required for stationary containers greater than 2,000 gallons water capacity and has been justified by numerical modeling of steel containers exposed to fire. The research paper, (*Journal of Hazardous Materials*, April 2006) analyzed steel propane containers of the sizes referred to in Table 6104.3 that were exposed to a severe petroleum pool fire 100 feet in diameter. The modeling indicated that the temperatures of the container walls were well below the temperature at which steel begins to yield. Since all LPG cargo tank motor vehicles are less than 30,000 gallons water capacity, the fifty foot separation distance is justified.

2008 NFPA 58 Excerpt:

9.7.2 Parking Outdoors.

9.7.2.1 Vehicles shall not be left unattended on any street, highway, avenue, or alley, except for necessary absences from the vehicle associated with drivers' normal duties, including stops for meals and rest stops during the day or night, except as follows:

- (1) This requirement shall not apply in an emergency.
- (2) This requirement shall not apply to vehicles parked in accordance with 9.7.2.3 and 9.7.2.4.

9.7.2.2 Vehicles shall not be parked in congested areas.

9.7.2.3 Where vehicles are parked off the street in uncongested areas, they shall be at least 50 ft (15m) from any building used for assembly, institutional, or multiple residential occupancy.

9.7.2.4 Where vehicles carrying portable containers or cargo tank vehicles of 3500 gal (13m³) water capacity or less are parked on streets adjacent to the driver's residence in uncongested residential areas, the parking locations shall be at least 50 ft (15m) from a building used for assembly, institutional, or multiple residential occupancy.

ITEM New Code Change Proposal
LPG Container Separation Requirements
IFC 6111.2 - Group B

Proposal:

Modify Section 6111.2 of the *International Fire Code* as follows:

6111.2 Unattended parking. The unattended parking of LP-Gas cargo tank vehicles not in service shall be in accordance with Sections 6111.2.1 and 6111.2.2 one of the following:

1. Vehicles shall be parked within a LP-Gas Bulk Plant.
2. Vehicles shall be parked off of public streets, highways, public avenues or public alleys.
3. Vehicles shall be parked at other approved locations not less than 50 feet (15. 240 m) from buildings other than those approved for the storage or servicing of such vehicles.

~~**6111.2.1 Near residential, educational and institutional occupancies and other high-risk areas.** LP-gas tank vehicles shall not be left unattended at any time on residential streets or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the fire code official, pose an extreme life hazard.~~

~~**6111.2.2 Durations exceeding 1 hour.** LP-gas tank vehicles parked at any one point for longer than 1 hour shall be located as follows:~~

- ~~1. Off public streets, highways, public avenues or public alleys.~~
- ~~2. Inside of a bulk plant.~~
- ~~3. At other approved locations not less than 50 feet (15 240 mm) from buildings other than those approved for the storage or servicing of such vehicles.~~

Substantiation:

LP-gas tank vehicles are more commonly referred to as "cargo tank vehicles" and they are under the jurisdiction of the U.S. Department of Transportation, Title 49 of the Code of Federal Regulations. The transportation of hazardous materials (propane is classified as a flammable gas, Division 2.1) is regulated by the Hazardous Materials Regulations (Parts 171-185) and the Federal Motor Carrier Safety Regulations (Parts 350-399).

The requirements in 6111.2 address "unattended" parking, in which the operator of the vehicle is not able to react to an emergency situation by either moving the vehicle or controlling the flow of product into or out of the cargo tank. A vehicle that is parked for the purpose of transferring product into or out of the cargo tank would not be "unattended" because paragraph 177.834 (i) of the federal regulations requires the operator to be in attendance during the product transfer operation. Therefore, the requirements in 6111.2 would not be applicable whenever the cargo tank vehicle was being loaded or unloaded.

The requirements in 6111.2.1 address the unattended parking with respect to certain occupancies and other locations that are termed "high-risk" areas. This paragraph is not needed in the code because it imposes requirements that are unwarranted and contradictory. Compliance with 6111.2.1 and 6111.2.2 is difficult; i.e., it is not uncommon for

LP-gas bulk plants to be located within 500 feet of the occupancies and locations that are mentioned in 6111.2.1. Therefore, the parking of cargo tank vehicles *even within the confines of the bulk plant* could constitute a violation.

Furthermore, the federal requirements as shown in 49 CFR Part 397.7(b) make no mention of the occupancies or locations described in 6111.2.1:

§ 397.7 Parking

(b) A motor vehicle which contains hazardous materials other than Division 1.1, 1.2, or 1.3 materials must not be parked on or within five feet of the traveled portion of public street or highway except for brief periods when the necessities of operation require the vehicle to be parked and make it impracticable to park the vehicle in any other place.

The requirements in current paragraph 6111.2.2 are reasonable and do not impose an undue burden on operators of LP-gas cargo tank vehicles. Those requirements are more consistent (but not identical) with those in paragraph 9.7.2 of NFPA 58. Therefore, this wording is retained in 6111.2.

The 50-foot separation distance has been shown to be a valid separation distance to protect the cargo tank from exposure to nearby fires. The 50-foot separation is required for stationary containers greater than 2,000 gallons water capacity and has been justified by numerical modeling of steel containers exposed to fire. The research paper, (*Journal of Hazardous Materials*, April 2006) analyzed steel propane containers of the sizes referred to in Table 6104.3 that were exposed to a severe petroleum pool fire 100 feet in diameter. The modeling indicated that the temperatures of the container walls were well below the temperature at which steel begins to yield. Since all LPG cargo tank motor vehicles are less than 30,000 gallons water capacity, the fifty foot separation distance is justified.

VIRGINIA:

BEFORE THE
STATE BUILDING CODE TECHNICAL REVIEW BOARD (REVIEW BOARD)

IN RE: Appeal of Lee Roy Trent (Firewater Transport, LLC)
Appeal No. 12-2

Hearing Date: July 20, 2012

DECISION OF THE REVIEW BOARD

I. PROCEDURAL BACKGROUND

The State Building Code Technical Review Board (Review Board) is a Governor-appointed board established to rule on disputes arising from application of regulations of the Department of Housing and Community Development. See §§ 36-108 and 36-114 of the Code of Virginia. The Review Board's proceedings are governed by the Virginia Administrative Process Act. See § 36-114 of the Code of Virginia.

II. CASE HISTORY

The appeal is of a decision of the State Fire Marshal's Office (SFMO) involving whether the parking of tank vehicles is in violation of the Statewide Fire Prevention Code (SFPC).

In July of 2011, the SFMO received correspondence from the owner of a residence on Scenic Drive, in Patrick County, stating

that his neighbor, at 1329 Scenic Drive, was operating a hazardous materials fuel oil delivery business with up to four tanker vehicles parked there when not in use.

After investigation, the SFMO issued an inspection notice to Lee Roy Trent (Trent), the owner of the property at 1329 Scenic Drive, informing him that the parking of tank vehicles on his property was in violation of Section 3406.6.2 of the SFPC and directing Trent to correct the violation within 30 days.

Trent's property is in a rural area of Patrick County and is approximately two acres. Trent's house is located on the property as is a shop building with large enough bays to pull tractor and trailers into the shop building. Trent operates a fuel delivery business and parks tank vehicles on the property when they are not in use.

Over the next six months or so, the SFMO visited the property from time to time noting that tanker trucks were there at times. Several additional inspection notices, essentially the same as the original, were issued during this time.

In February of 2012, subsequent to the issuance of a January inspection notice, Trent filed an appeal of the SFMO's notice to the Review Board, asking the Review Board to determine that the parking of his tanker trucks was not in violation of the SFPC.

Review Board staff conducted an informal fact-finding conference, attended by the parties and their respective legal counsel, to clarify the issues in the appeal and to set out the procedural timeframes for the submittal of additional documents and written arguments from the parties. Review Board drafted a summary of the appeal, distributed it to the parties and permitted opportunity for the submittal of objections, corrections or additions to the staff summary.¹ Subsequently, a hearing was held before the Review Board and was attended by all parties and their respective counsel.

III. FINDINGS OF THE REVIEW BOARD

The citation in the inspection notices issued by the SFMO is that Trent is in violation of Section 3406.6.2.1 of the SFPC, which is set out below:

3406.6.2.1 Parking near residential, educational and institutional occupancies and other high-risk areas. Tank vehicles shall not be left unattended at any time on residential streets, or within 500 feet (152 m) of a residential area, apartment or hotel complex, educational facility, hospital or care facility. Tank vehicles shall not be left unattended at any other place that would, in the opinion of the fire chief, post an extreme life hazard.

The SFMO argues that the term "residential area" in Section 3406.6.2.1 means any area where houses are located. As support for that reading of the term, the SFMO states that to read the term differently would potentially leave residents unprotected

¹The State Fire Marshal's Office did submit objections to the staff summary.

against the hazards of fire or explosion, which is an express purpose of the SFPC.

The Review Board finds that argument to be erroneous as the wording in Section 3406.6.2.1 identifies only specific areas where large numbers of people are present in a building or area, such as apartment and hotel complexes, educational facilities or hospitals to be protected. Business areas, factory areas, mercantile or store areas are not included in the requirement. To read the term "residential area" to include any house ignores the use of the word "area" in the term. The word "area" signifies a relationship between houses. If the provision were meant to include all residences, then the use of the word "area" would not have been used with the word "residential" and instead the word "residences" alone would have been used.

The Review Board further finds that to attempt to apply this provision to randomly placed homes on separate lots as in most rural areas would lead to inconsistency. Where would a residential area start and stop? How far from a house would be considered part of a residential area? Attempting to apply the SFPC in this fashion would effectively prohibit the parking of tanker trucks in any rural area as any two houses, no matter how far apart, could be considered to constitute a residential area.

The Review Board finds that the term "residential area" as used in Section 3406.6.2.1, means a residential district or

Secretary of the Review Board. In the event that this decision is served on you by mail, three (3) days are added to that period.