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State Fire Marshal's Alert

December 13, 2005

Crashes involving fire department water tanker trucks are the leading cause of death in fire service motor vehicle incidents.

Two recent fatal crashes involving motor vehicles modified into water tankers are under investigation by the Texas State Fire Marshal's Office. Based on these investigations and past tanker crash incidents, in Texas and nationally, the State Fire Marshal wants to alert the Texas fire service regarding the construction and operation of fire department tankers used in transporting water.

Motor vehicle incidents account for approximately 20% of U.S. fire fighter deaths each year; cases involving tanker trucks are most common.

Tanker drivers may not fully understand how much more difficult tanker trucks are to control than passenger vehicles. A tanker truck requires a much greater distance to stop. Tankers weigh substantially more, and their air brake systems take more time to activate than the hydraulic/mechanical brake systems on smaller passenger cars. Handling, braking, and vehicle dynamics are influenced by the amount of water the tanker is hauling and whether the water tank is properly baffled to control weight transfer.

To reduce the risk of tanker truck incidents, the State Fire Marshal's Office recommends that all Texas fire departments take the following precautions:

All fire department vehicle operators should do the following:

- Recognize that they are responsible for safe operation of the vehicle under all conditions.
- Wear a seat belt when operating a vehicle.
- Understand the vehicle's special characteristics, capabilities, and limitations.
- Be aware of the potential for unpredictable driving by the public.
- Lower speed when driving on wet or icy roads, in darkness or fog, or under any other conditions that make emergency vehicle operation especially hazardous.

All fire departments should consider the following:

Equipping all vehicles with seat belts and developing, implementing, and enforcing standard operating procedures (SOPs) for operating emergency vehicles, especially regarding seat belt use.

Verifying that all drivers have the necessary driving skills and experience and providing them with specialized initial and periodic refresher training.

When using water tanks on vehicles, consider:

- The manner in which the water tank is mounted.
- The weight of the fully loaded vehicle and the gross axle weight rating of any axle and the gross vehicle weight of the chassis or chassis-trailer combination.
- The center of gravity of the vehicle and the chassis manufacturer's specified center of gravity with tank weight evenly distributed to the front and rear axles.
- In-tank baffles to control front-to-rear and side-to-side water movement.
- The vehicle/tank design, including the suspension, steering, and braking ability for the load imposed by water tanks.

Consider terrain, weather, bridge, and road conditions in the local service area when purchasing or constructing a mobile water supply vehicle.

Keep all department vehicles on a regular maintenance schedule and document the performance of the maintenance.

Fire department tanker safety publications: (NIOSH) <http://www.cdc.gov/niosh/hid14.html>
(US Fire Administration) <http://www.usfa.fema.gov/downloads/pdf/publications/fa-248.pdf>

This State Fire Marshal's Office Water Tanker Alert is at <http://www.tdi.state.tx.us/fire/documents/fmred121405.pdf>