Haz Mat Points to Ponder

BY LEIGH T. HOLLINS

MC-306/406 TRANSPORT TANKER INCIDENTS

MOTOR CARRIER (MC)-306/406 transport tanker trailers, better known as gasoline tankers, are the most common types of large-capacity, hazardous materials transport trucks on the road. Although MC-306/406 tankers are used to transport products from sewage to poisons, they usually transport gasoline and diesel fuel. Gasoline tankers are driven through almost any town in America, regardless of size. An incident involving one of these tankers can occur anywhere, and your fire department would likely be the first agency to arrive and will be expected to "act."

In 1990, the U.S. Department of Transportation (DOT) approved several changes pertaining to the construction of the MC-306. The vehicle's designation was changed from MC-306 to MC-406. All such tankers manufactured after September 1995 meet the specifications of the new MC-406 standard. The changes are not significant from the perspective of how first responders would handle an emergency involving a gasoline tanker. Therefore, the MC-306 vs. the MC-406 designation is not a factor for initial responders.

■ **LEIGH T. HOLLINS** began his career in 1976 at Nottingham Fire Company in Hamilton Square, New Jersey. He currently serves as a battalion chief with the Cedar Hammock and Southern Manatee (FL) Fire Districts and is vice president and director of Starfire Training Systems Inc. in Manatee County, Florida. He is a certified firefighter, an EMT, an inspector, a fire officer, and a fire science instructor. He has a college degree in fire science and is the author of numerous fire-related articles, a frequent presenter at FDIC, a lead instructor for the FDIC's Hands-On Training program, and a member of the *Fire Engineering* editorial advisory board and of the FDIC educational committee.

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What is a factor is that initial responders know how to identify an MC-306/406 from a distance and not confuse it with an MC-307/407. The latter looks similar but transports nonhazardous as well as hazardous commodities. The product an MC-307/407 tanker most commonly transports is liquid food products, most often milk. However, MC-307/407 tankers also transport oils, poisons, and some hazardous materials. In central Florida, the most common product found in an MC-307/407 is orange juice concentrate.

The two incidents involving the MC-306 tankers in photos 2-10 occurred in the small rural town of Duette, located in Manatee County on Florida's west-central coast. In fact, both incidents happened at the exact same intersection, six years apart. The spill occurred in 1994, the fire on June 28, 2000. Although these incidents took place in a very remote and rural area, they present lessons from which we can learn and better prepare ourselves for those times when these situations present themselves in our jurisdiction, as they will sooner or later.

Photo 1. Is this an MC-306 or MC-307? Can you spot the difference from a distance? Do your response units carry binoculars? The tanker is an MC-307. Note the side-mounted ladder, the absence of rollover protection along the top side, and the "round

ness" of the tank end. This tanker was carrying hydraulic oil and was not properly placarded. The placard read "Drive safely." MC-307/407 tankers are usually an insulated, single-compartment, stainless-steel tank and have a thin aluminum "skin" on the outside.

Photo 2. An MC-306. Note the rear ladder, rear vent piping, and "elliptical" shape of the tank. But don't be fooled! Some of the new MC-406 tankers have the ladder mounted at the front, and the vent piping is inside the tank. Other design features to look for in an MC-306/406 include top rollover protection running the length of the tank (to protect the dome covers), multiple dome covers, and multiple pipes on the underside. Most MC-306/406 tankers are multiple-compartment, single-wall aluminum and have capacities of around 8,000 gallons. Some may have up to a 12,000-gallon capacity, although most state regulations do not allow these capacities on the road.

Photo 3. The driver of this tanker fell asleep on a rural highway. The truck approached a T-intersection, missing the power pole ignition source by inches. Even in rural areas, foam operations may be needed to suppress gasoline vapors, which are heavier than air and can travel great distances. What types of ignition sources might be found in a rural setting? Power lines, ground-mounted telephone switching equipment, vehicles, the "good Samaritan" setting up flares? Are the portable radios, pagers, flashlights, cell phones, and so on, used at the scene intrinsically safe? If not, don't allow them in the hot and warm zones or downwind. Who needs to be notified when a gasoline tanker is leaking gasoline into the ground in your jurisdiction: state, county, township, the Feds? Know beforehand.

Photos 4, 5. This incident occurred at the same T-intersection as in photo 3. In this instance, the tanker driver pulled out in front of a "dry bulk" semi truck, whose driver was killed in the ensuing fire. Several utility workers were in the area of the cones when the incident occurred. They escaped unharmed and unsuccessfully attempted to rescue the driver. What do you do on arrival? Who can provide you with information? What is burning? Should you apply water? Foam? Anything? The characteristics of the fire and smoke help you decide that a petroleum product is burning. Binoculars would allow you to see the placard to confirm which product is burning ... 1203 is what? Is a boiling-liquid, expanding-vapor explosion (BLEVE) a possibility? Do you need to evacuate? If so, how far? What is the dry bulk truck carrying? Can you get to the other (east) side of the incident, or should you call the next county over? Call them. You will need to answer these questions on and shortly after arrival.

Photo 6. The unit responding from the other county arrives and sees this view. Can you communicate on the radio with the other county's responders? It makes sense that you should be able to. Doesn't it? The officer on the east side has located the tanker driver and a coworker of the dry bulk driver, who advises the officer that the "dry bulk" is actually ammonium nitrate. WHOA! Is there anyone on-scene at this point who can advise if a massive explosion is possible/probable? Is an ammonium nitrate-gasoline mix dangerous, or is ammonium nitrate dangerous only when mixed with diesel fuel? What about fertilizer-grade ammonium nitrate? What would you do?


(Photo by Stacey Bailey.)


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(Photo by Mark Jones.)

Back up the troops until a determination can be made. There is no reason to be close to this incident anyway. It was determined that there was no severe explosion hazard. The tanker was allowed to burn until the fuel was consumed.

Photo 7. If water is needed, where is the source? The nearest hydrant is 17 miles away. No department can keep a water shuttle going when the hydrant is that far away. Is this pond enough? Do you still carry hard-suction hose? Tankers and porta-tanks can help you manage on-site water resources. With the hydrant that far away, make sure there is enough water on-site to accomplish your goals and that responding agencies have the mutual-aid training to work together well.

Photo 8. Training and coordination are key to filling and drawing from three porta-tanks. The water at this incident was used for foam operations after the fire was allowed to consume most of the fuel.

Photo 9. Some other considerations will include dealing with the press, who will show up en masse to such a high-profile incident. As soon as possible, assign a qualified person as public information officer. Let the press work to your advantage. Get the most public relations you can from a bad situation. During such incidents, it is important to get out by the "live" press information pertaining to the need for evacuation and the areas to which citizens should go. This will be helpful for the evacuees as well as friends and relatives.

Other related challenges you may face include controlling news helicopters, transporting evacuees, and finding suitable shelter on both sides of the incident. During extended incidents (remember, gasoline burns at about one foot of depth per hour), especially in a rural setting, you will need to address situations such as rest and rehab, food and drink, restroom facilities, and covering other parts of the county when so many personnel are needed at the incident.

Photo 10. At the time of the crash, the MC-306 was transporting a full load of 7,800 gallons of gasoline, and the dry bulk carrier was carrying 20 tons of fertilizer-grade ammonium nitrate. The aftermath of this incident was fairly major. In addition to the loss of a life and the destruction of two trucks, the intersection and related traffic-control devices sustained major damage, an environmental cleanup was required, and the local emergency response resources were challenged and were committed for about 12 hours.

Other "points to ponder" at this particular incident were the following:

- The incident location was in a watershed area of the county, meaning that any runoff could have had major effects for the county water supply (Manatee County's drinking water is derived from surface waters).
- The Florida aquifer, the source of drinking water for millions of Floridians, is close to the surface and is protected from contamination only by a limestone layer. (It is said that one gallon of gasoline can contaminate one million gallons of water in the aquifer.)
- It was reported at the incident in 1994 that phone/data cables in the area feed data from radar sites in the area to the Tampa International Airport.

Know your tankers. Know how to deal with them and their characteristics, and have the necessary resources available so that any incident in your jurisdiction can be handled safely and efficiently. ■


(Photo by Mark Jones.)


(Photo by Stacey Bailey.)