

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.**

ISSUED: February 7, 1984

Forwarded to:

Mr. Charles T. Gilchrest  
President  
National Safety Council  
444 No. Michigan Avenue  
Chicago, Illinois 60611

SAFETY RECOMMENDATION(S)

H-84-01

Between 1:30 p.m. and 1:55 p.m., e.s.t., on February 28, 1983, a grass fire of an undetermined origin was ignited by an unknown source in the gore area between the southbound exit ramp from Interstate Route 75 (I-75) to U.S. Route 27 and the southbound lanes of I-75. The fire burned rapidly, and a strong wind from the south-southwest fanned dense smoke across the southbound lanes of I-75. About 2 p.m., the smoke reduced visibility for a 200- to 300-foot stretch of highway from near zero to about 40 to 60 feet. Approaching drivers had a clear view of the smoke cloud for over 2 miles before entering the smoke, but they responded with diverse assumptions and drove into and through the smoke in a wide range of speeds. At least 22 vehicles, including three combination vehicles, all traveling south on I-75, entered the cloud of smoke and were involved in multiple vehicle collisions. Vehicle fuel tanks were breached and a gasoline fed fire erupted. Fourteen vehicles, including all three combination vehicles, were burned. In addition to extensive property damage being caused, 5 vehicle occupants were killed and 36 were injured. At least three rescuers suffered thermal injuries. 1/

The Safety Board determined that the wide speed differentials combined with the severely restricted visibility and the existing traffic volume made it likely that collisions would occur. These factors have been at the heart of virtually all restricted visibility, chain reaction accidents occurring on high speed highways that have been investigated by the Safety Board.

In many locations throughout the United States where reduced visibility conditions (due to smoke, fog, blowing snow, or dust) can be anticipated, such countermeasures as fixed and variable warning signs and high visibility pavement markings have been installed. However, such countermeasures are not warranted at the accident site. There was no recent history of smoke-related accidents in the accident area, and thus, there was no reason to anticipate a traffic problem caused by grass fires. Other alternatives, such as killing the grass and covering the area with gravel or pavement, probably would not be economically feasible or environmentally acceptable.

1/ For more detailed information, read Highway Accident Report—"Multiple Vehicle Collisions and Fires Under Limited Visibility Conditions, Interstate Route 75, at Ocala, Florida, February 28, 1983" (NTSB/HAR-83/04).

According to Fatal Accident Reporting System (FARS) data, fatal accidents involving weather conditions coded as smog, smoke, blowing sand, or dust result in about 145 fatalities each year. FARS data indicate that between 1 and 2 percent of all fatal accidents occur because drivers encounter limited visibility driving situations. No data are available with regard to nonfatal accidents. While the problem of reduced visibility is not statistically as great as other highway safety problems, during the last 16 years, the Safety Board has investigated 10 such accidents which involved over 220 vehicles and resulted in 44 fatalities and injuries to 251 persons.

Cost and technical problems make it impractical to design and install highway features on a very extensive basis which could protect motorists from involvement in accidents in reduced visibility driving conditions. The wide variety of assumptions and decisions and actions taken by drivers confronted by the smoke in the February 28, 1983, accident demonstrate that the problem is largely one of driver education. Motorists should be aware that fire can spread rapidly and produce smoke of varying density. An awareness of the hazards could encourage more defensive driving practices and a more uniform response from drivers approaching conditions, such as smoke, which limit visibility.

The Safety Board reviewed the most recent driver manuals of 18 States and 3 of the most commonly used textbooks in school driver education programs. Little information was available in the publications about proper actions drivers should take when confronted with smoke conditions on the roadway. The information, or lack of information, presented in the publications fell within the following categories:

- (1) No mention of driving in limited visibility conditions.
- (2) Only limited mention of driving in limited visibility, the need for using low beam headlights, and speed reduction below the speed limit when conditions warrant.
- (3) An extensive treatment of driving in limited visibility conditions caused by smog, fog, heavy rain, sleet, or snow. Motorists are encouraged to slow down and pull off the road if conditions are severely restrictive. Florida includes "Smoke" in the title of the subject area, but does not discuss the issue.

South Carolina's Driver's Guide states under its "What to Do If?" section that:

**Smoke:** You notice that just ahead of you the road is obscured by heavy smoke. If you are not sure how dense the smoke is, reduce your speed immediately, drive as far as possible to the right and stop off the roadway. Then determine if it is safe to continue.

Certain types of smoke if inhaled can irritate your lungs and eyes. Inhaling smoke from chemical fires can be fatal.

If you suddenly enter smoke and it is very heavy immediately turn on your low beam headlights, signal for a right turn and get as far off the traveled portion of the roadway as you can. Then turn on your emergency flashers.

On a freeway, you may need to get onto the grassy portion of the shoulder and stop. If this is the case, after you have stopped get yourself and all passengers out of the vehicle and move back in the direction from which you were traveling so that you can warn other drivers of the impending danger.

If possible, notify the Highway Patrol or other responsible police agency. Never stop on the traveled portion of the freeway or roadway or abandon your car. This could cause other drivers to crash into your vehicle.

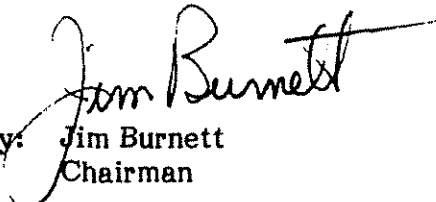
With the exception of South Carolina's driver manual, it appears that State driver manuals and driver education textbooks materials typically have not discussed what actions motorists should take when smoke is encountered. The Safety Board believes that there is a need to educate the motoring public concerning the properties and density characteristics of smoke, as stated in the South Carolina Driver's Guide above, and to recommend actions to be taken when a motor vehicle driver encounters smoke.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the National Safety Council:

Develop and include in the Safety Council's driver training textbooks and defensive driving training programs advice, such as appears in the South Carolina Driver's Guide, as to the hazards presented by highways blanketed with smoke and what actions the motorists should take if they are suddenly confronted with such a situation. (Class II, Priority Action)  
(H-84-01)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations, and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

BURNETT, Chairman, and BURSLEY, and ENGEN, Members, concurred in this recommendation. GOLDMAN, Vice Chairman, and McADAMS, Member, did not participate.

  
By: Jim Burnett  
Chairman

