National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: December 20, 2001

In reply refer to: H-01-30, -31, and -34

Honorable Mary E. Peters
Administrator
Federal Highway Administration
400 Seventh Street, S.W.
Washington, DC 20590

On January 28, 2000, about 5:56 a.m. in Glendale, California, a tractor-combination vehicle, operated by Mercury Transportation, Inc., was transporting an oil refinery condenser unit. The vehicle missed a turn in its planned route, traversed a highway-railroad grade crossing, turned around, and was attempting to retraverse the crossing when it became lodged on the railroad tracks. About 90 seconds later, northbound Metrolink commuter train 901, operated by the Southern California Regional Rail Authority, collided with the semitrailer. The engineer, conductor, and four passengers received minor injuries. Total damages were estimated to be over $2 million.[1]

The National Transportation Safety Board determined that the probable cause of the collision of the Metrolink passenger train with the tractor-combination vehicle was (1) inadequate preparation and route planning for the movement; (2) poor coordination of the movement among the truckdriver, pilot car drivers, police escort, and permitting authorities; and (3) a lack of recognition of the potential hazard caused by the accident vehicle at the grade crossing. Contributing to the accident was the fatigue of the pilot car drivers and the truckdriver.

The transportation of this oversize/overweight load covered over 2,100 miles through 4 States; involved 5 pilot car companies, 2 permit companies, the permit issuing offices of 4 States, and in California, 12 local jurisdictions; and had been under way for 22 days when the accident occurred.

The accident scenario began when the oversize/overweight permitted load, escorted by two pilot cars and three California Highway Patrol (CHP) escorts, missed a turn from Grandview Avenue onto San Fernando Road. As a result of this mistake, the convoy continued straight on Grandview Avenue and across the grade crossing. The mistake occurred because the lead pilot car driver failed to include the San Fernando Road turn when transcribing route directions onto a

[1] For additional information, read National Transportation Safety Board, *Collision Between Metrolink Train 901 and Mercury Transportation, Inc., Tractor-Combination Vehicle at Highway-Railroad Grade Crossing in Glendale, California, on January 28, 2000*, Highway Accident Report NTSB/HAR-01/02 (Washington, DC: NTSB, 2001).

notepad. The convoy drivers did not discover the error until they realized that Grandview Avenue ended beyond the crossing.

The lead pilot car driver was contracted to escort the accident load and received the permits 1 day before he met the convoy at the California-Arizona border. He did not have a copy of the route survey, had not previously driven the intended route, and had not met with the CHP, the truckdriver, or the rear pilot car driver prior to the morning of the movement. The lead pilot car driver had been given 1 State and 12 different local California permits, but not their attachments, which contained some rules and regulations relating to the load. From these permits, he had to transcribe route directions to create a master route plan for the move, which he did on his notepad. Although he discussed the route with the truckdriver, CHP escorts, and rear pilot car driver, he did not provide them with a copy of the master route plan.

Because a master route plan had not been prepared in advance, because the driver had not driven the intended route prior to the movement, and because a master route plan had not been provided to the others in the convoy, they missed the opportunity both to identify the transcription error at the onset of the movement and to recognize the error once on Grandview Avenue. The Safety Board concludes that poor preparation and planning for the movement of the oversize/overweight load resulted in the convoy crossing the Grandview Avenue highway-rail grade crossing instead of turning onto San Fernando Road.

At the time of the accident, the lead pilot car driver, who had escorted the convoy through California, had 8 years of experience and was certified in Utah. (California has no pilot car driver certification program.) However, the Utah pilot car certification curriculum does not include railroad notification for crossing tracks. In this accident, the truckdriver and the CHP officers depended on the lead pilot car driver for guidance through California, particularly metropolitan Los Angeles.

Knowledge of the problems of low-clearance vehicles at railroad grade crossings and how to evaluate the safety of each crossing would be valuable for pilot car drivers, as well as for truckdrivers. The Safety Board concludes that had the pilot car drivers received training that emphasized the hazards of railroad grade crossings for oversize/overweight vehicles, the pilot car drivers might have recognized the potential hazard and notified the railroad that the accident vehicle was about to traverse the tracks.

Pilot car drivers are not subject to hours-of-service rules. In the Glendale accident, the lead pilot car driver's day started 5 hours before the trip began. He had driven from San Bernardino, California, to meet the load and waited with the CHP officers in Adelanto, California, for the load to arrive. At the time of the accident, the lead pilot car driver had been awake for 27 hours and had been driving and on duty for 24 consecutive hours; the truckdriver and second pilot car driver had been awake for 22 hours and had been driving and on duty for 19 consecutive hours. Most often a pilot car driver adheres to the schedule of the truckdriver, who is subject to hours-of-service rules. However, since pilot car drivers are not subject to the hours-of-service rules, truckdrivers will often park the truck, and then the pilot car will take them to eat or on short errands, as the rear pilot car driver did at several stops on the accident trip. As this accident demonstrates, pilot car drivers can also be subject to the effects of lack of sleep and need to be aware of the deleterious effects of fatigue. Therefore, the Safety Board concludes that

the judgment and vigilance of the pilot car drivers and the truckdriver may have been affected by a lack of sleep.

All States require pilot cars for certain size loads; the Safety Board is aware of only eight States (Colorado, Florida, Kansas, New York, Oklahoma, Utah, Virginia, and Washington) that provide oversight in the form of certification of the pilot car drivers. Currently, the certification process ranges from reading a manual to classroom instruction, and then passing a test. The existing manuals indicate that pilot car driver responsibilities include ensuring that oversized/overweight loads are transported safely through designated routes. This responsibility requires skill and knowledge. However, in 42 States, pilot car drivers are not required to have any specific training, pass any skills tests, or demonstrate their knowledge regarding the movement of oversize/overweight vehicles. Furthermore, pilot car drivers are not required to have commercial driver's licenses (CDLs).

Pilot cars and escort vehicles help protect the traveling public, the infrastructure, and the oversized load itself. Pilot car drivers perform a safety-sensitive function and are an integral component of many oversize/overweight vehicle movements; consequently, it is important that they be trained and qualified. Yet, only eight States have methods or oversight procedures in place to ensure that pilot car drivers are trained or qualified. As this accident demonstrates, an untrained, inexperienced, or fatigued pilot car driver can create hazardous situations during the movement of an oversized load.

The Safety Board considers pilot car driver training critical to ensuring that oversize/overweight loads are transported safely. Such training should include instruction in the effects of fatigue on performance, the need to assess the dangers of railroad crossings, the requirement in some States to notify the railroads, route surveys, and the maneuvering limitations of heavy-haul vehicles.

The Office of Freight Management and Operations in the Federal Highway Administration (FHWA) provides limited Federal oversight on the transportation of oversize/overweight loads. The California Professional Escort Car Association, the Texas Pilot Car Association, and the United Safety Car Association represent the pilot car industry. The heavy hauling, or oversize/overweight load, industry is represented by the Specialized Carriers and Rigging Association. The licensing organizations within the States are represented by the American Association of Motor Vehicle Administrators (AAMVA), which currently administers the CDL program. The AAMVA, through its committees, has the structure in place to administer uniform testing processes. Therefore, the Safety Board believes that the FHWA should develop a model pilot car driver training program in cooperation and consultation with the Federal Motor Carrier Safety Administration (FMCSA), American Association of State Highway and Transportation Officials (AASHTO), AAMVA, Commercial Vehicle Safety Alliance, Specialized Carriers and Rigging Association, California Professional Escort Car Association, Texas Pilot Car Association, and United Safety Car Association. The training program should address, at a minimum, issues such as (1) how to conduct route surveys; (2) the maneuvering limitations of heavy-haul vehicles; (3) the effects of fatigue on performance; (4) the need to assess the dangers at railroad crossings, particularly for low-clearance vehicles; and (5) the need and requirements to notify the railroads before an oversize/overweight vehicle is escorted across a highway/rail grade crossing.

The movement of this oversize/overweight vehicle from Houston, Texas, to Los Angeles, California, was plagued by errors, delays, and a general lack of coordination among the participants. The permits obtained did not correspond to the actual route taken, and the discrepancies caused delays. Moreover, the truckdriver, pilot car drivers, and police escorts did not share information among themselves and also exhibited a lack of safety awareness regarding the movement of oversize/overweight vehicles over grade crossings. Planning for this movement appeared to be haphazard and uncoordinated as well. For example, the convoy had not even left the plant in Houston before it encountered its first predictable obstacle, a tree that had to be cut down.

During the movement of an oversize/overweight load, the truckdriver, pilot car drivers, motor carrier, permitting officials, and police escorts must communicate effectively to coordinate their efforts. In this accident, several missed opportunities for communication occurred, as well as several occasions of miscommunication. The poor communication may have resulted for several reasons. One such reason is the interaction of private citizens and uniformed police. Private citizens tend to defer to the authority of police. The truckdriver's reticence in making sure the CHP officers were aware of his duty status is an example. The truckdriver evidently deferred to the authority of the CHP officers and failed to effectively communicate his hours-of-service status before abdicating responsibility to the CHP officers. The perceived authority of the CHP officers and the associated "power imbalance" appears to have led the truckdriver to proceed in violation of his hours of service, erroneously believing that was the CHP officers' intention.

This accident and the movement that preceded the accident demonstrate how fragmented the permitting and route planning process can be and how poor communication among the participants can lead to catastrophe. Although the States, through their permitting process, have some requirements for oversize/overweight vehicle movements, and permitting guidance is available through AASHTO, no overall guidance is available concerning how this type of movement should be made.

The Safety Board concludes that had the movement of the accident vehicle been coordinated more effectively, many of the errors, delays, and failures of communication that led to the accident could have been avoided. Therefore, the Safety Board believes that the FHWA should develop model oversize/overweight vehicle movement guidelines in cooperation and consultation with the FMCSA, AASHTO, the AAMVA, the Commercial Vehicle Safety Alliance, the Specialized Carriers and Rigging Association, the California Professional Escort Car Association, the Texas Pilot Car Association, and the United Safety Car Association. The guidelines should address, at a minimum, issues such as (1) when pilot cars and police escorts are required; (2) the training, testing, and certification of pilot car operators, police officers, and truckdrivers in the movement of oversize/overweight loads; (3) the use of height poles and traffic controls; (4) how to conduct route surveys; (5) the maneuvering limitations of heavy-haul vehicles; (6) the effects of fatigue on performance; (7) the need to assess the dangers at railroad crossings, particularly for low-clearance vehicles; and (8) the need and requirements to notify the railroads before an oversize/overweight vehicle is escorted across a highway/rail grade crossing.

The Safety Board considers that the States should adopt the model oversize/overweight vehicle movement guidelines, once developed, and require that oversize/overweight vehicle movements conform to the guidelines. Therefore, the Safety Board believes that the FHWA should

encourage the States to adopt the model oversize/overweight vehicle movement guidelines, once developed, and to require that oversize/overweight vehicle movements conform to the guidelines.

Therefore, the National Transportation Safety Board recommends that the Federal Highway Administration:

> Develop a model pilot car driver training program. The training program should address, at a minimum, issues such as (1) how to conduct route surveys; (2) the maneuvering limitations of heavy-haul vehicles; (3) the effects of fatigue on performance; (4) the need to assess the dangers at railroad crossings, particularly for low-clearance vehicles; and (5) the need and requirements to notify the railroads before an oversize/overweight vehicle is escorted across a highway/rail grade crossing. (H-01-30)
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> Develop model oversize/overweight vehicle movement guidelines. The guidelines should address, at a minimum, issues such as (1) when pilot cars and police escorts are required; (2) the training, testing, and certification of pilot car operators, police officers, and truckdrivers in the movement of oversize/overweight loads; (3) the use of height poles and traffic controls; (4) how to conduct route surveys; (5) the maneuvering limitations of heavy-haul vehicles; (6) the effects of fatigue on performance; (7) the need to assess the dangers at railroad crossings, particularly for low-clearance vehicles; and (8) the need and requirements to notify the railroads before an oversize/overweight vehicle is escorted across a highway/rail grade crossing. (H-01-31)
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> Encourage the States to adopt the model oversize/overweight vehicle movement guidelines, as addressed in Safety Recommendations H-01-31 and -33, and once developed, to require that oversize/overweight vehicle movements conform to the guidelines. (H-01-34)

The Safety Board also issued safety recommendations to the FMCSA; AASHTO; AAMVA; Commercial Vehicle Safety Alliance; Specialized Carriers and Rigging Association; California Professional Escort Car Association; Texas Pilot Car Association; United Safety Car Association; city of Glendale, California; International Association of Chiefs of Police; and National Sheriffs' Association.

Please refer to Safety Recommendations H-01-30, -31, and -34 in your reply. If you need additional information, you may call (202) 314-6440.

Chairman BLAKEY, Vice Chairman CARMODY, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

Original Signed

By: Marion C. Blakey
Chairman