



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: May 29, 2009

In reply refer to: H-09-9

Mr. Peter J. Pantuso
President and Chief Executive Officer
American Bus Association
700 13th Street N.W., Suite 575
Washington, D.C. 20005-5923

Mr. Victor Parra
Ex-Officio President and Chief Executive
Officer
United Motorcoach Association
113 South West Street
4th Floor
Alexandria, Virginia 22314-2824

The National Transportation Safety Board (NTSB) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organizations to take action on the safety recommendation in this letter. The NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation addresses trip planning and motor carrier operation in rural areas lacking cellular telephone coverage. The recommendation is derived from the NTSB's investigation of the January 6, 2008, motorcoach rollover near Mexican Hat, Utah,¹ and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the NTSB has issued seven safety recommendations, one of which is addressed to both the American Bus Association (ABA) and the United Motorcoach Association (UMA). Information supporting the recommendations is discussed below. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

On January 6, 2008, about 3:15 p.m. mountain standard time, a 2007 Motor Coach Industries 56-passenger motorcoach with a driver and 52 passengers on board departed Telluride, Colorado, en route to Phoenix, Arizona, as part of a 17-motorcoach charter. The motorcoach passengers were returning from a 3-day ski trip. The normal route from Telluride to Phoenix

¹ For more information, see *Motorcoach Rollover Near Mexican Hat, Utah, January 6, 2008*, Highway Accident Report NTSB/HAR-09/01 (Washington, DC: NTSB, 2009), which is available on the NTSB's website at <http://www.nts.gov/publictn/2009/HAR0901.pdf>.

along Colorado State Route 145 was closed due to snow, and the lead driver planned an alternate route that included U.S. Route 163/191 through Utah.

About 8:02 p.m., the motorcoach was traveling southbound, descending a 5.6-percent grade leading to a curve to the left, 1,800 feet north of milepost 29 on U.S. Route 163. The weather was cloudy, and the roadway was dry at the time of the accident. After entering the curve, the motorcoach departed the right side of the roadway at a shallow angle, striking the guardrail with the right-rear wheel and lower coach body about 61 feet before the end of the guardrail. The motorcoach traveled approximately 350 feet along the foreslope (portion of roadside sloping away from the roadway), with the right tires off the roadway. The back tires lost traction as the foreslope transitioned into the drainage ditch.

The motorcoach rotated in a counterclockwise direction as it descended an embankment. The motorcoach overturned, struck several rocks in a drainage ditch bed at the bottom of the embankment, and came to rest on its wheels. During the 360-degree rollover sequence, the roof of the motorcoach separated from the body, and 50 of the 53 occupants were ejected. As a result of this accident, 9 passengers were fatally injured, and 43 passengers and the driver received injuries ranging from minor to serious.

The National Transportation Safety Board determined that the probable cause of this accident was the driver's diminished alertness due to inadequate sleep resulting from a combination of head congestion, problems acclimating to high altitude, and his sporadic use of his continuous positive airway pressure sleeping device during the accident trip. The driver's state of fatigue affected his awareness of his vehicle's excessive speed and lane position on a downhill mountain grade of a rural secondary road. Contributing to the accident's severity was the lack of an adequate motorcoach occupant protection system, primarily due to the National Highway Traffic Safety Administration's delay in developing and promulgating standards to enhance the protection of motorcoach passengers.

Hours of Service

Arrow Stage Lines, the motor carrier involved in this accident, received a conditional rating during a postaccident compliance review conducted in February 2008.² One component of that less-than-satisfactory rating was based on violations of the hours-of-service regulations (49 *Code of Federal Regulations* Part 395). In addition to the accident driver, 16 other drivers associated with the Telluride trip had such violations: 14 had exceeded the 10-hour driving rule, 2 had falsified records, and 10 had exceeded the 15-hour work rule.

The lead driver communicated with Arrow management on the morning of the accident trip and, following that telephone call, made the decision to return to Phoenix along the alternate route. Hours-of-service regulations allow drivers to complete 10 hours of driving time under normal conditions. The regulations also provide consideration for adverse driving conditions,

² Arrow received two compliance reviews in the 2 years preceding the accident; in January 2006, Arrow received a satisfactory rating from the Federal Motor Carrier Safety Administration; in October 2007, Arrow received a rating of 1 (highest) from the U.S. Department of Defense contractor Consolidated Safety Services.

allowing for up to 12 hours of driving time, but only when those conditions are encountered en route, not if they are known prior to departure. The driving time exception would not have applied to the accident trip, which started on an alternate route because adverse weather had closed the preferred route, prompting drivers to begin the trip equipped with tire chains. The accident route was 556 miles, so travel time would have had to average better than 55 mph to not exceed the 10-hour hours-of-service rule. Considering the mountainous secondary roads, adverse weather conditions, and time required to remove tire chains, the average rate of travel should have been expected to be less than 55 mph, resulting in a trip time that would have exceeded 10 hours. The NTSB concludes that both Arrow Stage Lines and its drivers knew of the adverse weather conditions before starting the accident trip and thus intentionally engaged in a trip that would likely exceed hours-of-service regulations.

Until systemic monitoring capabilities are put in place, hours-of-service violations can be expected to continue. It has been the NTSB's position that the only way the Federal Motor Carrier Safety Administration (FMCSA) can effectively enforce carrier hours-of-service compliance is to mandate the use of electronic on-board recorders (EOBRs) by all operators.³ Over 2 years ago, the FMCSA issued a notice of proposed rulemaking (NPRM)⁴ requiring EOBRs for the most egregious hours-of-service violators; that NPRM has not yet been issued as a final rule. The Mexican Hat accident involves a carrier that would not likely be affected by the proposed EOBR rule; this accident again illustrates why the NTSB's past recommendation called for EOBRs for *all* commercial operators, not just problem carriers. The NTSB therefore reiterates its EOBR recommendation to the FMCSA:

Require all interstate commercial vehicle carriers to use electronic on-board recorders that collect and maintain data concerning driver hours of service in a valid, accurate, and secure manner under all circumstances, including accident conditions, to enable the carriers and their regulators to monitor and assess hours-of-service compliance. (H-07-41)

Arrow Trip Scheduling

At the time of the accident, the driver had been driving for approximately 5 hours and was within the operational time constraints of the hours-of-service regulations. However, both Arrow and the drivers should have been aware that the scheduling of the longer return trip would be problematic. The trip route from Phoenix to Telluride was 486 miles, but the rerouted return trip was 556 miles, presenting the likelihood that contingency planning would be needed to avoid hours-of-service violations.⁵

³As a result of its investigation of a 2004 accident involving a fatigued tractor-trailer driver, the NTSB recommended that EOBRs be required for all interstate commercial carriers (Safety Recommendation H-07-41). For further information, read *Rear-End Chain Reaction Collision, Interstate 94 East, Near Chelsea, Michigan, July 16, 2004*, Highway Accident Brief NTSB/HAB-07/01 (Washington, DC: NTSB, 2007).

⁴ Notice of Proposed Rulemaking, "Electronic On-Board Recorders for Hours-of-Service Compliance," *Federal Register*, vol. 72, no. 11, pp. 2340–2394, January 18, 2007.

⁵ FMCSA Regulation 392.6, *Schedules to Conform With Speed Limits*, provides the following guidance about trip length: Total trip distances of 550–600 miles on highways with a speed limit of 65 mph or of 450–500 miles on highways with a speed limit of 55 mph are considered "questionable," and motor carriers may be asked to document that such trips were made in compliance with the speed limit and hours-of-service limitations.

Arrow's options to avoid exceeding hours-of-service requirements included overnight accommodations for the more than 800 passengers and drivers, either in Telluride or along the return route to Phoenix,⁶ or the provision of relief drivers along the route for the 17 motorcoaches. Either option would have required substantial coordination, both in terms of the logistics to arrange either hotel accommodations or additional drivers and with the charter passengers who expected to return to regular activities on Monday following the weekend trip. Arrow could not reasonably expect the drivers to handle contingency plan arrangements for rescheduling the charter trip to avoid exceeding hours-of-service regulations. The NTSB therefore concludes that Arrow Stage Lines should have developed contingency plans to avoid hours-of-service violations associated with the return trip.

For contingency plans to be effective, they must be considered before the start of the trip, documented, and coordinated with the charter group. As a result of this accident investigation, the NTSB is recommending that Arrow Stage Lines develop written contingency plans for each charter to ensure that trip planning is in place in the event of driver fatigue, incapacitation, or illness or in the event of trip delays necessitating replacement drivers to avoid hours-of-service violations and inform drivers of their trip's contingency plans. Such plans could include but not be limited to: identifying alternate drivers and equipment and checking on their availability, identifying suitable relief positions to swap drivers or equipment, planning rerouting options around road closures or weather, and identifying overnight accommodations that could be contacted in the event that a trip needs to be delayed. Moreover, the NTSB recommends that the ABA and the UMA inform their members through Web sites, newsletters, and conferences of the circumstances of the Mexican Hat, Utah, accident and encourage charter operators to develop written contingency plans for each charter to ensure that trip planning is in place in the event of driver fatigue, incapacitation, or illness or in the event of trip delays necessitating replacement drivers to avoid hours-of-service violations and inform drivers of their trip's contingency plans.

Emergency Notification

Another issue examined by this accident investigation is the risk of motorcoach travel in rural areas. Due to the lack of wireless telephone coverage at the accident scene, it took 36 minutes to report the Mexican Hat accident. Parts of San Juan County, like many rural areas, do not have wireless telephone coverage, and, in those areas, it is still not possible to make 911 calls from wireless devices.

Since the accident, three cellular antenna/repeaters have been installed near the accident site, but more work is needed at the national level. A pervasive wireless capability throughout our nation's highway system will undoubtedly improve highway accident notification for emergency medical service response and coordination of prehospital transport. The NTSB concludes that until wireless capability is extended along highly traveled rural roads, motor carriers servicing rural areas without wireless telephone coverage remain at risk of being unable to report an accident or emergency in those locations. The NTSB recognizes the amount of time that will be required to develop the infrastructure necessary for wireless communication along

⁶ Arrow could have delayed the trip departure until the shorter route through Lizard Head Pass was reopened, though it is unlikely that room accommodations in the resort town would have been available. For such a large group, accommodations all along the return route would have been necessary.

rural roads. In the interim, the NTSB recommends that the ABA and the UMA inform their members through Web sites, newsletters, and conferences about the risks of operating in rural areas without wireless telephone coverage and advise members to carry mobile cellular amplifiers⁷ or satellite-based devices⁸ to communicate emergency events.

As a result of its investigation, the National Transportation Safety Board makes the following recommendation to the American Bus Association and the United Motorcoach Association:

Inform your members through Web sites, newsletters, and conferences of the circumstances of the Mexican Hat, Utah, accident. The prepared information should encourage charter operators to develop written contingency plans for each charter to ensure that trip planning is in place in the event of driver fatigue, incapacitation, or illness or in the event of trip delays necessitating replacement drivers to avoid hours-of-service violations and inform drivers of their trip's contingency plans. The prepared information should also provide information about the risks of operating in rural areas without wireless telephone coverage and advise members to carry mobile cellular amplifiers or satellite-based devices to communicate emergency events. (H-09-9)

The NTSB also issued recommendations to the Federal Interagency Committee on Emergency Medical Services, the Utah Bureau of Emergency Medical Services, the Federal Highway Administration, the American Association of State Highway and Transportation Officials, the National Association of State Emergency Medical Services Officials, and Arrow Stage Lines and reiterated one previously issued recommendation to the FMCSA.

In response to the recommendation in this letter, please refer to Safety Recommendation H-09-9. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: correspondence@ntsb.gov. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our Tumbleweed secure mailbox. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

⁷ Electronics designed specifically for mobile applications can be used to amplify weak cellular signals in rural areas. For example, Wilson Electronics in St. George, Utah, sells a mini-mobile amplifier kit that is comparable in cost to a global positioning system unit.

⁸ Transport companies often make use of satellite-based mobile resource management systems. In addition to satellite phones, satellite personal trackers are available (for example SPOT Portable ELT) that provide real-time location tracking using Google Earth with one-way text messaging.

Acting Chairman ROSENKER and Members HERSMAN, HIGGINS, and SUMWALT concurred in this recommendation. Member HIGGINS filed a concurring statement, which is attached to the highway accident report.

[Original Signed]

By: Mark V. Rosenker
Acting Chairman