

the 14th hour after the driver's shift began. If the driver takes rest breaks during the 14 hour period, those breaks would extend the work day, as the current rule does. The DLTCA argued that drivers would not drive the entire 14 hour period "because as a practical matter, no driver is going to be beyond 12 * * * we are never going to be beyond 12 * * * because we have 3 to 4 hours loading time. We have pre-trip inspections. We have all these other activities built in." However, it would be possible for a cross-country driver who did no loading enroute and had pre-trip inspections performed by others to drive (potentially) 14 hours straight.

This rule could cause safety problems, including reduced driver alertness and increased fatigue-related incidents, but it could provide productivity increases and could reduce the need for drivers and the "shortage" experienced by the industry today.

FMCSA Staff Alternative

The agency's staff developed the third alternative. This alternative would create incremental changes to the current on-duty, off-duty, and driving requirements; provide an exception for "short-haul" drivers; and adopt a restart provision for weekly on-duty time limits. Exceptions for daily off-duty, on-duty, and driving time would be modified, along with the restart provision after direct assistance for an emergency relief effort. The alternative would retain all exceptions for weekly restarts provided by the NHS Act as well as those for oilfield operations. It would retain all other rules, including the current methods of notifying drivers to report for work.

The local/short-haul study has persuaded the FMCSA that fatigue may be less problematic for local/short haul drivers, though the agency does not believe all regulation should be removed because these drivers would continue to be at risk of having fatigue-related crashes. The staff alternative could reduce regulatory oversight for local/short haul drivers that could also reduce fatigue-related incidents and fatalities.

The agency considered the experiences of the governments of Australia, Alberta, Ontario, and Quebec with fatigue management alternatives to traditional HOS regulations. The FMCSA is assessing the feasibility of conducting a pilot project that would substitute fatigue management for driver HOS requirements. Although a possibility in the future, it was not included in the staff-developed alternative for this final rule.

The agency is also considering the use of education and training programs for reducing fatigue and increasing driver alertness, as well as medical alternatives and countermeasures, including the feasibility of screening for sleep apnea and other sleep disorders. These possibilities are not included in the staff-developed alternative for this final rule.

Many commenters argued that the agency did not do enough research into the safety consequences of shifting considerable nighttime truck traffic to the daytime. The FMCSA agrees and therefore decided to consider alternatives that concentrate on approaches that do not promote shifting traffic from the nighttime to daytime. The FMCSA specifically excluded such options from its staff-developed alternative.

The agency staff wanted to formulate an alternative that would be intermediate between the PATT and ATA proposals. The staff believed that the combined effect of the changes it suggested would reduce fatigue-related incidents and increase driver alertness without creating serious safety or economic costs to society. The FMCSA-developed alternative provides that no driver may drive:

(1) More than 11 hours following 10 consecutive hours off-duty;

(2) For any period after 14 consecutive hours from the start of a duty tour following 10 consecutive hours off-duty;

(3) For any period after 16 consecutive hours from the start of a duty tour following 10 consecutive hours off-duty once each 7 or 8 consecutive day period, when the driver returns to the normal work reporting location and is released from work within 16 consecutive hours that duty tour; and

(4) For any period after having been on duty 60 hours in any 7 consecutive days if the employing motor carrier does not operate commercial motor vehicles every day of the week or any period after having been on duty 70 hours in any period of 8 consecutive days if the employing motor carrier operates commercial motor vehicles every day of the week. Any period of 7 or 8 consecutive days may end with the beginning of any off-duty period of 34 or more consecutive hours for drivers operating vehicles transporting freight or other property.

There can be little doubt that fatigue directly attributable to the exertion required to operate the modern CMV is less of a factor now than it was when the 10 hour limit was adopted in 1939, and the FMCSA believes allowing one

additional hour of driving activity can be safely accommodated within the context of a somewhat reduced overall tour of duty. The FMCSA also has learned a lot about the science of sleep since 1938 and understands that the more relevant issue is how long the driver can be awake and "at work," and still be allowed to drive, before safety is significantly compromised.

After the comments, regulatory analysis, and upon further review of the research studies by Vespa *et al.* (1998), O'Neill *et al.* (1998), Folkard (1997), Arnold *et al.* (1996) *Fatigue in the Western Australian Transport Industry, Part Two: The Drivers' Perspective*, and Arnold *et al.* (1996) *Part Three: The Company Perspective*, discussed in Freund (1999), the FMCSA is convinced that 14 hours after the beginning of a duty tour is long enough, given the significantly increasing degradation of performance which occurs in the later stages of a work shift. The FMCSA believes this limit is materially better from a safety standpoint than the current rule, under which a driver could conceivably still be allowed to return to the wheel several hours after the 15 hour limit has passed (because "off duty" breaks can extend the workday). The limits, however, are not so restrictive as to impose an unreasonable burden on productivity.

Safety Impacts

The FMCSA estimated the benefits of the HOS alternatives using a multi-step process to relate changes in HOS rules to changes in crashes. Conceptually, the FMCSA took the following steps for each alternative:

(1) Constructed a set of sample working and driving schedules of different intensities and degrees of regularity;

(2) Used the results of the modeling performed for the cost analysis to determine the percentages of drivers following each sample schedule and to determine the shifts in these percentages caused by different HOS alternatives;

(3) Translated the amount of on-duty time in each schedule into expected amounts of sleep, using a function based on *Effects of Sleep Schedules on Commercial Motor Vehicle Driver Performance*, 2000, by Balkin *et al.* (Walter Reed Army Institute of Research) in the docket;

(4) Used a version of the Walter Reed Sleep Performance Model (WRSPM) to estimate the effects of different sleep and driving schedules on a measure of alertness;

(5) Translated changes in alertness into relative changes in crash risks on