I. Introduction.

Advocates for Highway and Auto Safety (Advocates) is pleased to submit these comments in response to the Federal Motor Carrier Safety Administration’s (FMCSA) proposed amendment to current hours of service (HOS) regulations governing commercial vehicle operators, primarily contained in current 49 Code of Federal Regulations (CFR) Pt. 395. This proposal contemplates revisions to several parts of the CFR bearing on commercial driver duty time, including Pts. 350, 394, 395, and 398.

Advocates strongly supports many of the basic features and concepts of this proposed rule. A number of the agency’s initiatives are forward-looking actions which properly acknowledge the crucial role of adequate driver rest and recovery to prevent operator sleep deprivation and lowered alertness. When commercial drivers are tired from excessive daily and weekly work hours and get inadequate rest, the risk of crashes which result in deaths and injuries is substantially and predictably increased. Large truck and bus crashes are especially lethal highway events because commercial vehicles are much more likely to involve many other adjacent vehicles sharing the road. The great majority of these other vehicles are small passenger cars, pickups, vans, and sport utility vehicles in which the chances of severe injury or death to their occupants are dramatically increased when crashes involve large commercial vehicles.

We commend the agency for basing its current proposal on the adoption of a circadian (daily, 24-hour) work/rest shift cycle which an enormous body of research over many years has shown is necessary for ensuring proper opportunities to gain sufficient rest from working. We also applaud the FMCSA for providing for a longer
off-duty daily rest period than required under the current rule, preventing this off-duty period from being interrupted, including additional rest breaks during the day, and prohibiting split rest time for solo drivers. These actions are necessary and well-supported by research findings which show the need for extending and protecting worker rest time in order to ensure restorative sleep. We also support the agency’s proposed mandate for on-board automated recordation of driving duty time for two classes of commercial operators.

These premises for the draft regulation recognize the need for drivers to work and rest on a 24-hour cycle and for drivers to have substantially increased opportunities to secure crucially needed sleep and rest to restore alertness and performance. Advocates agrees that a well-rested driver is the most important product of any revision of the HOS regulations. Without sufficient restorative sleep, commercial drivers will suffer reduced performance behind the wheel. Truck and bus drivers who are sleep-deprived are not sufficiently alert to the moment-to-moment demands of safe driving. As a result, they will have more crashes and those crashes will frequently be more severe because of fatigue.

The FMCSA has correctly identified in the preamble of this draft regulation the enormous contribution of fatigue to heavy truck crashes. Commercial driver fatigue is a worldwide problem which is amply documented in several countries as a leading contributor to truck crashes, their frequency, and their severity. However, the prevalence of fatigue is difficult to determine from police reports and from retrospective analysis of crash data. Efforts to judge the presence and prevalence of fatigue as a contributor to commercial vehicle crashes from police reports, in particular, have

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1 For example, the recently released, massive report of the House of Representatives Standing Committee on Communication, Transport and the Arts of the Parliament of the Commonwealth of Australia, Beyond the Midnight Oil: An Inquiry Into Managing Fatigue In Transport, Canberra, October 2000, concluded that fatigue is the “core safety issue in the transport industry[.],” and that “Australian research indicates that fatigue is four times more likely to be a contributor to workplace impairment than drugs or alcohol.” Executive Summary, p. xxix. The Committee found that “[b]etween 20 and 30 percent of road accidents involve driver fatigue” and “[e]xperts agree that these are conservative estimates and that the actual contribution of fatigue to transport accidents may be much higher.” Id. (emphasis supplied)
repeatedly underestimated its adverse effects. There currently are no physiological tests at a crash scene to detect a driver who was sleep-deprived and inattentive. Surviving drivers whose fatigued condition resulted in a crash have experienced a highly stimulating event which provides temporary restoration of alertness and performance in the aftermath of a truck or bus crash. Simply put, investigating officers in most circumstances cannot detect or infer that fatigue was the triggering factor of a commercial vehicle crash.²

Accordingly, although the use of classic epidemiological research design with case-control and matched pairs is the most reliable, accurate means of detecting the presence of fatigue as a contributing factor to vehicle crashes,³ other studies using careful surrogate measures and decision protocols can repeatedly demonstrate the probable effects of fatigue on the risk and frequency of commercial vehicle crashes.⁴

² This view of the unreliability of police reporting for calculating fatigue prevalence is corroborated by the FMCSA’s similar analysis in the Preliminary Regulatory Evaluation and Preliminary Regulatory Flexibility Analysis (PRE) (April 2000) accompanying this notice of proposed rulemaking. See p. 21.

³ An excellent recent example of a case-control study showing the prevalence of fatigue in motor vehicle crashes is J. Stutts, et al., Why Do People Have Drowsy Driving Crashes?: Input From Drivers Who Just Did, AAA Foundation for Traffic Safety, Washington, D.C., November 1999. The large number of cases studied resulted in findings that crash-involved drivers falling asleep at the wheel are increasingly common as correlated with increasing numbers of hours worked per week. There also was evidence that fatigue-related crashes are seriously underreported, including many drivers who are themselves unable to recognize the influence of drowsiness or fatigue in their motor vehicle crashes.

⁴ An important recent example of this use of surrogate indicators of fatigue involvement in commercial vehicle crashes is the Allianz Australia insurance industry study entitled Why Traditional Fatigue Management Won’t Work, authored by Dean Croke, National Risk Manager. Among other important findings, Croke demonstrated that loss-of-control crashes are likely to be fatigued-related crashes in most instances and that they tend to be more severe than other kinds of crashes. The initial analysis showed the average cost of lost of control claims was nearly six times higher than that of collisions and over 3 times higher than the 10-year average cost of all types of crashes. A second analysis using only crashes over $50,000 Australian dollars in value showed that the majority of crashes are loss-of-control (53 percent) with an average cost of $85,776. Loss-of-control crashes that are fatigue-related are (continued...
Many of these studies are recent additions to the research literature and others have become classic entries to the list of findings of more than 30 years of investigation showing the dangerous effects of long working hours and sleep deprivation on worker health and safety. Advocates will allude to many of these studies in the course of these comments.

The most important indicators of the prevalence of fatigue in commercial vehicle operations, however, are the findings of careful surveys conducted over the last several years in which truck drivers repeatedly report that they frequently drive their rigs for longer than the 10 hours maximum permitted under the current regulation or for more than the 60 hours in seven days or 70 hours in eight days.\(^5\) Some of these surveys along

\(^4\)(...continued)

therefore more severe and more costly: from January 1999 to August 2000 alone, these crashes represented 12 percent of all crashes, but 34 percent of all claims. See pp. 8-10.

with other studies conducted in recent years of truck drivers also indicate that truck drivers working and driving long daily and weekly hours suffer from both acute and chronic lack of sleep, and reduced alertness and performance.\textsuperscript{6}

Taken together, the research and survey literature showing the disproportionate contribution of fatigue to crashes and its widespread presence among commercial drivers is compelling evidence that lowered alertness due to extra-long work shifts and lack of restorative sleep is a major, chronic problem in the motor carrier industry. The FMCSA estimate that fatigue contributes directly to 15 percent of both fatal and nonfatal injury crashes involving large trucks is accordingly not only a highly reasonable figure, but one which is doubtless very conservative. 65 FR 25540, 25546. Many studies and surveys have inferred or shown substantially higher percentages.\textsuperscript{7} Although we believe that the FMCSA could justify the application of a significantly larger percentage in its benefits analysis, Advocates strongly endorses and supports the agency’s use of this figure as the basis for changing the HOS rules to ensure increased

\textsuperscript{6} N. Haworth \textit{et al.}, \textit{Driver Fatigue: Concepts, Measurement and Crash Countermeasures}, Australia Transport and Communications, Federal Office of Road Safety, Report CR72, 1988, made a massive, detailed evaluation of prior research and other investigations of the nature, origin, effects, and measurement of fatigue. This inquiry was a watershed effort to recognize the enormous contribution of fatigue in Australia to commercial vehicle crashes. The authors concluded that the effects of fatigue on heavy truck crashes were five to 10 percent in all crashes, 20 to 30 percent in casualty crashes, 25 to 35 percent in fatal crashes, and perhaps as much as 50 percent in single-vehicle tractor-trailer fatal crashes. The authors believe that even in-depth studies of fatigue effects, such as the Jones and Stein (1987) study, may still underestimate the contribution of fatigue to crash causation. In fact, it is probable that most fatigue-related crashes are not identified because they do not result in serious injuries or deaths, and therefore are unreported or disregarded for investigation.

\textsuperscript{7} See, \textit{e.g.}, \textit{Factors That Affect Fatigue In Heavy Truck Accidents}, National Transportation Safety Board, NTSB/SS-95-01, Washington, D.C., 1995; “Beyond the Midnight Oil,” \textit{op. cit.}; R. Knipling and J. Wang, “Crashes and Fatalities Related to Driver Drowsiness/Fatigue,” \textit{Research Note}, National Highway Traffic Administration, U.S. Department of Transportation, Washington, D.C., November 1994 (truck driver fatigue a contributing factor in as many as 30-40 percent of all heavy truck crashes); \textit{Fatigue, Alcohol, Other Drugs, and Medical Factors In Fatal-to-the-Driver Heavy Truck Crashes}, National Transportation Safety Board, NTSB/SS-95/01, Washington, DC, 1995 (31 percent of crashes fatal to truck drivers are fatigue related).
motor carrier safety.\textsuperscript{8}

Unfortunately, this realistic assessment of the large contribution of fatigue to the problem of motor carrier crash experience and the progressive features of this proposal, which we noted earlier, are compromised by many of the specific elements of the draft regulation. We will review each of these proposed aspects of the proposed rule in the following sections. Considered collectively, the regime that emerges will not counter the current, widespread problem of driver fatigue in the trucking industry. In addition, these objectionable elements of the draft HOS regime are not supported by adequate evidence in the record of this rulemaking. As we will note in considering each of these basic elements one by one, the agency either advances no evidence, including scientific findings, to warrant their proposal or offers distorted and misleading characterizations of well-known studies as support for them. Moreover, the agency's proposal to increase consecutive daily driving hours directly contradicts previously published findings and policy decisions of the U.S. Department of Transportation which have vigorously opposed this action as dangerous for motor carrier safety. However, there is no discussion of these prior findings and decisions anywhere in the agency's notice.

II. The Agency Proposal for Twelve Consecutive Hours of Driving.

The FMCSA has proposed that daily consecutive driving time be increased from the current maximum 10 hours prior to an intervening off-duty period, to a maximum of 12 hours for long-haul (Type I), regional (Type II), and local pickup/delivery (Type IV) commercial drivers. There is no distinction made by the agency between maximum consecutive working or duty hours (12) and maximum permitted consecutive driving

\textsuperscript{8} However, the use of an even higher figure is not only borne out by the evidence of record, but it would help the agency to avoid the trap of rationalizing a 12-hour driving day for Type I and II drivers. Although the FMCSA points out that variation of the fatigue figure is not highly sensitive to the benefits analysis (PRE, Chap. 6), this is because calculation of the proposed rule's safety benefits are overwhelmed by paperwork reduction benefits. Nevertheless, an increase in the contribution of fatigue to truck crashes to 20 or even 25 percent would correspondingly allow the proposed number of consecutive driving hours to be lowered to some figure less than 12.
hours (12).\textsuperscript{9}

Advocates strongly opposes any increase in maximum permitted consecutive driving time that exceeds the current 10 hour ceiling specified in the present regulation. Decades of research conducted both with truck drivers and in the more general shiftwork arena has demonstrated repeatedly that both drivers and other workers suffer adverse risks, including increased rates of death, injury, and other operator or worker errors directly affecting the safety of others, by working long shifts of consecutive hours.\textsuperscript{10}

\textsuperscript{9} Strangely enough, the FMCSA has no separately captioned treatment in its section-by-section analysis of the daily maximum driving/on-duty hours permitted, although they are mentioned in passing or alluded to in tabulated examples of how typical driver work weeks would be divided between on-duty and off-duty time, e.g., Table 20, 65 FR 25589, and in the course of discussing the measures that motor carriers and drives should take to enhance driver alertness. \textit{Id.} at 25583. However, the agency openly admits in its Preliminary Regulatory Evaluation and Preliminary Regulatory Flexibility Analysis (PRE), op. cit., that driving time per shift will increase under the proposed rule. See p. 8.

\textsuperscript{10} F. Saccomano \textit{et al.}, "Effect of Driver Fatigue On Truck Accident Rates," \textit{Urban Transport and the Environment for the Twenty-First Century} (ed. L.J. Sucharov), Computational Mechanics Publications, Southampton, U.K., 1995, 439-446, and F. Saccomano and J. Shortread, "Truck Safety: Perceptions and Reality," \textit{the Institute for Risk Reduction}, Ontario, Canada, 1996, 157-174, found a significant increase in crash rates for truck driving shifts of more than nine hours and the strong relationship between single-vehicle truck crashes and length of continuous driving time held regardless of the time of day. Saccomano \textit{et al.} specifically stated that their findings confirmed earlier research carried out through the Federal Highway Administration.

T. Lin \textit{et al.}, "Modeling the Effect of Driver Service Hours On Motor Carrier Accident Risk Using Time Dependent Logistic Regression," \textit{72\textsuperscript{nd} Annual Meeting of the Transportation Research Board}, Washington, D.C., 1993, and T. Lin \textit{et al.}, "Time of Day Models of Motor Carrier Accident Risk," \textit{Transportation Research Record} 1467: 1-8, Transportation Research Board, National Research Council, 1994, found a consistent elevation of risk from about the eighth to the ninth hour of driving and a dramatically increased risk of driving beyond nine continuous hours. Once again, the authors stressed that their findings confirmed earlier Federal Highway Administration research.

T. Kaneko and P. Jovanis, "Multiday Driving Patterns and Motor Carrier Accident Risk: A Disaggregate Analysis," \textit{Accident Analysis and Prevention}, 25:5, 1992, 437-456, found that consecutive driving hours have a consistent crash risk relationship and that the number of (continued...)
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Consecutive driving hours were the most significant predictor of crash risk.

I. Jones and H. Stein, *Effect of Driver Hours of Service On Tractor-Trailer Crash Involvement*, Insurance Institute for Highway Safety, Arlington, VA, 1987, and I. Jones and H. Stein, "Defective Equipment and Tractor-Trailer Crash Involvement," *Accident Analysis and Prevention*, 21:469-481, used a case-control design (three matching controls for each case) which also controlled for time of day, to conduct what is widely regarded as one of the rigorous in-depth studies of fatigue every conducted. The authors found that the crash risk for drivers whose reported driving time exceeded eight hours was almost twice that for drivers who had driven fewer hours. Their calculated crash risk must be regarded as conservative estimates because the number of driving hours was based on driver self-reporting.

W. Frith, "A Case-Control Study of Heavy Vehicle Drivers’ Working Time and Safety," *Proceedings of the 17th Australian Road Research Board Conference*, 1994, 17(5):17-30, used matched pairs to find that crash risk substantially increased for drivers with greater than eight hours of driving but less than nine hours. However, crash risk rose even higher when driving exceeded nine hours. Frith emphasized that his findings confirmed the 1987 research of Jones and Stein, and the 1993 findings of Lin et al.

S. Folkard, "Time on Shift Effects In Safety: A Mini-Review," *Shiftwork International Newsletter*, May 1995, 12:1, in Timothy Monk (ed.), presentations from the 12th International Symposium On Night- and Shiftwork, Ledyard, CN, June 13-18, 1995, performed a major meta-analysis of the relative risk of performance lapses over the course of various shift durations and found that the increase in relative risk of crashes over time was exponential. Risk of crashes was approximately doubled after 12 hours of work and trebled after 14 hours of work. He also found from his review that the safest work duration clearly was from six to nine hours for a shift.

S. Folkard also found ("Black Times: Temporal Determinants of Transport Safety," *Accident Analysis and Prevention*, 29:4, 1997, 417-430) that circadian rhythms are insufficient to account for the variation in crash risk over the 24-hour day. In contrast to the unsupported claim of the 1997 Driver Fatigue and Alertness Study, *op. cit.*, that the most important determinant of fatigue was the time of day when driving occurred and not the length of driving time, Folkard showed that the deleterious effects of time on task overarch those derived from circadian effects, that is, the time of day when tasks are carried out. He concluded that the safest continuous task duration, except for very short duty periods of about 2.5 hours, is about 8 to 10 hours of maximum shift length.

J. Rutenfranz and P. Knauth, "Hours of Work and Shiftwork," *Ergonomics*, 19:3, 1976, 331-340, found that the primary protection afforded workers against undue risks were achieved by limitation of working hours as a direct means of curtailing risk exposure. The authors demonstrated that a daily working time limit of eight hours is optimal for balancing risk and productivity.

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P. Krauth et al., "Systematic Selection of Shift Plans for Continuous Production With the Aid of Work-Physiological Criteria," *Applied Ergonomics*, 1979, 10:1, 9-15, found that working times of more than eight hours must be avoided because of long-term deleterious effects on worker health. Longer shift times were found to reduce effective daily recuperation, produce adverse impacts on sleep length and quality, and reduce desirable leisure activities. A systematic evaluation of the research literature showed that investigative findings consistently demonstrate that only in exceptional cases have 12 hour shifts, in particular, proved successful without measurable deterioration in safety, sleep quality, and worker health.

E. Grandjean, *Fitting the Task to the Man: An Ergonomic Approach*, London 1982, showed that many studies have demonstrated that shortening the work day actually raises worker efficiency, a principle the Federal Highway Administration recognized in its 1990 report to Congress on the effects of fatigue, *op. cit.* Making the work day longer causes work hourly efficiency actually to decline, as shown in many studies. In particular, extending a shift beyond 10 hours inevitably produces fatigue which more than offsets any benefit from the increased working hours. Grandjean shows that a working time of eight hours per day cannot be increased even to nine hours without ill effects.

Mark Rosekind et al., "From Laboratory to Flightdeck: Promoting Operational Awareness," *Fatigue and Duty Time Limitations – An International Review*, The Royal Aeronautical Society, London, 1997, 7.1-7.14, found that all estimates of fatigue-related problems in transportation are underestimated. The authors emphasize that many shiftwork studies have found reductions in performance, lowered alertness, and increased proneness to error and injuries for 12 hour shifts. They also cite many supporting research studies for these conclusions, including Rosa (1991), Rosa and Bonnet (1993), and Rosa (1995), pointing out that the last mentioned involved an analysis of a national occupational injury database which showed a constant accident/injury rate through nine hours of work, but then a rapid and progressive increase to three times the rate at the end of 16 hours of work.

Raymond Fuller, *Prolonged Heavy Vehicle Driving Performance: Effects of Unpredictable Shift Onset and Duration, and Convoy vs. Independent Driving Conditions*, U.S. Army Research Institute for the Behavioral and Social Sciences, Technical Report 585, September 1983, found that symptoms of fatigue were most typical near the end of the driving shift, becoming evident from about the ninth hour of driving. He concluded that research dictates a prudent driving schedule of no more than eight or nine hours long.

Gunther Hildebrand, "12 and 24 H Rhythms In Error Frequency of Locomotive Drivers and the Influence of Tiredness," *International Journal of Chronobiology*, Vol 2, 175-180 (1974), found that the increase in error frequency by engineers was linearly related to the number of hours previously worked.

W. Harris and R. Mackie, *A Study of the Relationships Among Fatigue, Hours of Service, and Safety of Operations of Truck and Bus Drivers*, Bureau of Motor Carrier Safety,
Federal Highway Administration, BMCS-RPO-71-Z, June 1971-November 1972; R. Mackie and J. Miller, *Effects of Hours of Service Regularity of Schedules and Cargo Loading On Truck and Bus Driver Fatigue*, Federal Highway Administration, DOT-HS-803-799, May 1975-October 1978. These classic federal studies first showed the effects of fatigue accumulated as driving time increased and their findings have been sustained by numerous subsequent studies over the years. However, they are uncited and unreviewed in the *An Annotated Literature Review Relating to Proposed Revisions to the Hours-of-Service Regulation for Commercial Motor Vehicle Drivers*, DOT-MC-99-129, November 1999, authored to accompany this proposed rule, although their study methods and results are still reliable and un tarnished by age. Taken together, these studies found that drivers suffered increased risk of crashes whether they were on regular or irregular schedules. Even on regular daytime schedules, adverse safety effects were clearly seen after about 8.5 hours of driving. Significant increases in driver errors and significant decreases in driver levels of alertness began to be exhibited as early as the fourth hour of driving time on irregular schedules and at about eight hours on regular schedules, and the fatigue consistently increased throughout the trip as hours driven increased. The frequency of crashes increased disproportionately after seven hours of driving and remained significantly higher than expected for all driving times longer than seven hours. About twice as many crashes per mile traveled occurred in the second half of the trip as in the first half. Significant increases in driver errors and decreases in alertness occurred within the current 10-hour consecutive driving limit. Cumulative effects of fatigue appeared after the first four consecutive days on duty. The later U.S. Department of Transportation study (Eicher, 1982) relied heavily on the findings of these two studies. The findings of these studies, along with Eicher’s study, were further evaluated and relied on by the Office of Technology Assessment of the United States Congress in its 1988 report (OTA-SET-382).

B. Jones *et al.*, *Fatigue and Hours of Service of Interstate Truck Drivers*, U.S. Public Health Service, Public Health Bulletin No. 265, Washington, D.C., 1941. Even in this early part of the interstate motor carrier era, tests carried out by Jones and his co-authors showed decreasing functional efficiency of drivers as the hours of work increased.

unresolved sleep debt, as shown by substantial diminishment of sleep latency. None of these adverse effects was found on an eight-hour shift.

I. Brown, "Driver Fatigue," *Human Factors*, June 1994, 36:2, 298-314, found that drivers may be fatigued, yet sustain performance effectiveness, but at an increasing cost of experienced fatigue until performance begins rapidly to collapse. As work shifts increase in length, there is a production of reactive inhibitions in workers in which the human brain becomes disinclined to continue producing the same repeated response to the same environmental stimuli. Performance deterioration is more severe in acquitting tasks which are long, familiar, monotonous, and complex, such as driving. Brown concluded that the evidence showed no adverse implications for drivers on maximum eight-hour shifts. However, extended work periods both impair task performance and increase sickness absence and injuries. Daily hours and weekly hours must be balanced to avoid fatigue and performance degradation. Ignoring this consequence in favor of longer duty periods with more stressful tasks and more hazardous working conditions increases driver needs for extended restitutive sleep.

A. Fletcher and D. Dawson, “Cabin Safety and Hours of Work: Developing a General Risk-Control Model for Fatigue,” *Journal of Centre for Sleep Research*, 2:9-26, 1997, found conclusive the research literature showing that the longer a work period, the more fatiguing it is likely to be. The fatigue impact of longer working hours is compounded by abbreviating the available time for rest and restorative sleep. The authors confirmed the many previous research findings that laboratory-based studies such as those showing no differences in performance between shifts of varying lengths, such as T. O’Neill et al. (*Effects of Operating Practices On Driver Alertness*, FHWA-MC-99-140, U.S. Department of Transportation, Washington, D.C., 1999), relied on by the FMCSA in this rulemaking action (65 FR 25553-25554), are unreliable for making generalizations applying to specific workplaces. This kind of experimental study, conducted with simulators, typically oversimplify the complex psycho-social context in which shiftwork occurs and fail to model real-world shift schedules and working demands.

P. Hamelin, “Lorry Driver’s Time Habits In Work and Their Involvement In Traffic Accidents,” *Ergonomics*, 1987, 30:9, 1323-1333, concluded that, based on a comparison with exposure to risk, both long hours of work and driving at night are associated with a much higher rate of accidents than shorter hours and daytime driving. He found that the accident rate in the second half of driving trips is twice as high as in the first half. However, risk rate linked to work span duration is probably still underestimated.

James C. Miller, *Fundamentals of Shift Work Scheduling*, 2nd Edition, c1962, cites a number of real-world policy investigations of shiftwork impacts on workers which have clearly shown that 12 hour shifts are not appropriate for continuous operations. Among the studies cited, Miller relies on J. Mets, “Adverse Effects of Working 12-Hour Shifts,” *Proceedings of the 2nd Annual Conference of the Ergonomics Society of Southern Africa*, Cape Town, April 14-15, 1986, who showed the consistent increased injury rates for workers in auto manufacturing (continued...)
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Working long shifts also has been shown not only to radically increase the risk of performance errors due to lost alertness and drowsiness, especially when workers are compelled to complete 12-hour or longer shifts, but also to impair their ability to gain proper restorative sleep even when sufficient off-duty time is provided to achieve adequate sleep.\(^{11}\)

\(^{10}\)(...continued)

plants when management changed plant policy from nine to 12 hour shift lengths.

D. Dingus and N. Kribbs, “Performing While Sleepy: Effects of Experimentally-Induced Sleepiness,” *Sleep, Sleepiness, and Performance*, Timothy H. Monk, ed., New York, c1991, 97-138, found that the most powerful determinant of lapsing on tasks and decreased performance in a sleepy person is the required task duration. The longer the task duration, the greater the likelihood that performance will show evidence of impairment early on during sleep deprivation. The authors cite several studies supporting this conclusion, such as Williams *et al.* (1959) who consistently found that reaction time was an increasing monotonic function of task duration. They conclude that the research literature shows that increased exposure time will correspondingly produce more performance lapses or failures.

N. Haworth *et al.*, “Driver Fatigue: Concepts, Measurement and Crash Countermeasures,” *op. cit.*, reviewed prior research results and found that drivers’ relative risk of crashes increase with increasing work duration and is compounded by drivers taking more risks as fatigue increases. Prolonged hours of service, including both driving and non-driving duty time, is an important cause of fatigued commercial drivers and reduction of excessive driving hours is an effective safety countermeasure.

J. Stutts *et al.*, “Why Do People Have Drowsy Driving Crashes?,” *op. cit.*, performed a very large case-control study of drowsy driving crashes. Cases were drivers involved in police-reported crashes in North Carolina whose condition following the crash was explicitly characterized as “asleep” or “fatigued.” This study importantly recognizes the distinction between sleepiness and fatigue: the former is the inclination to sleep, the latter a disinclination or inability to continue performing a task. The authors found that drivers in sleepiness- and fatigue-related crashes were behind the wheel significantly longer prior to the crash, were awake for longer the day of their crashes, and had slept fewer hours the night before. Working more than 60 hours a week increased the odds of having a crash by 40 percent.

\(^{11}\) One of the few findings of the 1997 FHWA driver fatigue and alertness study (C.D. Wylie *et al.*, *Commercial Motor Vehicle Driver Fatigue and Alertness Study*, FHWA Report No. MC-97-001, U.S. Department of Transportation, 1997) and its follow-up investigation (C.D. Wylie, *Commercial Motor Vehicle Driver Rest Periods and Recovery of Performance*, Transportation Research Centre, TP 128850E, Transport Canada, Montreal, 1997) that survived the devastating critiques of the original research design and study protocols was the consistent (continued...)
Even the FMCSA has acknowledged in the preamble of this draft regulation the dramatic increase in the relative risk of heavy truck crashes after about eight hours of driving, as driving continues through the ninth, tenth, eleventh, and twelfth hours. The relative risk of a crash effectively doubles from the eighth to the tenth hour of driving, and doubles again from the tenth to the eleventh hour of driving alone, even before the twelfth hour of driving is completed. Chart 5, 65 FR 25544.\(^{12}\)

Paradoxically, however, the FMCSA restricts its discussion of these unacceptable increases in the relative risk of a truck crash due to fatigue by addressing only the even more dramatic rise in relative risk at the thirteenth hour of driving which is portrayed in Chart 5 as twice the risk at 12 hours of driving, more than five times the risk at the tenth hour of driving, and nearly nine times the risk at the eighth hour of driving. \textit{Id.} at 25546. The agency advocates a change in maximum permitted consecutive driving time per day from 10 to 12 hours which is verified in its own proposal as dramatically increasing the risk of a large truck crash.

It is clear that the agency has proposed this increase in maximum driving time per day on the basis of a judgment to which it only briefly alludes in its proposed rule. At one point, in discussing the overrepresentation of fatigue-related crashes in the long-haul sector of the trucking industry, the FMCSA points out in a single sentence that “[only] one-half of one percent of fatalities and injuries occur in a crash with a truck whose driver has been reported driving 12 or more hours, although, as discussed above, the true figure is likely to be higher.” \textit{Id.} This sentence lies at the heart of the agency’s mistaken judgment that it is acceptable on safety grounds to extend potential driving time to 12 hours: it has implied, on the basis of what the agency itself recognizes as

\(^{11\text{(...continued) }}\) demonstration that drivers who put in long daily work shifts, such as the 13 hours of driving per day accumulated by Canadian drivers, shortchanged sleep on a chronic basis and, as far as the investigators could determine, operated their vehicles in a state of sustained sleep deprivation. Drivers averaged between five and six hours of sleep per night.

T. Akerstedt, “Readable Available Countermeasures Against Operator Fatigue,” \textit{Managing Fatigue In Transportation: International Conference Proceedings}, April 29-30, 1997, 105-117, showed that the longer the work shift, the harder it is for workers to gain sufficient quality sleep.

\(^{12}\text{Also see the PRE, pp. 35-36.}\)
inadequate information, that the absolute risk of a crash among drivers operating beyond 10 consecutive hours is relatively small and, therefore, an increase in maximum driving hours to 12 per day has only a marginally adverse safety impact.

Along with the stark lack of documented support in the record for increasing maximum daily driving time, this implied rationale is fatally flawed and can only produce more, not less, fatigued truck drivers on our nation's roads and streets. As the agency is well aware, the overwhelming majority of driver violations of maximum permitted consecutive driving hours occurs during the eleventh hour of driving, a smaller but still significant portion occurs during the twelfth hour of driving, with fewer violations occurring from driving beyond 12 consecutive hours. In other words, most drivers violating the 10-hour current maximum consecutive driving time limit do so in the first two hours after the ceiling has been reached.

But this is due entirely to the controlling influence of the current 10-hour maximum driving limit imposed by the present HOS regulation. This limit effectively controls the extent to which drivers and carriers take their chances in disobeying the maximum consecutive driving time limit. The great majority of violations are therefore clustered in the 10-12 hour range. As the agency itself points out in another discussion

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13 Quite startlingly, the FMCSA, after expressing its dismay over the widespread violation of HOS limits, clearly takes the position in the PRE accompanying this rulemaking that driving in excess of 10 hours is an unacceptable practice which produces levels of fatigue even worse than those suffered by drivers who abide by the current limits. PRE, pp. 4-5. The agency cites the surveys carried out by the University of Michigan Trucking Industry Program (UMTIP) and McCartt et al. which both found that the major violation was driving in excess of the 10 hours maximum permitted by the current rule, resulting also in violations of the minimum off-duty time of eight hours following a driving shift and of the ceilings on maximum hours driving accrued over seven or eight days. Yet the FMCSA in this rulemaking has proposed legalization of the very practice it decries as leading to fatigued drivers and increased crash risk.

14 This is clear from the driving time distribution tables compiled by Dr. Michael Belzer in his HOS Impact Assessment, op. cit., based upon the UMTIP. It is noteworthy that, although the agency relies on the distribution of the percentage of crashes by the number of hours of consecutive driving for justifying an increase in maximum daily driving hours to 12, there are no tables or narrative in this proposed rule setting forth calculations of absolute risk by number of hours of driving as there are for relative risk.
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in the preamble of this rule on the ill effects of the driving time limit installed by the 
former Interstate Commerce Commission in 1938 (and the additional mistake of the 
1962 amendments eliminating the 24-hour clock controlling duty/off-duty time), raising 
the ceiling of maximum permitted driving hours per day from 10 to 12 will encourage a 
much higher percentage of drivers and motor carriers to operate up to the maximum 12 
hours of this proposal was adopted. Id. at 25548.

Given the extraordinary economic pressures on trucking efficiency dictated by 
de-regulation of the industry 20 years ago and the increasing delivery scheduling 
demands of shippers and receivers, the trucking industry will quickly attempt to realize 
the purported productivity benefits of driving up to the ceiling of 12 hours per day. This 
clearly shows that calculations of absolute risk cannot rely on previous patterns and 
percentages of violations occurring under the current regulatory regime.15 The absolute 
risk of a crash during the eleventh and twelfth hours of driving will substantially 
increase in the near term because a much larger percentage of carriers and drivers, even 
those in local pickup and delivery service, will quickly move to drive to the maximum 
daily limit of 12 hours in order to stay competitive. As a result, truck crashes due to 
fatigue will accelerate in both rate and number because a higher proportion of driving 
will now occur during the last two hours of the 12 hour timeframe in which the relative 
risk of a crash has doubled from the 10th hour of driving. The FMCSA is attempting to 
rationalize more consecutive driving hours as just as safe as fewer consecutive driving 
hours, a practice which will in fact make trucking less safe rather than more safe.16

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15 They also must be calculated on the basis of the distributions of violations by hour 
gleaned from reliable surveys and not from police reports coding fatigue as a factor, a source 
which radically underestimates the contribution of fatigue to truck crashes.

16 As we will discuss in a later section, this proposal also hinges on an implied, but 
unasserted, connection between increased daily consecutive driving hours and the provision for 
more time off per day, both rest breaks and the continuous 10-hour block of daily off-duty time 
for sleeping. However, as we shall see, the agency has no argument and no documentation of 
any kind, including research findings, which demonstrate that the increase in both the relative 
and absolute risk of crashes which will be produced by raising the driving time ceiling per day 
to 12 hours, is offset, much less lowered, by an increase in daily off-duty time. No functional 
connection between increased consecutive driving time and increased daily off-duty time is 
(continued...)
It is also disturbing that, without a single sentence of discussion in this draft regulation, the agency has reversed its own policy stance of record on the dangers of driving more than 10 consecutive hours. In its 1990 report to Congress,\textsuperscript{17} the research findings about the adverse effects of longer continuous driving times and of cumulative fatigue over several consecutive days of driving were openly endorsed by the Federal Highway Administration’s (FHWA) Office of Motor Carrier Safety (OMCS). In this report to Congress, OMCS acknowledged that “the risk of accidents appears to increase with the number of hours driven.” P. 5. With regard to the current 10-hour consecutive driving time restriction, it stated that “this requirement is consistent with the research finding that the potential for accidents rises as the hours of driving increase and the driver is more likely to become fatigued.” P. 6. The report also favorably cites the Insurance Institute for Highway Safety’s 1987 study by Jones and Stein, \textit{op. cit.}, showing “that driving in excess of 8 hours may be associated with a significantly increased risk of crash involvement. This reported increase in relative risk confirmed other findings [citing Mackie and Miller, 1978].” \textit{Id.} “Research indicates that the time spent on-duty may be a more important factor in driver loss of alertness [citing Harris and Mackie, 1972].” P. 7. There has been no research since this Congressional report, including research completed for the OMCS over the past decade, which has refuted the accuracy of these observations or of the research on which they are based.

Also, the Federal Highway Administration earlier stated in 1980:

The rationale \textit{[sic]} for the hours of service regulations is justified by the concept that the longer a person drives, the more fatigue \textit{[sic]} that person becomes and consequently the more prone to becoming involved in accidents.

45 FR 82284, 82286 (emphasis supplied).

Fatigue, however it is defined, appears to be the chief factor limiting a person’s

\textsuperscript{16}(...continued)

actually made anywhere in the record of this rulemaking. The FMCSA simply implies, without real discussion or evidence, that allowing a longer of-duty period will overcome the increased fatigue and crash risk produced by longer consecutive daily driving hours.

\textsuperscript{17} \textit{Report to Congress On Commercial Driver Hours of Service}, Office of Motor Carrier Safety, Federal Highway Administration, U.S. Department of Transportation, November 1990.
output. Various studies have shown that *when the working day is lengthened, productivity goes down, when the number of hours worked is reduced, performance increases.*

The influence of fatigue in accident causation has been demonstrated and *where there has been a reduction in hours worked, there has been a reduction in accidents. There is some evidence that 8 hours of work a day, where the work is fairly demanding, is the maximum that should be permitted for highest productivity and lowest accident rate.*

*Id.* at 82288 (emphasis supplied). Also see, *Id.*, 82290.¹⁸ None of the research findings showing the increased safety and productivity of fewer hours worked and driven than the maximum 10 hours permitted under the current regulation are cited or discussed anywhere in the instant proposed rule.

No credible studies in the intervening years have countermanded the accuracy and wisdom of these observations. Indeed, scores of new studies have amply and repeatedly corroborated the FHWA's policy statements over the past 20 years about the dangers of driving and working longer hours.

Consequently, the FMCSA has categorically altered its position in this rulemaking on the merits of driving and working longer hours without demonstrating why and how these prior conclusions relied upon by the agency are no longer valid. The agency has not countered these documented policy views with any new facts and information which moot their application to the revision of the current HOS standards to ensure that drivers work and drive fewer hours to ensure a reduction in both the relative and absolute risks of truck crashes. Instead, the agency, against all the evidence of record, including their own policy statements over the years, has offered amendments to the current regulation which demonstrably will promote truck and bus drivers to drive longer consecutive hours at a greatly increased risk of crashes due to an increased prevalence of fatigue among commercial operators.

This review shows that the agency carries an extraordinarily heavy burden in this

¹⁸ The Federal Highway Administration earlier endorsed the findings that both increased consecutive driving hours and consecutive days of driving directly contribute to driver errors and crashes in 1987. 52 FR 45215. Assertions to the same effect were also made by that agency in its November 29-30, 1988, Symposium on Truck and Bus Driver Fatigue.
rulemaking, one which it clearly has failed even to approach acquitting: **It must show that driving longer consecutive hours per day is just as safe, or even safer than, driving fewer consecutive hours as permitted under the current regulation.** To accomplish this, the agency must marshal research that documents that this increased consecutive driving time is just as safe, or safer, than less consecutive driving time, and it must demonstrate why it has changed its stance on the merits from opposition to increased driving time to support for increased driving time in this proposed rule.

Tragically, however, the FMCSA has obviously decided to permit the tremendous increase in fatigue-related crashes to occur in exchange for marginal safety benefits premised upon the selection of a 15 percent figure for the contribution of fatigue to truck casualty crashes and the assumption that on-board recorders will abate a substantial percentage of truck fatal and injury crashes. While Advocates is convinced that on-board recorders will help substantially to reduce driver violations of a maximum driving hours limit per day, this positive feature of the current proposal cannot by itself stop the increase in truck crashes which are sure to occur by allowing hundreds of thousands of truck drivers routinely to legally drive two extra hours in each driving shift.

Given the floodtide of research findings directly countermanding the safety of any increase in consecutive working and driving time, Advocates does not believe that the agency can demonstrate that driving more hours in each shift is just as safe, or safer, than driving fewer hours.¹⁹ In particular, the FMCSA cannot rely on its proposed

¹⁹ In fact, the FMCSA’s companion agency directing fatigue research within the U.S. Department of Transportation, the National Highway Traffic Safety Administration (NHTSA), jointly authored a report to Congress with the National Institutes of Health (NIH) two years ago documenting the adverse impact of longer working hours on driver safety, a position also taken by the Expert Panel convened by NHTSA and the National Center On Sleep Disorders in 1997. *The National Highway Traffic Safety Administration and National Center on Sleep Disorders Research Program to Combat Drowsy Driving: Report to the House and Senate Appropriations Committees Describing Collaboration Between the National Highway Traffic Safety Administration and the National Center on Sleep Disorders Research, National Heart, Lung, and Blood Institute, National Institutes of Health,* March 15, 1999; *Drowsy Driving and Automobile Crashes,* NCDSR/NHTSA Expert Panel Report On Driver Fatigue and Sleepiness, DOT HS 808 707, April 1998 (hereafter referred to as the Joint Expert Panel).
increase in daily off-duty time from the current eight hours to 10 to 12 hours for four of the five types of drivers because it has made no demonstration anywhere in the record that augmenting daily off-duty time somehow counters the increased risk associated with longer consecutive driving time. The FMCSA relies exclusively on an unproven implication throughout this proposed rule and in its PRE that more time off per day offsets the increased risk of longer consecutive driving hours. In fact, the agency admits that the crash reduction impacts of its proposal “are obviously uncertain, because of the absence of reliable empirical data.”

It is evident that the FMCSA has no basis in this proposed rule for increasing consecutive driving hours beyond the maximum 10 hours permitted by the current HOS regulation. Advocates supports a daily driving limit of no more than 10 hours for driver Types I through IV and, in line with the agency’s own arguments of record which we

19(...continued)
A central risk factor identified by the Joint Expert Panel was shift workers accruing long daily working hours, including drivers behind the wheel for long hours each day. The Joint Expert Panel emphasized that periods of work longer than eight hours have been shown to impair performance and increase crashes, a finding directly opposed to the 12 hours of work time endorsed by the Federal Highway Administration’s second Expert Panel in 1997, chaired by Patricia Waller of the University of Michigan Transportation Research Institute. The NHTSA/NCSDR Panel specifically cites the findings of Ivan Brown, “Driver Fatigue,” Human Factors, June 1994, 36:2, 298-314, in which performance of workers was shown to be much worse on a 12 hours per day work schedule than on eight hours a day. Brown relied upon the prior study by R. Rosa et al. (1989) showing that a 12-hour/4-day week was more detrimental to performance and produces more self-reports of drowsiness and fatigue than an 8-hour/6-day week.

It should be noted here that this study by Rosa et al. is misrepresented by the FMCSA, along with several others, in the preamble of this proposed rule as addressing only the degraded performance and crash risk which ensues after the twelfth consecutive hour of working time. In fact, the thrust of the studies mischaracterized at 65 FR 25556, col. 3, was predominantly with the increased risk of death or injury, or degraded worker performance, at the eighth, ninth, and tenth hour of work, before 12 consecutive hours of work are accumulated. Moreover, the Joint Expert Panel findings and recommendations which implicitly oppose the proposed 12 hour work day of this docket, are uncited and unaddressed in the preamble of the current rulemaking action.

20 PRE, p. 40.
indicated earlier,\textsuperscript{21} it would be desirable to reduce driving time per day to less than 10 hours. The U.S. Secretary of Transportation has promised to vigorously pursue safety policies to cut the annual death toll from large truck crashes in half by the end of the year 2008. That promise viewed against the backdrop of the new statutory responsibilities of the FMCSA to achieve the highest degree of motor carrier safety in its policies\textsuperscript{22} clearly dictates a re-evaluation of this crucial feature of the proposed rule. Extending driving hours per day will increase rather than decrease the risk and numbers of fatigued-related crashes.

\section*{III. The Agency Failure to Distinguish Driving from On-Duty Time for the Daily Work Shift Will Increase Violations of Hours of Service}

The FMCSA’s failure to distinguish between driving and non-driving on-duty time will actually foster increased violations of the HOS regulations.\textsuperscript{23} As Dr. Michael Belzer shows in both his impact assessment for this proposed rule and in his recent book, \textit{Sweatshops On Wheels}, drivers, especially in the long-haul sector of the trucking industry, are rarely paid for loading and unloading time, or time spent waiting for new loads or for reaching loading docks to dispose of freight to consignees.\textsuperscript{24} Moreover, very few drivers have a base salary to cover driving and non-driving work time or are paid by the hour for all work, both driving and non-driving. Since the incentive for drivers is to accumulate as much mileage as possible during a driving shift and over a

\begin{itemize}
\item \textsuperscript{21} See, \textit{supra}, p. 17.
\item \textsuperscript{22} See, below, footnote 63. The agency is rationing safety within operational efficiencies for the motor carrier industry throughout this proposed rule, a “dual mandate” approach which clearly is impermissible under the agency’s enabling legislation.
\item \textsuperscript{23} PRE, pp. 8-9. It should be stressed again that there is virtually no mention or discussion in the proposed rule itself of the fact that the agency is eliding the driving duty time/non-driving duty time distinction enshrined in the current HOS regulation.
\item \textsuperscript{24} M. Belzer, “Hours of Service Impact Assessment (HOSIA),” \textit{op. cit.,} pp. 1114; M. Belzer, \textit{Sweatshops On Wheels}, Chap. 6 \textit{passim,} previously submitted to this docket on November 27, 2000.
\end{itemize}
driving work week in order to maximize their income, a proposal to increase daily
driving hours to coincide with maximum legal daily on-duty time will propel drivers to
make incursions into the proposed block of off-duty rest time, as well as to misuse the
agency's proposal for two hours of breaks each day for driver Types I and II, in order to
accomplish freight movement on and off their trucks.

Under the current HOS rules, drivers may accumulate as many as 15 on-duty
hours in a 23-hour day of which no more than 10 hours may be spent driving. Although
it is true, and well-documented in the UMTIP survey and in Dr. Belzer's recent book,
that drivers widely violate the maximum consecutive driving time of 10 hours, drivers
nevertheless legally have up to five additional hours each day in which to load and
unload freight. It is also true that, under the rotating shift schedule permitted by the
current regulation, alternation of maximum consecutive driving time (10 hours) with
minimum off-duty time (eight hours) is practiced by a high percentage of long-haul
drivers which results in frequent violation of the minimum off-duty rest period and
consequent falsification of log books to conceal the practice.

However, the ability of drivers to legally use non-driving duty hours each day
under the current rule clearly has helped to limit even more flagrant abuses that would
occur if there were no non-driving duty hours available in the regulation. In contrast,
the FMCSA's proposal to eliminate the distinction between driving and non-driving
duty time will not only encourage carriers and drivers to operate up to the maximum 12
hours per daily shift, but also spur them to perform time-consuming non-driving work
by illegally curtailing the length of their off-duty rest time -- the crucially important
daily period for gaining restorative sleep -- or to dedicate part or all of their daily two

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25 M. Belzer, HOSIA, points out that the UMTIP survey showed that on average drivers
worked 64.3 hours in the past seven days, including both driving and on-duty non-driving time.
P. 7. Although the 75th and the 90th percentile long haul drivers substantially exceeded this
number, it is evident from Dr. Belzer's charts that, although driving excessive shift and weekly
hours is a pervasive practice, a significant percentage even of long-haul drivers take advantage
of the non-driving duty hours to perform other work associated with their freight transport. P.
8. At the mean, the UMTRI survey found that long-haul drivers perform non-driving work 23
percent of their time, while regional drivers at the mean spent 25 percent of their time in non-
driving work. However, at the mean, a substantial percentage of even long-haul drivers are
working at non-driving tasks mostly within the available extra five hours of non-driving duty
time per day permitted under the current HOS regulation. Pp. 9-10.
hours of breaks (Types I and II) to non-driving work.

Although, as we shall discuss in a later section, Advocates strongly supports electronic on-board recorders (EOBRs) for four of the five driver categories proposed in this draft regulation, it is evident that while automated recordation of driving time can help to reduce violations of maximum daily and weekly driving time, its use cannot stop drivers from engaging in illegal non-driving work beyond these limits. The agency points out how the use of EOBRs will make it significantly more difficult for drivers to conceal illegal driving hours. However, the FMCSA also asserts that the use of EOBRs “will make it easy to determine how long a driver has been on-duty.”

This, unfortunately, is simply not true and, in fact, the agency nowhere in the preamble or the materials appended to this rulemaking attempts to provide any evidence that enforcement officers, by relying on the driving hours registered by EOBRs, can easily determine if drivers have violated their off-duty rest periods by performing undocumented non-driving work. The best argument that the FMCSA can advance in this rulemaking is that the use of a 24-hour on-duty/off-duty clock and the implementation of EOBRs for Type I and II drivers will “encourage” drivers not to continue working extra hours and thereby violate the proposed HOS regulation. Id.

Advocates urges the FMCSA to reconsider the use of a dedicated daily non-driving duty period which provides sufficient time for drivers legally to perform non-driving responsibilities while avoiding the dangerous fatiguing effects of long work days. The agency could maintain the duty day at 12 hours as proposed, but reduce daily maximum driving time to 10 hours or less in order to provide drivers sufficient time to perform non-driving work. Without providing non-driving duty time in any final rule, the FMCSA will be abetting widespread violation of the daily and weekly limits for on-duty work.

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26 PRE, p. 9.
IV. The Proposed Lengths of a Work Week for The Different Types of Drivers Are Excessive and Promote Fatigue.

1. Types I - IV Drivers Work Week.

The FMCSA proposes in this notice a maximum of 60 hours of work, which may be spent entirely in driving, over five consecutive days as the duty week governing Types I-IV drivers. 65 FR 25604. Ample research over many years has shown that this amount of weekly work, spread over 12 hours per day, is an excessive demand on workers and drivers resulting in fatigue, sleep deprivation, reduced alertness and performance, and increased errors and safety risks. 27 This duty week is especially dangerous for Type III drivers who, under the agency’s proposal, are allowed to split

27 T. Kaneko and P. Jovanis (1992), op. cit., found that driving patterns over the previous seven days significantly increased crash risk on the eighth day of driving. FHWA in 1987 endorsed prior research findings that consecutive days of driving directly contribute to driver errors and crashes. 52 FR 45215. FHWA in 1990 in its report to Congress, op. cit., repeated this endorsement of previous research about the adverse effects of long continuous driving times which compound crash risk from the accumulation of fatigue over several consecutive days of driving.

T. Sanquist et al., Fatigue and Alertness In Merchant Marine Personnel: A Field Study of Work and Rest Sleep Patterns, U.S. Coast Guard Report No. CG-D-06-97, June 1996, found that mariners accumulated increasing sleep debts over successive days of work because the Coast Guard’s duty regime promotes sleep deprivation leading to deteriorating performance over consecutive days.

P. Lewis (1985; 1985), op. cit., found that the number of hours worked over a seven-day period by nuclear power plant workers were excessive and needed to be limited. He cited research showing that even the total flight duty time for aircraft pilots and crew of 55 hours over seven days is an excessive work load.

D. Dinges and N. Kribbs, “Performing While Sleepy: Effects of Experimentally-Induced Sleepiness,” Sleep, Sleepiness, and Performance, Timothy H. Monk, ed., New York, c1991, 97-128, stressed that the research literature shows that increased daily or weekly working hours will correspondingly produce more performance lapses (failures), especially if workers get inadequate sleep.

J. Stutts et al. (1999), op. cit., found that working a 60-hour, rather than a 50-hour or 40-hour week, substantially increased the odds of drivers having a crash.
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both their driving hours and rest time,\(^{28}\) a practice which is well-documented in the research literature as further increasing the amount of accumulated sleep debt, reducing the quality of sleep taken, and decreasing worker performance, thereby elevating the odds of a mistake leading to death or injury.\(^{29}\)

Advocates opposes a five-day, 60-hour work week, which may be spent entirely in driving, as an inadequate response by the FMCSA to reducing the risks of crashes due to long daily driving stints repeated over several consecutive days. The agency has no information or studies of any kind relied upon in its rulemaking proposal which show that this schedule will reduce both the incidence of fatigued driving and substantially lower the actual occurrence of fatigue-triggered commercial vehicle crashes.\(^{30}\) Considerable research which Advocates already has cited has shown that

\(^{28}\) The FMCSA has no evidence of any kind, or any discussion, anywhere in the record of this rulemaking that justifies, against the considerable research findings to the contrary, that this kind of split shift regime for Type III drivers is safe and will control the production of driver fatigue, sleep debt, and unsafe performance.

\(^{29}\) See, e.g., R. Hertz, \textit{Tractor-Trailer Driver Fatality: The Role of Nonconsecutive Rest In a Sleeper Berth}, Insurance Institute for Highway Safety, Washington, D.C., February 1988, who found a three-fold increase in tractor-trailer driver fatalities when the sleeper berth time was taken in two periods. She attributed this increased crash experience to the irregular work and rest schedules of drivers which also disrupt circadian rhythmicity. This fragmentation of sleep and resulting circadian asynchrony produces limited sleep of lower quality.

It should be stressed in this note that much of the literature demonstrating lower quality sleep during the day and the literature about the frequently inadequate contribution of naps to restoring alertness and performance, apply to shift work such as the FMCSA proposal to divide a Type III driver’s work day into two duty segments of any length while allowing one of the two split off-duty rest periods to be as little as three hours in length and taken during daylight hours as well. Studies bearing on daytime worker sleep quality and associated risks, and on the influence of short naps, will be addressed in subsequent sections of these comments.

\(^{30}\) The FMCSA implies in several places in the PRE that it regards the proposal of a circadian schedule for all drivers, thereby prohibiting rotating shifts, as justification for increasing the consecutive number of hours that a driver may work. PRE, p. 8. That proposed feature, plus the agency’s proposed increase of daily off-duty time to an unbroken 10-hour block, however, cannot in itself show that either fatigue or crash risk will be reduced from current levels.
longer daily shifts adversely affect the ability to recover performance\(^{31}\) and that, as a work week of consecutive duty days progresses, workers begin to build up an increasing sleep debt which often results in adverse health and safety outcomes.

2. **Type I Driver Flexible Two-Week Schedule.**

The FMCSA also proposes for Type I (long-haul) drivers a “long-swing/short-swing” two-week tour of duty which comprises six rather than five consecutive days of driving, a minimum 32 hours off-duty period following completion of the six days of driving, succeeded by another four days of driving, and ending with a minimum 80 continuous hours off-duty. This would result in drivers operating for 72 total hours over the first six days, followed by 48 total hours when duty is resumed following the minimum off-duty period. 65 FR 25604.

This proposal not only will promote driver fatigue and increase crash risk among the drivers on whom it is inflicted because of the excessive length of the first driving week of six consecutive days, but it also inverts the kind of rest schedule that should be applied to workers who put in extended work weeks with long daily shifts. Paradoxically, the FMCSA allows a very short off-duty period following a six-day driving week but a much longer layover after the four-day driving week. Numerous studies have shown that the longer the work week of consecutive days, the longer the rest period needed for workers to recuperate from the stress, exhaustion, and sleep debt built up over several successive days of long working hours.\(^{32}\) Some of these studies

\(^{31}\) *E.g.*, Rosa *et al.* (1989) found that 12-hour shifts result in impaired performance independently of the amount of sleep obtained.

\(^{32}\) Several of these studies are reviewed and their conclusions supported by A. Smiley and R. Heslegrave, *A 36-Hour Recovery Period for Truck Drivers: Synopsis of Current Scientific Knowledge*, Report No. 1P 13035E, Transport Canada, Montreal, 1997. Smiley and Heslegrave concluded that a 36-hour minimum off-duty period following several consecutive days of driving, such as the five days of 13 hours of daily driving practiced by Canadian motor carriers, is insufficient, with drivers after completion of the off-duty period still fatigued and carrying unresolved sleep debt. The authors point out that the continuation of fatigue from unresolved sleep debt into the next work week results in quickly deteriorating performance. Several studies cited by the authors (*e.g.*, Hildebrandt *et al.* (1975); Mallete (1994)) strongly
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were cited and relied on by the FHWA itself in its 1990 report to Congress, op. cit.

If the FMCSA were to continue to seriously consider this kind of "flexible" regime as an alternative to the five-days/minimum 32 hours off shift schedule, it would need at a minimum to reverse the off-duty time figures proposed so that drivers have an uninterrupted block of 80 hours off after the first six consecutive days of driving prior to resuming long daily driving shifts for another four days. Drivers need more, not less, time off for recovery after several successive days of an extended work week comprised of long daily shifts.

However, Advocates regards such an amendment of the proposal to be an academic exercise which loses sight of the unmistakable fact – ignored by the agency – that drivers already have suffered substantial reductions in alertness and performance through fatigue and sleep debt accumulated over the previous six days of consecutive driving before they reach their first off-duty layover. Permitting drivers to operate for six consecutive days rather than five is certain to result in more, not fewer, crashes because of fatigue.33 Advocates opposes the two-week flexible schedule for Type I drivers as an untenable approach to driver HOS which would increase rather than decrease driver fatigue. Also, FHWA has not cited and reviewed a single study or entered other information anywhere in the record of this rulemaking to show how the major, pervasive problem of fatigued truck drivers could possibly be abated by allowing

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32(...continued) indicate that even 48 hours off following several successive days of shift work cannot fully restore performance. In fact, Smiley and Heslegrave conclude that probably 72 or more hours of off-duty time are needed to fully resolve accumulated sleep debt and restore performance and alertness. They point out that the C. Wylie et al. study, Commercial Motor Vehicle Driver Rest Periods and Recovery of Performance, Transportation Research Centre, Report TP 12850E, Transport Canada, Montreal, 1997, showed that there was no objective evidence of driver recovery from 36 hours of time off. That study by Wylie et al. found that there was not only no proof of driver recovery from five consecutive days of driving long hours with a 36-hour off-duty period, but not even with a 48-hour off-duty period. Smiley and Heslegrave also pointed out that long work shifts and associated inadequate sleep/recovery results in serious family and social dysfunction, increased substance abuse, and health problems.

33 One of the FMCSA's own prominent researchers, the lead author on its 1997 Driver Fatigue and Alertness Study, found that drivers suffered considerable performance deterioration after only four 13-hour consecutive driving shifts. Wylie et al., op. cit.
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drivers to accumulate 72 hours of driving over six days and then be required to restart
driving up to 12 hours each day for another several days after a brief off-duty interlude.
In fact, the long swing/short swing schedule for Type I drivers is simply listed as an
option without explanation or discussion of its safety impact.

3. Type V Drivers.
The FMCSA proposes a circadian duty schedule for Type V drivers whose
commercial motor vehicle operation is largely incidental to their working
responsibilities. However, Type V drivers under the proposed rule are allowed 13 hours
on duty in each 24-hour period, with a maximum five of those hours devoted to driving.
Hence, drivers would be on-duty for one hour each day longer than permitted for driver
Types I through IV. 65 FR 25604.

Unfortunately, the agency has seen fit not only to extend the work day for Type
V drivers by an additional hour, it also has recommended that these drivers work for six
consecutive days instead of five, thereby accumulating 78 hours of duty time of which
no more than 30 hours may be spent driving. After each day of work, Type V drivers
could be allowed only nine continuous hours off-duty after 13 hours of work. Research
has shown that a minimum off-duty period of nine hours is insufficient for providing
enough sleeping time.34 Following this exhausting shift schedule, the FMCSA would
permit employers to require Type V drivers to resume a 78 hour work week after only a
32-hour off-duty period. Id.

Advocates opposes this extraordinarily demanding work regime for Type V
drivers because the enormous amount of daily and weekly time spent on duty, and the
abbreviated time off duty after six days totaling 78 hours of work, will magnify the risk
of a crash for drivers when they do get behind the wheel of their vehicles. The FMCSA

34 T. Sanquist et al., Fatigue and Alertness in Merchant Marine Personnel: A Field
Study of Work and Rest Sleep Patterns, U.S. Coast Guard Report No. CG-D-06-97, June 1996,
found that the minimum off-duty period of nine hours provided for mariners resulted in both
acute and chronic sleep deprivation. Similarly, T. Balkin et al., Effects of Sleep Schedules On
Commercial Motor Vehicle Driver Performance, Walter Reed Army Institute of Research,
DTBH61-94-Y-00090, Federal Motor Carrier Safety Administration, U.S. Department of
Transportation, Washington, D.C., May 2000, found that the field portion of their study showed
that daily sleep duration is correlated with duration of off-duty time.
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itself recognizes in its PRE accompanying this proposed rule that research has shown “that crash risk increases with on-duty time, rather than time on a specific task.”35 This means that the chances of a crash are elevated for drivers when they operate their vehicles as a result of total work time per day, not just the time spent behind the wheel. The fatigue generated by long daily shifts, even if much of that work is spent in tasks other than driving, negatively impacts driver safety because of accumulated fatigue. Advocates has indicated some of those compelling research findings earlier in these comments. Also, in its 1990 report to Congress on truck driver fatigue, op. cit., the FHWA, citing Harris and Mackie (1972), stressed that the total time spent on-duty is the governing factor in driver loss of alertness, not just the actual time spent in driving.

Moreover, the FHWA pointed out ten years earlier in 1981 that when the work day is extended, productivity decreases and that working beyond eight hours, including both on-duty non-driving as well as driving time, increases the rate of crashes. 45 FR 82284-82288. The agency rejected a petition in that notice asking for an increase in hours of service driving time. Relying on both its 1972 and 1978 federal studies, as well as on other cited research, the FHWA asserted that:

If scientific and technical data is available assuring that additional hours of work will not create the potential for dangerous driver fatigue and other adverse safety effects, it is unknown to the FHWA. The influence of fatigue in accident causation has been demonstrated and where there has been a reduction in hours worked, there has been a corresponding reduction in accidents.

45 FR 82284, 82290.

No such research has been produced in the intervening years to legitimize the safety impact of very long daily and weekly duty time such as the demanding regime that the FMCSA has proposed for Type V drivers. As the agency well knows, not only has the research confirming the dangerous, fatiguing effects of very long daily and weekly working hours burgeoned during the ensuing 20 years, but the FMCSA has demonstrated that fatigue contributes to at least 15 percent of all truck fatal and injury

35 PRE, p. 8.
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crashes.\textsuperscript{36} Advocates will address driver daily and weekly off-duty rest needs in a later section; however, it must be emphasized that the FMCSA proposal to curtail Type V driver daily rest periods to only nine hours belies all the pronouncements made by the agency in the preamble of this proposed rule, in its accompanying PRE, and in its appended annotated research bibliography that longer work hours require more off-duty rest time, not less, in order for workers and drivers to overcome the increasing, dangerous effects of fatigue as the length of the workday increases.

For example, in the preamble of this rulemaking notice, the FMCSA states that not only should drivers be afforded more opportunity for daily and weekly rest, it specifically acknowledges that "the FMCSA should require an even longer consecutive off-duty period than the 9 hours" the Interstate Commerce Commission originally adopted in 1937 before reducing it to eight hours after objections by the trucking industry. \textsuperscript{65} FR 25554. The agency also points out that it is "virtually impossible to get an adequate amount of sleep when time for commuting, meals, personal errands, and family/social life is subtracted from an 8-hour off duty period." \textit{Id}.

It is clear that the agency regards a nine-hour off-duty period as little better in that regard, \textit{viz.}, as also not providing sufficient opportunity for the minimum restorative sleep after, especially, a 13-hour work shift day after day. In fact, the FMCSA instances the Wylie et al. Driver Fatigue and Alertness Study as corroborative evidence that drivers do not sleep well or sufficiently long after a 13-hour work day. \textit{Id.} FR 25554. The agency also emphasizes that available research strongly suggests the need for total off-duty periods to range from a minimum of 10 hours up to as much as 16 hours. \textit{Id}. Quite surprisingly, the agency has no discussion anywhere in this notice or in accompanying materials for the proposed rule why these research findings and policy declarations by the agency about the need for more off-duty time and more opportunity for sleep do not apply to Type V drivers. Nowhere, for example, does the agency distinguish the validity of these observations and findings as applying differentially to some types of drivers contemplated in the proposed rule but not to others.

Certainly, the agency itself recognizes that very long work days and work weeks

\textsuperscript{36} PRE, Chapter 3 \textit{passim}. 
combined with inadequate, shortened off-duty periods is exactly the kind of work shift scheduling that literally fosters fatigue among workers which, in turn, adversely affects their health, their safety, and even the fundamental quality of their lives. Yet, in the face of its own countervailing evidence in the record, the FMCSA has nevertheless recommended a work/rest schedule for Type V drivers which contradicts everything that is known about the causes of fatigue in workers and its inevitable, dangerous consequences.

Furthermore, the chances of abuses of even the extraordinarily long, exhausting work week recommended by the agency for Type V drivers are inherent to the proposal because these drivers will have no reliable documentation of their actual working, driving, and off-duty hours. The FMCSA is not requiring on-board recorders for Type V drivers and it is also eliminating paper logbooks in favor of Department of Labor (DOL) timecards filled out by employers. For all practical purposes, the FMCSA has abandoned meaningful enforcement of the schedule it is imposing on Type V drivers and has instead proposed an honor system which can be violated with impunity. The agency would be foolhardy to believe that drivers who are compelled to work longer than 13 hours each day, are allowed less than nine hours of daily rest, and put in even more than 78 hours on the job in six consecutive days, will jeopardize their employment by bringing such abuses to the attention of federal and state authorities.

Advocates regards the Type V driver work/rest daily and weekly shift schedule proposed by the FMCSA to be a prescription for actually producing fatigue rather than reducing it. Demanding a work week from Type V drivers that is double the average of most American workers, and abbreviating daily and weekly rest to glaringly inadequate levels, will inevitably produce fatigued drivers when they do get behind the wheel of their vehicles.37 Advocates strongly opposes this regimen for Type V drivers as directly antithetical to a program of fatigued driving abatement which the FMCSA has repeatedly stated throughout this notice to be the overarching goal of the proposed

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37 The FMCSA quotes Wylie et al. (1997), op. cit., in its PRE as having shown that “people who are off-duty for 8 hours generally only obtain about 5 hours of sleep.” PRE, pp. 3-4. On the basis of its own research findings and statements in this rulemaking, the agency cannot reasonably believe that a Type V driver off-duty for only nine hours a day after a daily work shift of 13 hours over six days will nevertheless achieve eight hours of sleep each day.
amendments to the current HOS regulation. These drivers should be allowed to work no more than 60 hours over five days each week of which no more than 30 hours may be spent driving, the ceiling on weekly driving time proposed by the agency.

V. The Proposed Minimum Weekly Off-Duty Time of 32 Consecutive Hours Has Been Shown By Research To Be Inadequate to Counter Fatigue and Sleep Debt.

The FMCSA proposes that all five types of drivers, regardless of the differing lengths of their work weeks or whether they are on-duty for consecutive hours or in split shifts, be provided a minimum weekly off-duty period of 32 consecutive hours which shall begin no later than 11:01 PM when the driver is released from duty, shall continue for two successive nights including the first night starting at 11:01 PM, and shall conclude no earlier than 7:00 AM of the second morning after the driver was first released from duty. 65 FR 25604.

Although the FMCSA provides examples at multiple points in this notice of how drivers may often be provided with off-duty “weekends” of up to 56 hours, it advances

38 Although the agency offers a “weekend” of 32 to 56 hours, the threshold regulatory requirement is primarily governed by the minimum 32 hours off-duty as described. Although some drivers released earlier than 11:01 PM and/or renewing a tour of duty later than 7:00 AM of the second morning following the two consecutive nights off-duty can accumulate more than 32 hours off-duty, the upper bound of 56 hours of the proposed range only has regulatory force and effect in the circumstance where a driver is released from duty at some time after 11:01 PM. In this case, the driver must be off-duty the remainder of the day of the release after 11:01 PM followed by two successive nights off-duty, until duty may be resumed at 7:00 AM of the morning following an accumulation of off duty time of 55 hours, 58 minutes or less, but more than a minimum of 32 hours.

For example, if a driver were released at, say, 3:00 AM following the accumulation of maximum permitted weekly driving/on-duty hours, the failure to release the driver four hours earlier, at 11:00 PM, would automatically trigger an additional 24 hours of off-duty weekly layover prior to starting a new tour of duty no earlier than 7:00 AM of the third morning following his or her release from duty. In this example, the driver would be entitled to 52 consecutive hours of off-duty time before resuming his or her duties. Similarly, if a driver were released from duty at 7:00 AM, this would trigger an off-duty period of 48 hours so that the driver would have two successive nights off-duty followed by resumption of duties no earlier than 7 AM two days later. And so on.

(continued...)
research studies both in the preamble of the proposed rule, as well as in the appended annotated bibliography, which directly counter the legitimacy of permitting drivers of every type to have only 32 hours of consecutive off-duty time.

For example, the FMCSA relies heavily in the preamble on the recent study by Smiley and Heslegrave (1997), *op. cit.*, who pointed out that a 36-hour off-duty period each week is probably inadequate and that many studies indicate a need for recovery from arduous work weeks to span three rather than only two days. 65 FR 25556. Several studies cited by Smiley and Heslegrave found that even two full days provided inadequate time for full performance recovery.39

One of these cited studies is the follow-up investigation by C. Abrams *et al.*, *op. cit.*, who found that there was no objective evidence that drivers could recover from consecutive days of driving with even a 48 hour off-duty period. Several other investigators have found that long daily hours of shift work require longer, not shorter, amounts of time off in order to consistently achieve sleep durations of approximately eight hours.40 The FMCSA own sponsored research from Walter Reed hospital, cited earlier (Balkin *et al.* (2000)), shows that workers have not recovered fully from the fatiguing effects of long work shifts over several days even with two full days/three consecutive nights of off-duty layover time.

It is clear that a minimum of 32 hours of off-duty time for five types of drivers is an effort to force an inadequate rest period on all commercial drivers regardless of the daily and weekly time spent on duty, regardless of the type of operations conducted by a

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38(...continued)

However, it is clear that required weekly off-duty minimum rest periods of various lengths will be frequently violated without the possibility of detection by enforcement authorities. This will occur because drivers will often perform several hours of undocumented work after they stop driving during their mandatory weekly rest period despite having vehicles equipped with EOBRs or, if not so equipped, they will continue to drive in excess of the weekly ceiling on duty hours.

39 *E.g.*, G. Hildebrandt *et al.*, *op. cit.*

40 See, *e.g.*, G. Kecklund and T. Akerstedt, “Time of Day and Swedish Road Accidents,” *Shiftwork International Newsletter* 12(1), December 1995, p. 31; I. Brown, *op. cit.* (the longer the duty period, the more restitutive sleep a driver will be obliged to take).
carrier, and regardless of whether driving duties are exercised at night or during the day. The force of the research showing the inadequacy of an abbreviated “week-end” of this minimum length is overwhelming and the result of adopting such a proposal will inevitably produce more fatigued drivers, not fewer. Advocates believes that a minimum of 56 consecutive hours off duty, including three successive nights, must be considered the bare minimum layover after several successive days of long working and driving shifts, a policy which is consistent with the agency’s own research findings recently reported in the Walter Reed hospital study, op. cit.41. It is also important for the agency to preserve the starting time for the off-duty period as no later than 11 PM and for the termination of the rest period to begin no earlier than 7 AM of the third morning, a total of 56 hours providing a diurnal asleep/awake schedule for drivers. This is a necessary control to prevent carriers, dispatchers, shippers, and others in the supply chain from attempting to displace the off-duty rest period to blocks of time which would force drivers to sleep partly during the day. It also provides truck drivers with the benefits of a weekend already enjoyed by almost all other American workers.

VI. The Agency Does Not Place Any Restrictions On Nighttime Driving.

Although the FMCSA rejected a limitation on nighttime driving, in accordance with its 1997 Expert Panel recommendation, as not beneficial in light of purported unacceptable burdens foisted on the Less Than Truckload (LTL) industry sector,42 the agency itself admits that “night workers . . . are . . . required to perform tasks during the time of day they are least able to from physiological and cognitive standpoints . . . [and] they must sleep during the time of day their bodies are least receptive to it. 65 FR

41 This is also consistent with the evolution of a commercial driver’s work week in ECE regulation which has abbreviated the length of the driving week while amplifying the off-period after several days of driving to the equivalent of a full weekend. See F. van Ouwerkerk, op. cit.; B. Jansen, “Ploegranken Vaak Onnodig Zwaar,” Techniek Veiligheid, 1987, No. 10, 5-7; FFC Council Regulation No. 3820/85 (December 1985); EEC Council Regulation No 98/03 SYN Amending Reg. 3820/85 and Directive 93/104/EC; EEC Sectors and Activities Excluded From the Working Time Directive, Brussels, November 18, 1999.

42 PRE, pp. 65-66.
25569-25570; 25553. This is because “[i]t has been well established that the hours of
the day and night are not equivalent from the perspective of human alertness and safe,
efficient, and productive performance of workplace tasks. *Id.* at 25554 (citations
omitted).

As the agency knows, the research on nighttime driving has repeatedly confirmed
that disproportionate driving time accrued during the well-documented circadian trough
in alertness and increased sleepiness from midnight to 6 AM is associated with dramatic
increases in the risk of crashes.\(^{43}\) The FMCSA cites many of these studies in the
preamble of the proposed rule. *Id.* at 25554. Also see *Id.* at 25556-25558.

Yet the FMCSA relies on speculative arguments in this proposed rule that
restrictions on nighttime driving could displace significant LTL traffic to daytime
operations and thereby have adverse safety impacts due to purported congestion. It is
noteworthy that this speculative belief has no documentation anywhere in the record
and is accompanied by no quantification of the number of trucks purportedly diverted to
daytime operation, of the number of crashes supposedly increased by daytime operation,
and of the type and percentage of the crashes which are claimed to be triggered by such
daytime operation. *Id.* at 25569-25570. Advocates rejects these unsupported and
undocumented claims.

Not only does the agency attempt to rationalize the continued operation of a large
portion of the trucking industry entirely at night, it does nothing to offset the substantial
increase in risk to drivers accruing most or all of their daily and weekly duty hours at
night – it allows the same total consecutive driving/on-duty time and the same minimum
off-duty daily and weekly rest time that is provided for drivers who accumulate all their
driving time during the day. Given the recommendations of the agency’s own second
Expert Panel that nighttime driving risks must be offset by a limit on nighttime driving
hours, the FMCSA has a responsibility to compensate for driving at night with an HOS
regime which provides fewer driving hours both per day and per week, and much more
daily and weekly time off in order to compensate for the dramatically increased risk.
See 65 FR 25561-25562.

Many researchers and the FMCSA itself has shown that workers attempting to

\(^{43}\) See, e.g., the time-of-day crash risk charts drawn from the University of Michigan’s
Truck in Fatal Accidents (TIFA) at 65 FR 25543.
sleep during the day achieve both shorter sleep periods and sleep of overall poorer quality.\textsuperscript{44} Id. at 25555. Clearly, one of the areas that must be addressed in any new version of this proposed rule is limitation of nighttime driving hours in order to provide much more daily off-duty rest time for these drivers. The risks of nighttime driving for a major sector of the trucking industry can be mitigated only by departing from a HOS schedule for all Type I and Type II drivers which fails to consider the dramatic difference in driver sleep and recovery needs between daytime and nighttime driving. The FMCSA must consider reduction of nighttime driving for these drivers and commensurate increases in the amount of time off per day and per week so that they can achieve restorative sleep. Both a reduction in nighttime risk exposure and increases in the length of opportunities for sleep need to be instituted to reduce the very high fatal and serious injury crash rates of nighttime truck drivers.

VII. The Proposed Minimum Daily Off-Duty Time.

The FMCSA proposes that driver Types I, II, and IV have a minimum off-duty period of 10 consecutive hours each day for rest and recovery. \textsuperscript{65}FR 25604. In addition, the agency proposes that driver Types I, II, and V have a minimum of two additional off-duty hours each workday “to nap, rest, or attend to personal necessities.” Id. at 25567. This minimum two-hour off-duty period may be taken in segments of not less than 30 minutes each. Also, the rule as proposed would permit adding the available rest hours in whole or in part as a block of time to the minimum 10-hour off-duty rest

\textsuperscript{44} P. Krauth \textit{et al.}, \textit{op. cit.}, showed that the research literature consistently demonstrates that long shifts, particularly at night, result in measurable deterioration in both the length and the quality of sleep; C. Abrams \textit{et al.}, \textit{op. cit.}, found similar results of drivers attempting to consistently drive at night and sleep during the day, including a large increase in the risk of drivers falling asleep at the wheel due to chronic sleep deprivation; E. Grandjean, \textit{op. cit.}, showed that several surveys of European workers consistently demonstrated that daytime sleep was substantially inferior to nighttime sleep both in duration and quality; T. Akerstedt, \textit{op. cit.}, concluded that allowing the same minimum off-duty or layover time for driver recovery following successive nights of driving are not equivalent to the restorative effects of the same amount of time allowed for recovery from the fatigue of daytime driving; Smiley and Heslegrave, \textit{op. cit.}, found that a 36-hour layover was particularly inadequate following night shift work.
period for driver Types I, II, and V. *Id.* at 25603. Moreover, all type of drivers, including Type III with split off-duty rest time of nine and of three hours minimum between split work shifts, as well as Type V with only nine consecutive hours of off-duty time per day, are not supposed to have their main blocks of rest time interrupted by any official in the supply chain. If an interruption occurs, the entire rest period must be restarted.45 *Id.*

While we support the agency's interest in protecting driver off-duty time against encroachment by shippers, dispatchers, and consignees, among others, it is well-known that drivers frequently suffer such interruptions, but fail to complain about the practice through fear of reprisals, including being fired from their jobs or passed up for loads which they need to make a living. Given the tremendous financial pressures on drivers, few of them will become whistle blowers to report such interruptions. This is especially true of owner-operators who can quickly be blacklisted in an industry where getting loads as often as possible is crucial to economic survival.

It is especially important for gaining ground on the pervasive fatigue problem, however, for the agency to persist in its proposal not to permit split rest time in sleeper berths for solo drivers46 and thereby fulfill the National Transportation Safety Board's specific request to the agency to prohibit split rest time.47 *Id.* Studies over the past 30 years have repeatedly verified that sleep taken in portions during a workday results in

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45 While Advocates supports the agency's good intentions in increasing minimum rest time for three types of drivers, including long-haul and regional operators, from the current minimum eight hours to 10 hours, we already have indicated that Advocates cannot support a minimum nine hours of off-duty rest time for Type V drivers. Moreover, we are concerned about the provision of two hours of off-duty breaks, as we will discuss separately below, because, without a system of meaningful enforcement, investigators have shown that drivers tend to use this time either as additional work time or, if they nap, they often reduce the amount of time sleeping in their main off-duty period again in exchange for performing additional work.

46 In C. Abrams *et al.*, *op. cit.*, 1997 survey of 511 commercial vehicle drivers, 91 percent of surveyed drivers slept in tractor trailer sleeper berths and 6.7 percent in motels.

47 The Board recommended on June 1, 1999 (H-99-9), that the FHWA delete 49 CFR § 395.1, para. H, allowing drivers with sleeper berth equipment to accumulate the minimum eight hours off-duty in two separate, *i.e.*, "split" rest periods.
overall less sleep and poorer quality sleep resulting in a rapid accumulation of sleep debt over successive days of driving.\textsuperscript{48} The agency should resist any temptation to return to the dangerous practice of permitting solo drivers to split their rest time into two segments. Requiring four of the five types of drivers to gain sufficient restorative sleep in a single, unbroken, uninterrupted block is a tangible advance in safety policy which must be preserved.\textsuperscript{49}

However, Advocates would prefer that the agency increase off-duty time to a single block of 12 hours for Types I and II drivers, a single block of 10 hours plus four additional off-duty hours for split-shift/split-rest time driver Type III, and a single block of 12 hours for Type V drivers.\textsuperscript{50} Although we support rest breaks, the failure of the

\textsuperscript{48} E.g., see T. Sanquist \textit{et al.}, op. cit., and R. Hertz, \textit{Tractor-Trailer Driver Fatality: The Role of Nonconsecutive Rest In a Sleeper Berth}, Insurance Institute for Highway Safety, Washington, D.C., February 1988. The FMCSA also cites M. Bonnet, "Sleep Deprivation," \textit{Principles and Practices of Sleep Medicine}, 2\textsuperscript{nd} ed., W. Kryger \textit{et al.} (eds.), Philadelphia, 1994, 50-67, who found that the continuity of sleep is integral to its quality: ‘Evidence has begun to demonstrate that sleep is a time-based cumulative process, and that frequent awakenings can slow or stop that process . . .’ Bonnet’s research shows that drivers who are awakened during their principal sleep period are more likely to have reduced alertness.

However, the FMCSA fails to state the preceding sentence of Bonnet’s observations in the proposed rule: “It is not sufficient to assign a period for sleeping and to assume that it will always result in a fully restorative effect.” Bonnet, \textit{op. cit.}, p. 61.

\textsuperscript{49} It should be noted here that there is nothing in the record of this rulemaking to justify the agency’s proposal that team drivers be allowed to split their minimum 10 hours of off-duty time in sleeper berths into two five-hour segments. Split rest time has been shown to produce both acute and chronic fatigue, unresolved sleep debt, and increased crash risk from lower alertness and performance. These adverse effects from dividing sleep into two smaller portions afflict team drivers no less than solo drivers. The FMCSA has no evidence in the record showing that team drivers will avoid fatigue and increased crash risk by driving after split rest periods in sleeper berths.

\textsuperscript{50} As indicated earlier in our comments, we regard 13-hour workdays with a nine consecutive hours off-duty period to be unconscionably long and unjustified for Type V drivers in this proposed rule. We oppose a 78-hour, six-day work week for Type V drivers as an unreasonable demand on workers which will produce fatigue, as many research studies over the (continued...)}
agency to show how rest breaks could meaningfully be enforced plus the research we review below showing that they are improperly used, tilt the balance strongly in favor of providing a single longer off-duty period of consecutive hours to increase the opportunity for gaining necessary minimum rest. Since the FMCSA regards longer off-duty hours as associated with better opportunities for sleep and performance recovery, the agency should seriously consider the implications of a proposed policy which, including rest breaks which can be taken apart from the daily block of off-duty time, is essentially unmonitored and unenforced. On balance, it would be preferable in assigning hours worked per day against hours off-duty, to supply significantly longer daily blocks of off-duty time for drivers to gain recuperative sleep.

Advocates wants to stress that it remains deeply concerned that even this proposal to extend the lengths of the blocks of daily off-duty time above the figures proposed by the agency cannot be successful if the FMCSA persists in eliding the distinction between driving and non-driving duty time. Regardless of the amount of time allocated to off-duty rest and sleep, drivers will tend to drive to the maximum number of consecutive hours permitted and then to compromise their off-duty rest periods by devoting a substantial part of the time to non-driving freight responsibilities...continued

50...years have repeatedly shown. Advocates believes that Type V drivers should be restricted to 60 hours of work over a five-day work week with 30 hours of permitted maximum driving time, provided 12 continuous hours off-duty each day, and given a minimum layover of two days and three successive nights before beginning another tour of duty. Also, consideration of a longer, unbroken block of time for Type I and II drivers, for example, means that drivers in each day would have 12 unbroken hours of rest time, 10 maximum driving time, and two (2) hours of non-driving duty time = 24 hours. Type III split-shift drivers would have two separate rest periods of four (4) and of 10 hours, with the remaining 10 hours allowed as work and driving time = 24 hours. As indicated below in Section VIII of our comments, these alternatives are preferable policy choices if the agency cannot provide assurances in any subsequent rulemaking that drivers will not abuse the proposed daily two hours of rest breaks and that there will be specific enforcement mechanisms for detecting the use of rest breaks for non-driving work, for example.

51 E.g., PRE, pp. 40-41.
and conceal these violations. Finaly, Advocates strongly supports the FMCSA’s proposal to increase the length of the off-duty rest period for drivers who have served under conditions of declared emergencies as a positive safety initiative to help drivers recoup necessary lost sleep and restore alertness and performance. However, we regard the increase in minimum off-duty time for emergency drivers from eight to 10 hours as insufficient opportunity for restorative sleep. Many of these drivers will not only have driven trucks for extremely long periods of time – in some instances virtually around the clock – but they will have also had highly irregular working hours amounting to rotating shift work. Consequently, Advocates is convinced that these drivers need far more time for recuperative sleep than 10 hours. Research, cited earlier, shows that exhausted, sleep-deprived workers may not be able to sleep well or sufficiently long immediately after very long hours of erratic shift work. We therefore support a 14-hour minimum off-duty period for drivers who have served in emergency driving work prior to restarting their customary driving schedules.

VIII. The Proposed Daily Rest Break for Three Types of Drivers.

The FMCSA proposes that Types I, II, and V drivers take at least two additional off-duty hours each workday for personal use, including sleeping, of which no portion may be less than 30 minutes in length. Part or all of the daily rest break may be taken as a single block of time added to the daily continuous off-duty period.

The FMCSA has virtually no discussion of the value of napping during rest breaks in the proposed rule or in the accompanying PRE and introductory narrative prefacing the Annotated Literature Review, op. cit. However, it is apparent from its comments on specific studies in the body of the Annotated Literature Review, op. cit., that the agency has a generally favorable view of this use of rest breaks to help restore

52 Almost half the drivers surveyed in FHWA’s study, “Commercial Motor Vehicle Driver Fatigue, Alertness, and Countermeasures Survey,” op. cit., sacrificed sleep in order to maintain unrealistic delivery schedules, 28 percent admitted dozing at the wheel during the previous month, and most of these drivers knew they were fatigued and sleep deprived yet continued to drive to make a delivery schedule.
driver alertness and performance.\textsuperscript{53}

Advocates has serious concerns with the proposal for daily rest breaks, even though we support their inclusion for commercial drivers in a final rule if the agency can show they will not be the occasion for HOS violations.

First, we are concerned because napping during rest breaks can have well-documented, serious safety consequences which the FMCSA only alludes to once in the course of its comments on one study reviewed in the Annotated Literature Review. That study’s guardedly favorable conclusions about the value of napping, especially among sleep-deprived drivers, is belied by several other studies which have a less sanguine view. We will discuss our concerns about short naps below.

Second, as the agency repeatedly acknowledges, EOBRs cannot eliminate HOS violations, although they can curtail drivers from exceeding actual permitted maximum driving time per day and per work week.\textsuperscript{54} This is an important fact because there are research results showing that drivers use breaks simply to continue work responsibilities, such as waiting to load or unload, actually loading or unloading, fueling, and the like. In fact, one of the studies relied on heavily by the FMCSA, C. Abrams \textit{et al.}, \textit{op. cit.}, found that most drivers use breaks for almost any purpose other than napping.

This is a major issue affecting the integrity of the agency’s proposal for rest breaks because, given the flexibility for breaks to be allocated at the driver’s discretion throughout the work day, it is likely that drivers will apply the time to work responsibilities rather than to personal needs. This abuse of rest breaks can readily become a systematic practice among drivers which cannot be detected by EOBRs or easily discovered by traditional enforcement mechanisms.

With regard to the subject of napping during breaks, the FMCSA accurately portrays the findings of D. Dinges that post-nap sleep inertia is ubiquitous and it is of special concern for workers who are required to perform at a high level immediately

\textsuperscript{53} See Annotated Literature Review, \textit{op. cit.}, pp. 61-66. The weakness of the studies selected for review is that they are all laboratory investigations rather than field studies of actual working personnel.

\textsuperscript{54} \textit{E.g.}, PRE, p. 42.
after awakening.\textsuperscript{55} However, the agency clearly endorses Dingess's finding that some research shows performance improvements over several hours following the naps. \textit{Id.}

Unfortunately, this agency embrace of the possible long-term benefits of a short nap ignores the findings of several studies which repeatedly found that sleep inertia following naps was not only substantial but also dangerous in circumstances demanding immediate worker performance. For example, the FHWA's classic study by Mackie and Miller, \textit{op. cit.}, found that the amount of driver recovery actually declined with each successive rest break taken during a long driving stint. Drivers taking a third rest break, after about nine hours of work, showed no recovery whatever and actually suffered a further decline in alertness rather than a partial restoration of performance.\textsuperscript{56}

Similarly, T. Akerstedt, \textit{op. cit.}, emphasized in his 1997 article that all studies since 1971 show that rest breaks induce only very short-lived increases in alertness, with a return to sleepiness and error proneness almost immediately after the end of a break. P. Hamelin, \textit{op. cit.}, also found in his earlier literature review that several authors\textsuperscript{57} have shown the existence of excess risk rates for workers immediately after resumption of duties following a break. T. Sandquist, \textit{op. cit.}, found that mariners in the merchant marine, even those with accumulated sleep debts, actually avoided afternoon naps in particular once diurnal alertness had been achieved because they had become wary of the high sleep inertia following these naps which compromised their alertness and performance.\textsuperscript{58} Haworth \textit{et al.}, \textit{op. cit.}, cited several studies\textsuperscript{59} showing the poor


\textsuperscript{56} Also see Lisper \textit{et al.} (1986) who found that taking breaks has no lasting effects on reducing sleepiness among drivers regardless of when they were taken.

\textsuperscript{57} \textit{E.g.}, Pokorny \textit{et al.} (1981).

\textsuperscript{58} The FMCSA Annotated Literature Review fails to acknowledge this finding by Sandquist. See p. 73.

\textsuperscript{59} \textit{E.g.}, Lisper and Eriksson (1980): no difference in recovery of alertness after one, two, or five rest pauses as compared with controls who had no rest pauses; Lisper \textit{et al.} (1979): (continued...)
relationship between breaks and naps, and the recovery of alertness.

These worrisome findings, consistent over the years, should not be regarded as conclusive nullification of the value of naps taken under carefully chosen circumstances. However, napping to recover from partial sleep deprivation can be falsely viewed by many drivers as a way to "bank" sleep for the demands of a work schedule later in the work day which, for example, might require long waiting times or loading/unloading tasks which the drivers acquit by making large incursions into the block of off-duty rest time – time when they should be getting restorative sleep. In these instances, drivers might nap in an attempt to achieve the sleep that they should be getting in their later continuous off-duty time, the rest period which they unfortunately have compromised to perform non-driving work.

Moreover, napping might have tactical value in restoring performance under controlled conditions if the timing, length, and reason for napping are appropriate. Brief napping, for example, is not a good strategy to make up for insufficient sleep during the preceding block of continuous off-duty time. The proposed rule, however, can actually foster just this kind of use of naps which ultimately subverts the FMCSA’s resolve in this rulemaking to ban split sleeper berth rest time: a solo driver under the proposed regime can abbreviate sleep taken during the preceding daily off-duty period, sleep for up to two hours in a sleeper berth as permitted under the proposed rule, and then illegally protract duty time with additional hours of driving or non-driving work and, again, inappropriately reduce sleep during the ensuing off-duty period. This is an abuse of the proposed rule which is not only possible, but quite probable. Without enforcement control over how drivers spend non-driving time, it resurrects split sleeper berth time, the very practice which the agency wants to stop by prohibiting it for solo drivers.

Furthermore, even if drivers did not otherwise abuse the proposed napping opportunities, the research literature should give considerable pause to the FMCSA to allow napping without allied driver education and fatigue management efforts to reduce potentially dangerous uses of rest breaks for short naps followed by sleep inertia and unsafe driving performance. However, the FMCSA has made no effort of any kind in

\[59(\ldots\text{continued})\]

no difference between breaks of 15 and of 60 minutes for restoration of alertness.
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this proposed rule to combine a new regulatory strategy with recommended educational efforts or with required fatigue management programs for carriers in order to control the unsafe use of naps during rest breaks.

Advocates wants to state once again that it supports breaks for commercial drivers. The FMCSA’s proposal extends and protects off-duty time for drivers, a highly desirable outcome considering the extent to which many drivers are permitted virtually no break time by many carriers and currently are forced to attempt to gain sufficient sleep during a minimum eight-hour off-duty period following a driving shift. Although we support the concept of rest breaks, it is clear from the foregoing review that the FMCSA’s approach to how and when they can be used suffers from a lack of control over how rest breaks can actually abet poor choices by drivers which violate the HOS duty time limits and result in unsafe driving. A highly undesirable and paradoxical outcome of the agency’s proposal for more off-duty time, partly achieved by the use of required breaks, would be solo drivers splitting their sleep into two unequal segments, using this practice to systematically violate the daily continuous off-duty period, and driving under the dangerous effects of sleep inertia following short sleeping periods.

IX. The Enforcement of Hours of Service Must Be Improved.

1. Electronic On-Board Recorders Will Help Curtail Hours of Service Violations.

Advocates strongly supports the FMCSA’s proposal to require EOBRs on the trucks operated by Type I and II drivers.60 65 FR 25604-25605. Recent cost estimates

60 This is an action which is in progress among European Economic Community members specifically to replace mechanical tachographs which could be manipulated by drivers. The digitized tachographs are similar to the technology specified by the agency in this proposed rule to meet the needs of automated recording of driving time. The use of such recorders not only memorializes and, hence, limits violations of maximum driving time per day and per tour of duty, but also appears to modify drivers’ attitudes and behavior with respect to the driving task. In one study conducted recently by the SWOV Institute for Road Safety Research in the Netherlands using matched cases and controls, the investigators found that use of EOBRs for a vehicle fleet of trucks, buses, and passenger vehicles operating over a total of 3100 vehicle years resulted in an average estimated crash risk reduction of about 20 percent. P. (continued...)
by well-known, reputable suppliers have fallen far below even the lowest figures for EOBRs used by the agency in its benefits analysis for automated recorders meeting the criteria of the proposed rule.\textsuperscript{61} EOBRs can be provided inexpensively and are currently available. Furthermore, there is every expectation that mass marketing of EOBRs to the U.S. trucking industry will result in even further price reductions, as pointed out by manufacturer representatives at the FMCSA’s recent September and October 2000 Round Table meetings held to gather additional data and information bearing on the HOS rulemaking proposal.

2. The Agency Should Require Electronic On-Board Recorders for Types III and IV Drivers.

An important contribution of EOBRs will be the prevention of drivers exceeding daily and work week ceilings on driving time, one of the major, widespread abuses of the current HOS regulation. Because maximum permitted driving time can be documented and enforced with EOBRs, Advocates strongly recommends that the agency consider requiring on-board recorders on Type III (split-shift) drivers’ trucks because these drivers are not required under the proposed rule to maintain even paper logbooks. As the FMCSA knows, as documented earlier in our comments, split shift driving and rest time is associated with more sleep loss and potentially dangerous driving because split-shift driving, which the agency is prohibiting for Type I and II drivers in this

\textsuperscript{60}(...continued)

Wouters and J. Bos, “Traffic Accident Reduction By Monitoring Driver Behaviour With In-Car Data Recorders,” \textit{Accident Analysis and Prevention} 32 (2000), 643-650. To a considerable extent, the positive reinforcement of safe driving behavior appeared to be a major, direct result of the drivers’ awareness of being monitored. EOBRs, therefore, may substantially improve commercial motor vehicle safety by limiting HOS violations while simultaneously raising overall safe driving practices.

\textsuperscript{61} \textit{PRE}, pp. 59-62, where the FMCSA proposes the use of an initial purchase price of $1,000 and annual maintenance costs of $100 per unit. There is reliable information directly from manufacturers, such as that provided by VDO at the third FMCSA Roundtable discussion on HOS issues held in Washington, D.C., on October 5-6, 2000, that units meeting the recordation requirements of the proposed rule can be supplied for about half this amount.
rulemaking, often produces severely sleep-deprived, overworked drivers with dramatically increased crash risks even if they adhere to HOS restrictions. However, this problem of increased crash risk for split-shift drivers is frequently worsened because they often violate driving, total duty, and off-duty time.

It therefore is highly desirable for the agency to consider controlling the special risks associated with split shift work in a category of drivers which the proposed rule explicitly permits operating with both split driving time and split rest time. This can be effectively accomplished by requiring EOBRs on the commercial vehicles operated by Type III drivers. Since EOBRs can cost as little as half the amount assumed by the agency in its benefit/cost assessment, use of EOBRs by Type III drivers can be both cost- and safety-beneficial. We strongly encourage the FMCSA to consider extending the application of EOBRs to cover Type III drivers.

Similarly, EOBRs ought to be mandated for Type IV local pickup/delivery drivers who will be encouraged to drive in excess of maximum permitted hours per day and per week. In this connection, Advocates is not persuaded that the Department of Labor (DOL) timecards which the FMCSA proposes as replacements for paper logbooks will accurately reflect actual time spent on duty because, for driver Types III through V, there are no reliable, independent means of corroborating the hours worked entered by an employer.\textsuperscript{62} 65 FR 25610. At a minimum, EOBRs can automatically verify whether Type III and IV drivers have exceeded maximum driving time per day and per week. Advocates strongly recommends that EOBRs be required for local pickup and delivery drivers. Requiring EOBRs for all driver types other than Type V ensures that drivers are at least protected from being compelled to exceed daily and weekly driving hours and their use would be an effective check on HOS driving time violations easily committed by drivers when they change driver categories sometime during a work day.

\textsuperscript{62} The FMCSA is not requiring that Type III, IV, and V drivers carry DOL time records with them while on duty. DOL time cards would be filled out after completion of work shifts and therefore would not be contemporaneous records of actual time worked and driven. Enforcement officials would have to visit or contact the driver's work reporting location to actually review his or her time records. 65 FR 25598.
3. The Agency Needs To Consider Having Fewer Types of Drivers In the Rule.

The FMCSA needs to reconsider the five types or categories of drivers proposed in the current draft regulation in order to enhance the ability of enforcement personnel to detect HOS violations. Because the agency has admitted that drivers can change their driving category even during an daily work shift, the different requirements for each of the five types described in the proposal can instantly change for a given driver so that one set of HOS limits immediately become mooted in favor of another set. For drivers who switch from an EOBR-governed type (I or II) to a non-EOBR-governed type (III-V) in the proposed rule, or from one non-EOBR driver type to another non-EOBR type, there is no meaningful way in which enforcement personnel could routinely, accurately determine whether these drivers were adhering to applicable driving, duty, and off-duty limits.

Moreover, having five types of drivers which can instantly change HOS categories during a work day or work week unnecessarily complicates enforcement efforts. Since Type III, IV, and V drivers under the proposed rule have no paper logbooks and no EOBRs, it compromises both the effectiveness and the efficiency of enforcement authorities in attempted reconstruction of the HOS of a driver who has changed driver types during a work day or work week. It will be difficult and tedious, if not often impossible, for enforcement officials to assemble and examine relevant documents showing travel distance and time, such as fuel and lodging receipts, dated bills of lading, and other indicia of hours of operation. This approach to compliance and enforcement is essentially impracticable and unworkable. Accordingly, the probable outcome of this approach, if it was adopted, would be for authorities largely to ignore Type III, IV, and V driver compliance with HOS requirements, leaving widespread violations to occur without much chance of detection and curtailment.

This enforcement task is a substantial increase over current burdens of reconstructing a driver’s HOS from a range of documents. In addition, the reconstruction of the time spent driving, on-duty, and off-duty by drivers who frequently change their HOS categories not only will often be challenged when

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63 The agency has repeatedly recognized this ability for drivers to rapidly change the HOS limits under which they operate in both the public meetings and in the Roundtable discussions held in the fall of 2000.
violations are alleged, but many drivers and carriers will be encouraged to conceal actual hours of duty and off-duty time, particularly for those drivers not governed by EOBR memorialization of actual driving time. In practice, many drivers and carriers will be able to routinely violate HOS restrictions with little chance of detection and subsequent penalty.

Advocates earlier showed that the long-swing/short-swing schedule for Type I drivers is untenable for safety reasons. Accordingly, the FMCSA can eliminate this two-week schedule for Type I drivers which results in no essential differences between Type I long-haul and Type II regional commercial operators. These two categories can therefore be collapsed into a single driver type. Furthermore, if the agency were to consolidate the off-duty time per day for driver Types I and II -- the 10 consecutive hours off-duty plus the two hours of breaks -- into a single block of continuous off-duty time each day, Types I and II drivers would have daily work schedules no different than Type IV local pickup/delivery.

However, since Advocates supports a limit on daily driving time of no more than 10 hours each day and opposes the FMCSA’s proposal for driver Types I through IV to accrue 12 hours of daily driving, it would be even more desirable for the agency to consolidate driver Types I, II, and IV into a single driver category with a maximum driving time of 10 hours, and provide this single category with two hours of breaks and a continuous 12 hours of off-duty rest time each day, or with a single block of 14 consecutive hours off-duty each day.

Research has consistently shown that split shift motor carrier operations are inherently prone to producing fatigued drivers. However, industry requirements in certain commercial sectors, such as motor coach transportation, compel the adoption of a driver category which operates on a split duty and rest time schedule. Since this kind of motor carrier operation produces a higher level of crash risk because off-duty sleep can be split into two segments, Advocates repeats its recommendation to require EOBRs for driver Type III. This is especially important for motor coach operators who can engage in otherwise undetected scheduling practices for drivers which will produce fatigue and sleep deprivation -- drivers who at times are responsible for the safety of as many as 55 people on board. We also want to emphasize again that the total daily driving time of 12 hours proposed for this type of driver is too long. Split shift drivers should be allowed to drive no more than 10 hours each day in split shifts of six and of
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four hours, and total daily off-duty rest time should be increased from 12 to 14 hours, split into two segments of which no portion is less than four hours.64

It is clear that there are ways to decrease the number of driver types contemplated in the proposed rule which simultaneously would produce safer, more rested drivers as well as increase the efficiency and reliability of enforcement actions if the current five driver categories were reduced in the way we have indicated to three types: the first would be a single category with a uniform schedule governing what are now the separate driver Types I, II, and IV; the second would be a separate schedule for what is now driver Type III who performs split shift work; and the third would be the current driver Type V who would be allowed to drive far fewer hours per day and per week than total hours worked. Advocates urges the FMCSA to consider these recommendations which combine revised duty and off-duty hours to increase driver and motor carrier safety while also simplifying HOS enforcement. Allowing several varieties of drivers to be precipitously mutable will be lethal to effective oversight and enforcement of the final regulation unless the agency redacts driver types as fewer, simpler categories.

X. Exemptions and Tolerance Guidelines.


The FMCSA proposes to eliminate the regulatory exemptions accorded to Type V drivers in various utility, construction, and other similar operations adopted by the agency in 49 CFR Pt. 395 pursuant to the legislative exemptions enacted in Section 345 of National Highway Designation Act of 1995 (NHS Act) (codified at 49 U.S.C. § 31136 note).65 These exemptions variously allow drivers of the kinds indicated to

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64 See, above, p. 36 of these comments.

65 However, the agency is not proposing the elimination of the exemption from HOS limits supplied by Section 345(a)(1) of the NHS Act which permits commercial drivers transporting agricultural commodities or farm supplies during the active planting and harvesting seasons within each state to exceed maximum driving and on-duty time if that transportation is limited to a circumscribed area within a maximum 100 air mile radius from
exceed maximum on-duty and driving hours per day and per week, or to restart a tour of
duty after only a single 24-hour layover for the purpose of determining maximum on-
duty/driving time rather than following the full seven- or eight-day cycles required
under current regulation.

Advocates cannot support this regulatory approach to the exemptions of the NHS
Act because the agency's proposed HOS limits in this notice cannot be meaningfully
enforced for Type V drivers. Without EOBRs, DOL timecards are an inadequate check
on abuses.

Moreover, a substantial segment of the construction industry operates beyond the
50 air mile radius which blocks reliance on the exemption for truck drivers transporting
construction materials and equipment to restart a tour of duty after only a single 24-hour
layover. Those construction drivers which cannot avail themselves of the exemption
not only cannot exceed the duty and driving time limits of the current regulation, but
they also cannot begin operating their trucks again after only a single 24-hour layover.
In addition, they must maintain paper logbooks documenting their adherence to HOS
restrictions.

In contrast, the proposed regime of a 78-hour work week over six consecutive

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the source of the commodities or farm supplies distribution point. It is noteworthy that,
although Congress permitted the Secretary to conduct rulemaking to determine whether
granting any exemption provided by the cited NHS section was in the public interest and would
have a significant adverse impact on the safety of commercial motor vehicles, it only explicitly
barred consideration of the exemption for drivers engaged in the transportation and operation of
ground well water drilling rigs. Although the Secretary is allowed to consider whether
continuation of the agricultural exemption is in the public interest and whether it has any
adverse impacts on safety, no consideration of safety impacts and the public interest is
conducted anywhere in this notice of proposed rulemaking and no reasons are advanced for
continuing the exemption essentially unchanged. See, e.g., 65 FR 25585-25585, where the
agency gives the impression that it has no discretion to revoke the agricultural HOS exemption:
“The FMCSA interprets the NHS Act provision to exempt this class of carriers and drivers
from HOS restriction in the present [49 CFR] part 395 . . .” Id. at 25585, col. 3. The FMCSA
is effectively continuing to allow this exemption without having ever conducted sufficient
rulemaking ventilation of the reasons therefor. The action proposed in the instant notice does
not meet the requirements of the Administrative Procedures Act, 5 U.S.C.§ 553 et seq., for
adequate informal rulemaking on the merits. Advocates asks the FMCSA to revisit this issue in
a separate rulemaking proceeding which ventilates the safety merits of such an exemption.
days with only 32 hours off-duty over the seventh day effectively allows all construction drivers to work excessive hours with inadequate time off. In addition, without EOBRs on these trucks, drivers can be required to exceed even these excessive demands on their endurance without a significant chance of detection by enforcement authorities. It also should be stressed here that the FMCSA is effectively extending the benefits of the NHS Act exemption to all parts of the construction industry, regardless of the distance from drivers’ normal work reporting locations, without a single sentence of discussion in this notice of the extent of any safety problems with operations under the existing exemption or a specific evaluation of the prospective safety risks produced by allowing excessive hours of work and inadequate rest time to govern the entire construction industry. This action clearly does not meet the requirements of the Administrative Procedures Act for informal rulemaking. Advocates believes that this proposal, as well as the proposal to allow excessive driving hours for agricultural operations, needs to be evaluated on their safety merits in a separate proceeding or in any subsequent rulemaking notice revising HOS regulations.

Similarly, utility operations under the current exemption pursuant to the NHS Act permits drivers of utility service vehicles to end a seven- or eight-day tour of duty with an off-duty period of only 24 hours which effectively allows amplification of total duty and driving hours considerably above the limits set by the current regulation. The proposed elimination of the NHS Act exemption for utility operations basically underwrites a doubling of driver weekly HOS. Since the proposed regime for Type V drivers dispenses with paper logbooks, enforcement authorities will have no documents at hand, including EOBR data, for determining whether utility drivers have violated the already excessive working hours and inadequate rest time proposed in this notice.

Advocates opposes this approach to eliminating the NHS Act exemptions because the elimination of logbooks for Type V drivers and the proposed length of a workday, workweek, and daily and weekly off-duty time has, first, no discussion of record on the prospective safety impacts of such a regime, and, second, no demonstration of the past five years of safety impacts on drivers and operations exempted through the NHS Act from basic restrictions of the current HOS rule. This part of the rule proposes a HOS regime for Type V drivers in substitution for the NHS Act exemptions which actually fosters essentially unregulated and unenforceable construction and utility motor carrier operations. Adoption of the Type V HOS regime
can result in drivers compelled to work excessive, undocumented hours with inadequate off-duty time resulting in increased crash risks from fatigue and sleep deprivation.

2. Elimination of Tolerance Guidelines.

The FMCSA also proposes elimination of the Tolerance Guidelines adopted by the FHWA pursuant to Section 4002(l) of the Intermodal Transportation Efficiency Act of 1991 (ISTEA) which instructed the Secretary to allow variations in state motor carrier safety regulations from the specific threshold values for driver qualifications and HOS, as well as other requirements in the Federal Motor Carrier Safety Regulations, so that states could still qualify for federal assistance under the Motor Carrier Safety Assistance Program (MCSAP). 49 CFR § 350.341. Among the changes would be the elimination of the 100 air mile radius exemption for drivers making local retail deliveries from maximum consecutive driving time and maximum hours of duty over seven or eight days in exchange for the HOS regimes proposed in this notice for driver types III, IV, and V. 49 CFR § 395.1(f); 65 FR 25583.

More importantly, however, removal of the Tolerance Guidelines while simultaneously allowing most driver types under the proposed rule to rise to 12 consecutive hours of driving would virtually guarantee that the states currently allowing drivers only 10 hours of maximum driving time before going off-duty would increase to 12 hours throughout the U.S. Advocates opposes deleting the Tolerance Guidelines in this manner because the rising tide of longer consecutive driving hours would lift all the states’ intrastate motor carrier operations to a more unsafe level. We fail to understand how promoting longer driving hours in the states increases highway safety and counters the serious problem of fatigued truck drivers. Once again, there is no discussion of the prospective safety impact of this change in the states’ HOS standards which would inevitably result from the elimination of the Tolerance Guidelines when paired with the agency’s proposal to increase working and driving hours for commercial vehicle operators.

XI. Conclusion.

Viewed in the abstract, the basic features of this proposal comprising circadian shiftwork, increased daily off-duty rest time, and the concept of an off-duty week-end
encouraging a diurnal awake/asleep schedule for drivers, are progressive ideas for correcting the pervasive, well-documented HOS abuses inherent to the current HOS regulatory regime and industry practices. However, many of the specific elements of the draft rule, as we have shown above, subvert the integrity of these premises. Moreover, the FMCSA has placed millions of drivers, including split-shift drivers, on an unmonitored and undocumented HOS “honor system” which invites fraudulent representations of hours worked and driven, manipulated DOL timecards, and unenforceable violations of the limits proposed by the draft regulation. This will inevitably produce more fatigued drivers and can only be regarded as the agency’s intention to abandon a meaningful regulatory and enforcement role over millions – in fact, the majority – of interstate commercial drivers under its stewardship.

Although the broad initial concepts of circadian shiftwork, longer daily rest time, and a weekly layover that lie behind this proposal are inherently sound, the agency has undermined the value of these starting points with the specific elements of its proposal. The FMCSA needs to revamp its proposed rule in line with the recommendations and critique that Advocates has set forth in these detailed comments. If the FMCSA revises its proposal in light of these suggestions, it can substantially lower commercial vehicle crash rates and numbers associated directly with fatigued, overworked, sleep-deprived truck and bus drivers. These revisions can go a long way towards fulfilling the agency’s promise to reduce truck fatal crash deaths by half by the close of calendar year 2008.

Without these changes, however, the current proposal cannot achieve measurable, large scale reductions of fatigue-related truck crashes. It is especially important for the FMCSA not only to amend the HOS proposal in the direction we have indicated throughout these comments, but also to resist the pressure to consider regressive proposals in any new proposed version of HOS rulemaking. In particular, the agency must not consider proposing even longer consecutive hours of working/driving per day, such as 14 to 16 hours of driving with only eight to 10 hours of rest for Type I and II drivers, as has been suggested by most sectors of the trucking industry. This kind of regime directly countermands everything that is known about the production of fatigue among commercial drivers as demonstrated by decades of scientific research and reliable surveys of actual driver practices. If this kind of schedule was adopted, especially without EOBRs, commercial drivers will generally work and drive for even longer hours with less rest than under the current HOS regulation or under the regime
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proposed in this notice. The predictable result will be even more fatigued, sleep-deprived truck and bus drivers endangering themselves and the occupants of other vehicles sharing the roads with big trucks and buses.

Similarly, other regressive proposals that the agency should avoid in any subsequent draft regulation include:

- eliminating EOBRs for long-haul and regional drivers;
- restoring a "floating" work week by permitting irregular and/or rotating shifts;
- eliminating the two hours of breaks in the current notice and thereby reducing overall daily off-duty time;
- reducing the "weekend" to only a single layover day before restarting a driver's tour of duty clock;
- allowing the daily off-duty rest period to be interrupted with communications to the drivers by dispatchers, shippers, consignees;
- permitting split sleeper berth time for solo drivers, and;
- increasing the driving hours permitted for Types III, IV, and V drivers which Advocates regards as excessive even in the current proposed rule.

Advocates calls on this agency to fulfill its clear statutory mandate to elevate safety as the highest goal of its policy decisions. The FMCSA cannot balance safety

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66 The agency in this HOS proposal has openly rationed safety in a effort to maintain current industry operational efficiencies. These practices, however, have been created through maximum utilization of the current regulatory scheme, as well as widespread violation of its restrictions.

This attempt to balance competing demands is not legitimate in light of the Congressional instruction to the agency provided in the Federal Motor Carrier Safety Improvement Act of 1999 (the Act). Pub. L. 106-159, 113 Stat. 1748 (Dec. 9, 1999). (The new agency, the Federal Motor Carrier Safety Administration (FMCSA), was established on January 1, 2000. 65 FR 220 (Jan. 4, 2000).) Congress enacted this law in order to substantially enhance the oversight and safety of motor carriers. The statutory premise of the Act is that a new safety agency, with expanded resources and funding dedicated entirely to advancing the safety of commercial motor vehicle operations, could achieve the safety improvements intended by Congress, as well as to fulfill the year 2008 fatality reduction goal set by the U.S. Secretary of Transportation.

The Act changed the fundamental nature of how federal authorities regulate motor carriers. Congress identified in the findings section of the Act a list of major problems with the (continued...)
or trade off improvements to the current dangerous HOS regime for industry operating efficiency. This agency’s job, as set forth in its enabling legislation, is solely the mission to advance safety to the highest feasible degree. The current proposal, however, shows a clear willingness to compromise safety in substantial ways while reducing the FMCSA’s oversight and enforcement responsibilities for millions of truck drivers who operate in industry sectors other than long-haul and regional service.

This rulemaking action is a defining moment for the FMCSA. The outcome will strongly determine the overall character of this agency for many years to come. The FMCSA must seize a strong, affirmative safety leadership role and propose an amended HOS regime which will dramatically reduce highway losses from commercial vehicle crashes. The present proposed regulation cannot accomplish this.

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existing federal oversight of motor carriers that had to be corrected. In order to implement these statutory findings and purposes through specific actions, Congress explicitly denominated safety as the new agency’s mission and its highest priority. The Act states that the FMCSA “shall consider the assignment and maintenance of safety as the highest priority, recognizing that the clear intent, encouragement, and dedication of Congress to the furtherance of the highest degree of safety in motor carrier transportation.” The Act, Section 101(a). Not only is safety the agency’s highest priority, it is the paramount goal which the agency is required to achieve in all of its actions, including all of its policy decisions. This is not gratuitous rhetoric or exhortation by Congress, but instead represents a clear and unmistakable mandate to the FMCSA that it shall secure improved motor carrier safety as its sole mission and that it shall carry out actions and adopt policies which demonstrate the advancement of motor carrier safety goals to the highest possible extent.

As a consequence of the unequivocal wording and clear meaning of the Act, the FMCSA must justify each of its actions and decisions based on a measurable safety impact realizing Congressional affirmative goals of enhanced motor carrier safety. However, this must not be misinterpreted as a legislative directive only to improve safety to some greater, if only incremental, extent over what existed prior to any FMCSA decisions and policy choices, but rather to promote the “highest degree of safety in motor carrier transportation” Id. This means that the highest degree of safety must be the rationale and consequence of agency planning, analyses, programs, and all policy choices affecting motor carrier operations. The agency must demonstrate in each instance, including its proposed regulations and final rules, that it has achieved the highest possible level of safety. Employing a balancing test of industry efficiency against safety to determine a safety policy is exactly what Congress eliminated in the initial provisions of the Act.
Respectfully submitted,

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