

DO NOT ENTER: HOW PROPOSED HOURS OF SERVICE TRUCKING RULES ARE A DEAD END FOR SMALL BUSINESSES

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AND REGULATIONS
OF THE
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TUESDAY, JUNE 14, 2011

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SMALL BUSINESS, SUBCOMMITTEE ON
INVESTIGATIONS, OVERSIGHT AND REGULATIONS,
Washington, DC.

The Subcommittee met, pursuant to call, at 10:00 a.m., in room 2360, Rayburn House Office Building. Hon. Mike Coffman (chairman of the subcommittee) presiding.

Present: Representatives Coffman, Tipton, Hanna, West, Altmire.

Chairman COFFMAN. The hearing is now called to order. Good morning everyone, and thank you for joining us. The hearing will now come to order.

Thank all of you for joining us today for this hearing on the Federal Motor Carrier Safety Administration's proposed rule on Hours of Service and whether it will harm the ability of small business to compete.

I would like to extend special thanks to our witnesses for making the trip to the Capitol and taking time out of their schedules to discuss this issue with us here today, especially my constituent, Mr. Paul James, who traveled from Colorado to provide his views on the proposed Hours of Service rule. In addition to Mr. James, our Subcommittee will hear directly from other small business owners about how the proposed rule will harm their industries and the difficulties their firms may face to deliver goods and remain viable.

As you know, Hours of Service trucking regulations are issued by the Federal Motor Carrier Safety Administration at the Department of Transportation and apply to tractor-trailers that engage in interstate commerce that exceed 10,000 pounds in weight. These regulations place limits on the amount of time a commercial truck driver can be on the road, which are meant to increase safety and reduce fatigue-related accidents.

There has been a significant decline in large truck crashes since the 2003 Hours of Service rules were implemented. Since then, according to the Department of Transportation's own data, there has been a reduction in fatal truck-related crashes by over 33 percent and a decline of crashes resulting in injury by 40 percent. During this period, the distance traveled by commercial vehicles increased by some seven billion miles. Despite these major improvements in driver safety, the FMCSA has now proposed complicated and cumbersome travel requirements for drivers meant to increase truck

safety by reducing the daily maximum driving limit, decreasing the maximum on-duty time limit, requiring mandatory breaks, and changing the current 34-hour restart provision. The decreased instances of crashes involving commercial trucks over recent years begs the question: is this new rule really necessary?

I find it troubling that the Agency relied on outdated truck-related crash figures to justify the need for such provisions, relying on pre-2004 crash-related data to inflate the safety benefits of their proposal rather than using current accident figures. Even more disturbing is that it is estimated that there will be a cost of \$2.5 billion annually on the industry if the proposed Hours of Service regulations are finalized. How are American small businesses expected to survive in this unstable and costly regulatory environment?

The trucking industry provides all Americans with much needed consumer products, food, fuel, and other items on a daily basis that are important in maintaining our national economy. It is critical that changes to regulations pertaining to the transportation of these goods be well thought out and strike the proper balance between the need for safety and a fast and effective transportation system. The failure of the Agency to take into account the significant improvements in driver safety over the last seven years has the potential to not only cost small businesses billions of dollars, but also lead to an increase of new and inexperienced drivers on the road to fill the employment holes created by the proposed rule.

I look forward to hearing from our witnesses on the possible implications of the new Hours of Service proposal. I now recognize the ranking member, Congressman Altmire, for his opening statement. Mr. Altmire.

[The information follows:]

Mr. ALTMIRE. Thank you, Mr. Chairman. This is an example of where most members in a bipartisan way of this Committee have exactly the same concerns on this issue. We all recognize that America's trucking industry has an enormous impact on our economy.

According to the Bureau of Transportation's statistics, trucks annually transport nine billion tons of freight valued at more than \$8 trillion. Small business operators are the overwhelming employers in this industry. Ninety-five percent of the 76,000 firms nationwide have 40 or fewer trucks. In late December 2010, the Federal Motor Carrier Safety Administration issued a proposed rule on Hours of Service for non-passenger carrying trucks. Proposed changes include reducing maximum driving time from 11 to 10 hours as we heard, limiting drivers to one 34-hour restart in a seven-day period requiring periodic 30 minute breaks, and holding drivers to a strict 14-hour operating window regardless of the nature of their work.

The Federal Motor Carrier Safety Administration has argued these changes will have minimal impact on the transportation industry, while increasing highway safety and reducing casualties. That is what they say. However, to keep up with current demand, reducing drive time limits to 10 hours will require significantly more trucks and drivers on the road. This will force small businesses with scarce capital resources to hire additional drivers and buy new trucks. It is possible in today's economy that some small firms would be forced out of business as a result. Raising the num-

ber of trucks would also cause traffic congestion, higher diesel emissions, and greater wear and tear on our nation's highway infrastructure.

New on-duty rules will also impact small businesses that rely on drivers to perform additional tasks, like loading and unloading cargo after reaching their final designation. Currently, drivers can perform non-driving work beyond the 14-hour driving window. The new proposed rule will require drivers to be released after 14 hours, potentially disrupting delivery schedules and costing employees pay when non-driving schedules exceed 14 hours.

In an effort to curb abuse of the 34-hour restart requirement, the proposal will limit drivers to one restart per week. This could impact many small firms that are beholden to weather and other unpredictable schedule changes. These businesses frequently use down periods for driver resets. The proposed rule would end this practice and hinder small businesses during periods when they need their drivers the most.

Finally, mandating 30-minute breaks every seven hours could be unduly burdensome for small businesses. Current rules allow operators flexibility to drive up to 11 hours during the driving window. The proposed rule will force drivers to stop after seven hours, regardless of the schedules and customer demands, eliminating the flexibility that allows many small businesses to succeed.

Today in this hearing we will examine how proposed Hours of Service rules will affect small businesses and hear from firms that will be impacted by these changes. While the goal of Hours of Service rules is to improve safety, it is imperative that the new policies take into account economic effects on small trucking businesses.

In closing, I want to thank Mr. Rader, who is from my district in Western Pennsylvania, for coming to testify today. And all of the witnesses. I look forward to hearing his testimony and the testimonies of the entire panel who have traveled here to offer their insights on this important topic.

Thank you all, and I look forward to the discussion.

[The information follows:]

STATEMENTS OF PAUL JAMES, PRESIDENT, REX OIL COMPANY; JAMES BURG, PRESIDENT, JAMES BURG TRUCKING COMPANY; RUSTY RADER, J.J. KENNEDY, INC.; J.D. MORRISSETTE, PRESIDENT, INTERSTATE VAN LINES

Chairman COFFMAN. Thank you, Mr. Altmire.

It is my pleasure to introduce our first witness and my constituent, Paul James, President of Rex Oil Company. Paul has over 20 years of experience in the petroleum distribution businesses and sits on the Conoco Phillips Lubricant Advisory Council and the Colorado Wyoming Petroleum Marketers Association Board of Trustees. We appreciate your testimony and thank you again for coming here today.

Mr. James.

STATEMENT OF PAUL JAMES

Mr. JAMES. Good morning, Chairman Coffman, Ranking Member Altmire, and members of the Committee. Thank you for the oppor-

tunity to testify before you today on the FMCSA's proposed changes to the Hours of Service regulations.

My name is Paul James, and I am the President of Rex Oil Company located in Denver, Colorado.

I am speaking on behalf of PMAA, the Petroleum Marketers Association of America. I am one of approximately 8,000 small business petroleum distributors who employ CDL drivers with HAZMAT endorsements. We transport gasoline, diesel fuel, jet fuel, kerosene and heating oil to both wholesale and retail customers. Our drivers engage in short haul, local delivery service from petroleum terminals to intermediate storage banks, mainly gas stations and other end-users. Most stay within a 100-mile air radius or closer to home and they return home each and every day.

I understand that the FMCSA is proposing these changes as a result of a lawsuit filed by the truck safety advocates who believe that the current regulations do not adequately address driver fatigue issues. However, petroleum marketers have concerns about the proposed changes and we appreciate the opportunity to speak to you today.

1. PMAA opposes a reduction of the daily maximum driving hours from 11 to 10.

Any reduction in the maximum daily driving hours would drive costs up for many small business petroleum transporters. With fewer hours to drive each day, many companies would be forced to hire additional, less experienced drivers, or delay deliveries to the following day. In the petroleum marketing industry, product prices change daily. Often it is advantageous from a price point perspective to purchase, pick up, and deliver petroleum products the very same day. It is not uncommon for drivers to experience unexpected delays at petroleum terminals, especially when there is a steep increase in prices for the following day. As a result, drivers often need every hour available under the current Hours of Service regulations to complete their daily runs. The daily reduction in driving hours would thus decrease overall safety by putting less experienced drivers on the road. If we are forced to hire new, additional people, buy more trucks to deliver the exact same amount of product.

2. PMAA opposes changes to the 34-hour restart period.

The FMCSA proposal would place limits on the 34-hour restart period required at the end of the driver's work week before a return to duty is allowed. Specifically, the 34-hour restart provision would introduce two nightly periods between the hours of 12 a.m. and 6 a.m. This change would be extremely detrimental to petroleum transporters. For instance, in my case we have a small window of operating hours to make certain deliveries in order to meet local government restrictions like in Boulder, Colorado. They grant us access within the city limits only during the proposed time. Rex Oil also schedules several of our drivers during the specific hours of 12 a.m. and 6 a.m. to meet the demand for deliveries, as well as minimizing the daily traffic congestion present in most of our cities. We believe this to be the safest drive time and try to utilize it the best we can.

Lastly, this provision would affect those who supply residential heating oil found mainly here on the East Coast. Many times dur-

ing the winter heating season, drivers are required to respond to emergency calls after their shift is over and often in the middle of the night in order to restart residential furnaces and deliver additional product. Therefore, we would request that no specific time-frame be used when calculating the 34-hour restart period found currently in the regulations.

3. PMAA opposes the proposed 30-minute driver rest break.

Requiring a 30-minute driver break within the first seven hours of driving time does not result in any noticeable reduction of fatigue among short-haul petroleum drivers. Our drivers are making short, local runs between gas stations, farms, and other commercial operations to deliver product in the communities where we live. Which brings me to my last and final point.

4. PMAA requests that the FMCSA adopt a provision that would allow time spent by a driver in a parked commercial motor vehicle to count as off-duty time.

PMAA makes this request because private short-haul drivers often spend significant periods of time parked in line at terminals as they wait to load product. When fuel is in high demand, a driver wait time may last up to three hours. During these extended times, the commercial motor vehicle is parked and the driver remains in the cab. The current rules require drivers to count no driving wait time as on-duty. We respectfully request that the FMCSA allow up to three hours waiting in a parked commercial motor vehicle to be counted as off-duty time when a driver stays within the 100-mile air radius. The three-hour allowance would be similar to that that the FMCSA already allows under the oil field exemption. PMAA believes that this change can be made without reducing fatigue.

In closing, it is essential that the FMCSA take into consideration the differences between short-haul and long-haul drivers. Our drivers return home to home base every single night and fatigue is thus a less significant factor among short-haul drivers as opposed to the long-haul drivers.

We appreciate the opportunity to submit these written comments, and I thank you for your time.

[The statement of Mr. James follows on page 18.]

Chairman COFFMAN. Thank you, Mr. James.

Our next witness is Mr. James Burg, owner of James Burg Trucking. Mr. Burg grew his business from a one-truck operation he began at the age of 19 to a fleet of over 75 trucks and operating primarily throughout the Midwest. We look forward to hearing your testimony, Mr. Burg.

STATEMENT OF JAMES BURG

Mr. BURG. Thank you, Chairman Coffman, Ranking Member Alt-mire, members of the Subcommittee. Thank you for holding today's hearing.

My name is Jim Burg, and I am the president of James Burg Trucking Company, a small business located near Detroit. I started my company in 1984 with one truck at the age of 19. We now employ 75 trucks and employ over 85 people. I personally hold a commercial driver's license and have driven over 1.3 million miles.

I am testifying today on behalf of the American Trucking Associations. The proposed Hours of Service changes, if finalized, would

have a profoundly negative impact on small businesses, would restrict productivity, and would result in greater congestion and increased emissions. These impacts are significant since there are more than 500,000 trucking companies in the United States, and according to FMCSA, 99 percent of these companies are small businesses.

The proposed changes come at a time when the pool of qualified drivers has shrunk. Last year, I increased driver compensation by six percent just to attract and retain qualified drivers. If the proposed rules are finalized, I will need to add more trucks and drivers and their corresponding expenses simply to counter the loss in productivity. By my calculations, the Hours of Service changes would trigger the need to increase our retained earnings by between 20 and 25 percent just to maintain our current level of financial stability.

At some point, companies like mine will need to pass these costs onto consumers which, as we all know, fuels inflation and reduces global competitiveness. Ironically, increased costs and reduced productivity prohibit me from investing in promising onboard safety-based technologies. Regrettably, my current business strategy must be to hoard cash and delay expansion until the economic and regulatory uncertainties are diminished.

With respect to the proposed hours of service regulations, my strong belief is that the Agency should abandon its proposal and retain the current HOS regulations. This belief is founded upon the following points:

1. The safety record of the trucking industry has been improved dramatically while operating under the current rules. Since 2003 when the basic framework for the current Hours of Service regulations was published, the numbers of truck-related injuries and fatalities have both dropped by more than 30 percent to their lowest levels in recorded history.

2. The proposed changes would cause enormous productivity losses. FMCSA previously estimated that changes like the ones proposed would cost society over \$2 billion annually. These losses would disproportionately impact small businesses.

3. The proposed changes would have virtually no benefit in terms of reducing fatigue-related truck crashes. Only a small percentage of truck crashes are caused by driver fatigue and only a very small number of truck crashes occur in the latter hours of drivers' shifts. FMCSA's own cost benefit analysis acknowledges that the safety benefits of the proposed rules would not outweigh the economic costs. Only by adding creative, questionable health-related benefits does the Agency's proposal pass the cost benefit test. However, as explained in my written testimony, the Agency has misrepresented and misapplied the sleep duration and mortality risk studies it relied on in its analysis. Hence, there is simply no scientific support for the health benefits claimed by the Agency.

4. Ironically, the proposed rules would trigger unintended safety consequences. Drivers feeling pressure to meet tighter restrictions would be more prone to rushing or poor decision-making. The reduction in productivity would drive a need to increase the number of trucks on the road, especially during peak hours of congestion.

And finally, the resulting productivity losses would raise demand for inexperienced, more crash-prone drivers.

Certain elements of the FMCSA's proposal are particularly troubling. The Agency has proposed that drivers utilizing the restart provision be required to ensure that each restart include two night-time periods between midnight and 6 a.m. As a result, drivers using this provision would enter the traffic flow at approximately the same time, further exasperating rush hour congestion and the corresponding consequences.

FMCSA's proposal to eliminate the 11th hour of driving simply reflects a lack of understanding of how the 11th hour is used. Even though the 11th hour is not used extensively, eliminated it would not only impact the trips where it is used but those trips where it might be used. In short, eliminating the 11th hour would only serve to render certain routes impractical or repress drivers to make runs in tighter time constraints.

In summary, FMCSA's proposed changes to the Hours of Service rules are necessary, unjustified, and would have a profound negative impact on the economy, particularly on small businesses.

I speak on behalf of the American Trucking Associations, companies just like mine, and the 99 percent of the trucking industries' over 500,000 motor carriers which are classified as small businesses. In our review, the only rational and reasonable course of action for the FMCSA is to abandon this proposal, retain the current Hours of Service regulations, and spend its resources better enforcing the current rules.

Before closing I want to thank Chairman Graves and Congressman Bill Shuster for their leadership on this critical issue. I want to thank all of you who joined them in writing Transportation Secretary LaHood to urge him to keep the current Hours of Service rules in place.

Thank you again for your time. And I am pleased to answer your questions. I owe you 24 seconds.

[The statement of Mr. Burg follows on page 22.]

Chairman COFFMAN. Thank you, Mr. Burg.

I will now yield to the Ranking Member Altmire, Congressman Altmire, who will introduce his constituent.

Mr. ALTMIRE. Thank you, Mr. Chairman. And it is my pleasure to introduce Rusty Rader, the CFO and part-owner of J.J. Kennedy, Inc., a family-owned ready mixed concrete business headquartered in Fombell, Pennsylvania.

Rusty is a graduate of Penn State University and has a Master's degree in civil engineering. Prior to joining the family business in 1994, he was employed as a transportation engineer in Chicago. Since his return to J.J. Kennedy, Inc., Rusty has worked to expand the business from a two-plant local operation to six plants located throughout Western Pennsylvania. And most relevant to this hearing today, Rusty was integral in implementing technology that has allowed J.J. Kennedy to become a more productive ready mixed concrete supplier. The technology that he has applied has given J.J. Kennedy the ability to accurately track the amount of time an employee spends driving versus pouring a load of concrete. This has allowed the company to provide more accurate scheduling of

their mixer fleet, ultimately providing their customers with more consistent service.

We look forward to hearing your testimony. Welcome, Mr. Rader.

STATEMENT OF RUSTY RADER

Mr. RADER. Thank you, Congressman Altmire, Chairman Coffman, and other members of the Committee. Thanks for this opportunity to share my views on the proposed Hours of Service regulations currently being promulgated by the FMCSA.

My name is Rusty Rader and I am a co-owner of J.J. Kennedy, Inc., a family-owned ready mixed concrete company based out of Fombell, Pennsylvania. J.J. Kennedy was founded in 1905 and currently employs 65 people. We operate six ready mixed concrete plants with 32—

Mr. ALTMIRE. Mr. Rader, could you pull your mic a little bit closer to yourself? Sorry about that.

Mr. BURG. In his defense, it does say “do not touch microphone.” Rule follower.

Mr. RADER. We operate six ready mixed concrete plants with 32 concrete mixers and deliver nearly 100,000 cubic yards of concrete annually.

The current Hours of Service regulations are not perfect; however, they are manageable and much more flexible for operations, such as the ready mixed concrete industry, than the new Hours of Service rule being proposed by the FMCSA.

J.J. Kennedy, Inc., as well as the ready mixed concrete industry, takes issue with a number of the proposed changes, specifically the following six points.

1. Requiring off-duty time immediately following the end of the driving window.

Never before has the FMCSA limited the on-duty time in which a driver is allowed to perform his or her work. It has only regulated the amount of time a driver can safely drive. By forcing companies to release drivers at the end of the driving window and not allowing them to continue on-duty work will hurt any company's competitiveness. Plus, many ready mixed concrete companies use a driver to help with additional duties at the plant. By limiting their on-duty time, FMCSA has overstepped its boundaries and responsibilities.

2. Possibly reducing driving time from 11 to 10 hours.

Safety-related incidents for truck traffic has been declining since the rule to allow 11 hours of driving time per day was adopted. J.J. Kennedy and the NRMCA (National Ready Mixed Concrete Association) see no justifiable reason to reduce that number. A reduction in driving time would only cause more trucks to be on the road to deliver the same volume of concrete.

3. Mandating a break of 30 minutes every seven hours.

Ready mixed concrete drivers spend less than 50 percent of their on-duty time actually driving. The other 50 percent is spent at the plant waiting to be dispatched, at the jobsite waiting to unload, unloading the concrete, and performing other duties. Companies need to have the flexibility to give breaks as the schedules dictate throughout the day. For example, a concrete delivery often takes more than two and a half hours to complete. Concrete is a perish-

able product, and once a delivery is started it must be completed or the concrete may harden in the truck causing thousands of dollars worth of damage and potentially violating a delivery contract. Every day is different in the construction field, thus companies need the flexibility to deliver concrete when the customer needs it. Often customers order concrete on an as soon as possible basis.

4. Limiting restarts of the 60/70 hour clock to once in seven days. Most ready mixed concrete truck drivers use the "Construction Materials Exemption" of 24 hours to restart their weekly clocks. A rainy day will often stop deliveries for an entire day more than once a week. Many ready mixed concrete drivers use this 24-hour off-duty period to reset their weekly clock more than once in a seven or eight day period allowing construction schedules to continue when the weather improves. The proposed changes would eliminate this much needed and used practice. Drivers should have the flexibility to restart their weekly clock as they see fit instead of once per week. Construction schedules fluctuate and companies need the ability to stay compliant with the regulations and still service their customers.

5. Including at least two periods between midnight and 6 a.m.

Many ready mixed concrete products work exclusively at night during the hot summer months. The reduced nighttime traffic congestion and cooler temperatures are more conducive to concrete placement. By mandating a driver's off-duty time to include at least two consecutive periods of midnight to 6 a.m. reduces the number of hours available to meet construction and delivery schedules to an unacceptable level. Not every work day takes place during daylight hours, making this proposed change overly restrictive.

6. Limiting on-duty time to 13 hours in a driving window.

NRMCA sees no justification to limit on-duty time. FMCSA should restrict its regulations to "driving time" as I previously mentioned. During the 16-hour-window-days, this would require a mandatory minimum of three hours of nonproductive, nonpaid time. This provision makes no sense for the short-haul driving industry like ready mixed concrete.

Thank you for the opportunity to comment on how FMCSA's proposed Hours of Service regulations will affect J.J. Kennedy and the ready mixed concrete industry.

[The statement of Mr. Rader follows on page 35.]

Chairman COFFMAN. Thank you, Mr. Rader, for your testimony.

I would like to introduce our final witness for the hearing, Mr. J.D. Morrisette, president of Interstate Van Lines.

Mr. Morrisette has more than 25 years of experience in the transportation industry, working his way up the ranks at Interstate, including Vice President of Domestic Services, Vice President of Van Lines, and Manager of Van Lines Operations. The Subcommittee appreciates you taking the time to speak with us today.

Mr. Morrisette.

STATEMENT OF J.D. MORRISSETTE

Mr. MORRISSETTE. Good morning, Chairman Coffman and distinguished members of the Subcommittee. I am John Morrisette, president of Interstate Van Lines, a third-generation family business located in Springfield, Virginia. Thank you for the oppor-

tunity, on behalf of the 3,000 members of the American Moving and Storage Association, to share our views on the proposed Hours of Service rules.

Our industry is comprised primarily of small businesses that have been hard hit by the depressed economy and housing market collapse. Household goods movers are unique and the proposed Hours of Services changes will have a devastating impact on our ability to service our customers.

The household goods industry differs from the general trucking industry, not only in the type of cargo we carry but also in the type of service we provide. We spend more time on residential streets than at loading docks on established freight lanes. We are an industry that prides itself on customer service, particularly our ability to take care of the customers' often changing needs.

Our drivers typically spend a large part of their available on-duty time packing, loading, unloading, rather than driving. In addition to on-duty driving hours, our drivers enter private residences; sort, wrap, and pack shipments of personal items; load and unload their vehicles, which is a skill set that is unique to our industry; reassemble and sometimes even arrange the customer's furniture; move personal possessions and memories with the utmost care in the customer's presence; inventory each customer's items while at residence; and complete the contract (bill of lading) directly with our customer.

Our drivers must satisfy the frequent changing schedules of our customers. The proposed Hours of Service changes are complicated for drivers and difficult for customers to appreciate how they can affect the timing of their move. Customers' plans change. They add items, they decide to move into a unit on a higher floor, their mortgage closing gets postponed, the landlord delays the move-in date, their flight was canceled, and so on. All of these issues can force last minute pick-up and delivery changes. Also, our vehicles often transport several households in one trip, and any schedule change for one shipment affects all the others.

The proposed hours of service changes will severely limit our flexibility to meet customers' scheduling needs. Moves that are delayed and run over the duty-time day will require additional trucks and drivers to finish the move, at substantial additional cost. Fewer hours to service individual shipments will mean fewer loads and reduce revenue for drivers.

The Hours of Service rules will require multiple days to be added to complete moves at additional cost. Every business will need to increase its staffing and fleet size to compensate for the loss of hours in order to maintain service levels and customers' expectations. The capital required to add drivers and trucks would be difficult for many businesses and likely prohibitive for small businesses. Small businesses that cannot afford necessary trucks and drivers may be driven out of the industry.

The health and well-being of our industry's drivers are of the utmost importance to us. Our industry fully supports the efforts of FMCSA to promote safety and protect driver health. However, we submit, in recognition of the unique aspects of the customer-service model of our industry, the proposed Hours of Services changes

should not be applied to the interstate household goods industry and the current rules should continue to apply.

Thank you for the opportunity to testify. I look forward to answering any questions that you may have.

[The statement of Mr. Morrisette follows on page 40.]

Chairman COFFMAN. Thank you, Mr. Morrisette.

My first question, and I am going to ask the whole panel, and let us start with Mr. James and then work our way down. What provision or provisions in the proposed rule do you believe would be most difficult for your business to comply with? Why don't we just say which is the toughest one out of all the provisions that you think would affect your business in terms of compliance?

Mr. JAMES. Thank you. I would say that the production in hours from 11 to 10 would probably impact us the greatest. Obviously, in my statement I mention that every hour is critical in the commodities that we trade. Depending on what the market is doing, we are left with, you know, what market conditions dictate as far as deliveries go. And by reducing that by even one hour would be critical to our scheduling.

Chairman COFFMAN. Mr. Burg.

Mr. BURG. Mr. Chairman, they are all critically important. I would lean more towards my operation and the 34-hour restart provisions of requiring the two rest breaks between midnight and 6 a.m. It could dramatically impact how we are getting to our customers in timely deliveries. Let us say we load over the weekend and we need to be onsite at, say, noon. But if we could not leave our place until 6 a.m., we might not get there until after the receiver's hours that day or possibly even the next day. Our restraints are just as equally compounded by our shippers' and receivers' schedules as they are ours. Receivers and small businesses all over the country that receive the products that we haul, they have set hours of their operations and they cannot adjust their businesses to receive our goods without impacting their costs.

Chairman COFFMAN. Mr. Rader.

Mr. RADER. I agree there are a few of them that would be difficult to work with, but I think for our industry the 30-minute break every seven hours would be very cumbersome in order to try to juggle drivers' schedules and delivery schedules and that sort of thing.

Chairman COFFMAN. Mr. Morrisette.

Mr. MORRISSETTE. We are also of the opinion the 34-hour reset rule would not give us the ability to service our customers without increasing fleet size, and that the two consecutive midnight to 6 a.m. off duty will reduce our ability to properly service the customers.

Chairman COFFMAN. Thank you.

Mr. James, specific to you, in what ways do you believe the FMCSA would take into account the differences between short-haul truckers and their long-haul counterparts?

Mr. JAMES. Thank you, Chairman.

Specific to our industry, our drivers are in and out of the truck continuously throughout the day. We are not driving long, monotonous stretches of highway where fatigue really does become an issue. They may drive for an hour, get out of the truck for an hour,

45 minutes, as they are dropping products. There is plenty of wait time when they are sitting at a terminal, and so consequently the physical drive time might be half of their actual on-duty time. So I really believe that that would impact us.

Chairman COFFMAN. And Mr. Burg, given the limited pool of qualified drivers how will your company be able to meet transportation demands safely should the proposed rule go into effect?

Mr. BURG. Ideally, we would have to change the driver lifestyle significantly and that would increase the amount of home time. The issue that I have with my company is not getting qualified drivers to perform the task; it is qualified drivers that will sign up for the lifestyle of trucking. So that would need to change so I could go outside of the typical trucking ideal candidate and move to more acceptable home-every-night operations. So that would dramatically increase our costs to do so because we would have to shape runs. We would have to have increased possibly trailer pools. We would have regional locations and trailers would be dropped and interchanged, possibly with other carriers. You know, anything can be done with the right financial incentives, but I think that is the challenge that we have with this regulation. It does not take into account the full value of the proposed rules and it does not increase the safety element like the rules are supposed to.

Chairman COFFMAN. Thank you, Mr. Burg.

Mr. Rader, you stated that the current HOS regulations are not perfect, the proposed rule notwithstanding. How do you believe the current regulations could be improved?

Mr. RADER. Well, the ability to—lumping us in with a long-haul trucking fleet as we have all discussed, the short-haul truckers, it is a different animal. It is a different type of vehicle. The drivers are home every day. Fatigue is really not an issue. I would say that the—I am sorry. I lost my train of thought there. Could you ask the question again one more time?

Chairman COFFMAN. Sure. We talked about current regulations, current HOS regulations. If you were going to come up with a proposal to better reform current regulations without the new regulations, what would that reform be?

Mr. RADER. I would say leave things as they are. To make the changes, they are not necessary at this point.

Chairman COFFMAN. Great. Thank you very much, Mr. Rader.

Mr. Morrisette, since your industry does not generally deliver to and from the same addresses, would the proposed rules make it more difficult for movers to operate?

Mr. MORRISSETTE. Significantly. You know, our drivers do not spend as much on-duty driving time as other drivers because they are in the house supervising an entire crew that is in there. So the household industry is uniquely different in that respect. And so in some ways we do not feel that the Hours of Service as proposed really should apply to the household goods industry.

Chairman COFFMAN. Thank you, Mr. Morrisette.

Mr. Altmire, ranking member.

Mr. ALTMIRE. Mr. Rader, you spoke in your testimony about the shift from the current rules and the proposal that would then prohibit drivers from performing non-driving work beyond the 14-hour driving window. And I wonder if you could expand a little bit on

how this would affect a business like yours that usually requires drivers to perform extra duties, such as loading and unloading after reaching their final destination.

Mr. RADER. Yes, the drivers tend to do different, a lot of other things around the plant. There are things that need to be cleaned up. We have some drivers that wear different hats. They will haul—we have a fuel business in addition to our ready mix, so we might have a guy go pump some fuel, filling our trucks, block truck drivers who pick up some extra deliveries, something. We try to keep the drivers productive and keep the business moving.

Mr. ALTMIRE. Thank you. I wanted to ask the full panel a question. We will start with Mr. James and then work to your right.

Due to the reduction in allowed driving time under the proposed rule, companies are going to have to put more trucks on the road to meet demand as we have discussed. And we, in this Committee, and certainly you understand, that access to capital is still difficult for small firms to obtain across the country. So I was wondering if you have a concern that your company might not have the ability to purchase more trucks or hire more drivers to remain competitive under these rules.

Mr. JAMES. Yes. Obviously, credit is extremely difficult to obtain in today's marketplace. I am not sure that the issue of actually buying more trucks is what we are talking about here or mainly having to hire additional drivers to fill the trucks. I guess that may be what you are referring to. We do a pretty good job of trying to maximize the rolling assets that we currently have. By bringing on additional trucks to move the exact same amount of product does not seem very efficient in my world. Just because we add another truck does not mean we are necessarily going to have more business. So I think I would defer more to trying to maximize and be as efficient with the staff and the equipment that we do have in order to run our business as best we can.

Mr. ALTMIRE. Mr. Burg.

Mr. BURG. Prior to the recession, and I want to speak to the local owner-operator, 85 percent of the carriers that operate five trucks or less. They could walk into a dealership, get 95 percent financing, get a seven-year term at six percent interest to finance that capital. That five percent down is now 30 percent down. That seven-year term is now 48 months. The six percent interest is now eight or nine percent interest. And that is the same qualified individual. And those are real life scenarios that are going on now.

Currently, I find myself in a situation where we are a financially viable company and we are still having challenges. Now, granted, that is overlapping how we got into the recession, financial issues, and the like. But for the next three to five years I would expect that that is going to continue, that there will be larger amounts of capital requirements because banks will have to hold that back and therefore, it will feed downstream to the small operators. So I see that being a big challenge for us. And I think available capital is going to be equal to finding the drivers that are willing to do the jobs that we need done.

Mr. ALTMIRE. Thank you. Mr. Rader.

Mr. RADER. I would agree that credit is very tight right now. It is difficult as far as, to Mr. James's point about buying more

trucks. In our industry with the downturn, we have had to park some vehicles and there are probably some trucks out there that could be put back on the road at minimal cost but the issue does come with putting qualified drivers into the seats to make that happen.

Mr. ALTMIRE. Mr. Morrisette.

Mr. MORRISSETTE. The household industry is somewhat unique and utilizes subcontractors. So we are small businesses that employ small businesses. The economic situation has probably hurt them worse than the companies themselves and their ability to get financing. And then having the downpayment on the trucks has been very difficult. So they are into an aging fleet. So we definitely see the challenges from an economic standpoint, for both companies and our individual subcontractors, to get equipment.

Mr. ALTMIRE. Thank you. Thank you, Mr. Chairman.

Chairman COFFMAN. Thank you, Mr. Altmire.

Mr. West.

Mr. WEST. Thank you, Mr. Chairman. Happy Flag Day and Happy Army Birthday to each and every one of you.

First question is I think starting at the beginning. Obviously, it seems that the FMCSA did not do any type of consultation with any of you that are out there in industry. So what do you think drove this unilateral decision that they made? And that is a question for all the panel.

Mr. JAMES. Representative West, that is a good question. Sometimes it seems that people look at rules and regulations and see how they can tweak them in order to attempt to make things safer without having all the facts. Sometimes numbers can be put in a position to justify their own agenda and I think the facts that have been presented do not necessarily tell the entire truth.

Mr. BURG. Representative West, with all due respect to the FMCSA who I hold in the highest esteem, Anne Ferro is a great person, I cannot see a common rationale that would fit into what FMCSA's historic message has been to, and that is to improve safety. Excuse me. With all due respect to the panel, outside the beltway we call this politics because that is what it seems to be. There seems to be other motives for why these rules would be restrictive to the small businesses and trucking companies that would be affected by these rules. That would be my personal conclusion.

Mr. WEST. What then would you think? To you what would the motive be then?

Mr. BURG. Who would benefit from having a more restrictive workforce? You could say that there would be more trucks on the road, therefore, there could be more manufacturing needed to have them. You could have an increase in people, so therefore driver or employment base would have to increase to accomplish that. You could look through, and I have done that personally, to try to understand what the reasons are.

You know, trucking is the most overregulated, yet under enforced industry that I am aware of. Their current rules suggest that companies that operate within those rules have less crash statistics. So I suggest that the administration focus more on improving the current rules or enforcement of the rules than to modify out from those.

Mr. WEST. So political gamesmanship.

Mr. BURG. Yes, sir.

Mr. RADER. I would agree with their points. The issues of safety is what this all—I think is what it is based on. The statistics are showing the number of incidents are declining, not increasing. So, you know, I do not understand why they need to make the change either.

Mr. MORRISSETTE. We agree with Mr. Burg that there are plenty of regulations that are currently not being enforced, and there is lack of adequate enforcement of other regulations that goes on out there. I think in general the trucking industry has made great strides in safety as the data will support, and especially in the household goods industry. I think that we have a phenomenal safety rating. You know, we concentrate on that, we focus on that, and we focus on customer service. So we do not understand the reasons for the additional regulatory.

Mr. WEST. And follow up. Mr. Morrisette, you know, having spent 22 years in the Army, your industry was very integral in my moving back and forth all over the country. So I would like to ask, you know, when you look at this new rule, how would that affect, you know, such a thing as military PCS moving?

Mr. MORRISSETTE. It is interesting because June is our peak season.

Mr. WEST. Absolutely.

Mr. MORRISSETTE. Movement of personal property follows school calendars, and so there is an excessive demand for a limited supply especially during the summer months. Additional rules that limit our ability to service the customers, and we are challenged currently to handle the volume load of the DOD. We are primarily a DOD transportation provider and very proud to do that. So that only presents additional challenges for us that we have.

Mr. WEST. Thank you, gentlemen. I yield back.

Chairman COFFMAN. Thank you.

Mr. Tipton.

Mr. TIPTON. Thank you, Mr. Chairman, and thank you panel for joining us here today.

I would like to go back a little bit, Mr. Morrisette, and I think Mr. James, as well. You talked about if these rules go into effect, the possibility of increasing your fleet size. This is going to be a cost that is going to have to be passed on to the consumer, is it not?

Mr. MORRISSETTE. Yes, absolutely. I just purchased a truck this past year and it was \$140,000 for a 2011 Kenworth. Obviously, I have to pay for that and just by buying another truck does not necessarily mean that I am going to have additional business. I obviously try to have the safest trucks on the road and so we continually upgrade our fleet as time and equipment are needed.

Mr. TIPTON. And Mr. James, you know, this just seems to me to reek of taxation by regulation.

Mr. JAMES. I would agree with that.

Mr. TIPTON. You know, we are consistently seeing new regulations come into play. The consumer ultimately now is carrying the burden of this, and these are at times when we have people that are just struggling to be able to pay the mortgage, let alone just

respond to bureaucratic mandates that are coming down. Tell me a little bit about the truck safety that we are seeing. Have we seen an increase in accidents?

Mr. JAMES. No, sir. We have not since the last regulations were put into place in 2003. I think through several of the other testimonies it was mentioned that driver fatalities and accidents have actually decreased over time.

Mr. TIPTON. So we have got a safe industry and we are trying to regulate it more?

Mr. JAMES. That sounds pretty accurate to me.

Mr. TIPTON. That sounds pretty accurate. Tell me, does—Mr. James, in your testimony you stated that it is not uncommon for drivers to experience unexpected delays at petroleum terminal facilities. Does that count towards their time—driving time?

Mr. JAMES. Absolutely it does. Time sitting—

Mr. TIPTON. Does that make sense to you?

Mr. JAMES. As far as sitting in the cab?

Mr. TIPTON. Yeah, in terms of we are going to go ahead and give a break when they are already sitting there waiting at the terminal.

Mr. JAMES. That is correct. And that is actually in my fourth point.

Mr. TIPTON. Right.

Mr. JAMES. I suggested that for petroleum transporters we be allowed to count up to three hours additional waiting time as off-duty time that would allow our drivers to count the time that they are sitting and basically just resting, if you will, to count as off-duty so that we can maximize those deliveries so that we do not have to put on unneeded equipment and/or people unnecessarily.

Mr. TIPTON. Absolutely.

Gentlemen, this might be for the whole panel. You know, we have heard a lot of regulations coming through, particularly in this Congress, and we are trying to do some good oversight. Public opinion comments are always taken before regulations are coming out. Do you hear your voice being heard? Are the regulators really listening?

Mr. JAMES. I would say in my case you have given us ample opportunity to express our concerns and we certainly appreciate that. So we thank you.

Mr. TIPTON. Gentlemen?

Mr. BURG. Likewise. Having the opportunity is the first step. How we act or, I am sorry, how this body acts on our requests. I guess if you have an ailment you could ask your surgeon or your health care provider for the best resolve, and I appreciate the offer of being here today to give us the opportunity to say what is really happening, what our true life experiences are because this is over and unnecessary regulation that we feel is upon us.

Mr. TIPTON. Thank you. Mr. Rader.

Mr. RADER. I would agree. With the opportunity here today and we have made requests to our congressman and he has been obliging, and I think we are being heard. I think it is starting to change.

Mr. TIPTON. Great.

Mr. MORRISSETTE. We definitely appreciate the opportunity to speak before the Subcommittee. In addition, FMCSA has given us good access to provide information to them. I think the end result of what we see, as far as regulation, will determine whether they heard us or not.

Mr. TIPTON. Well, gentlemen, I appreciate you taking the time to be here. You know, it just seems to me that you are facing a lot of challenges. Credit is a challenge for you to get out and do it. The services that you provide, that quality is at a premium and you are doing your very best to be able to deliver a quality service at the lowest available price. I applaud your efforts and your willingness to be able to come in because this is part of the role. When we are talking about creating jobs in America and keeping people employed in America right now, this is absolutely fundamental, and I appreciate your insights. Thank you.

Chairman COFFMAN. Mr. Hanna.

Mr. HANNA. No, sir. Thank you.

Chairman COFFMAN. Very well. I would like to thank all of our witnesses once again for testifying before our Subcommittee. You have given our members a better perspective on how the proposed rule on Hours of Service for trucks has the potential to damage a significant number of American small businesses. It is disturbing to me that under the guise of public safety, the Federal Motor Carrier Safety Administration has used outdated data to support their Hours of Service proposal, discounting the fact that we are currently experiencing the safest record on truck-related fatalities and injuries in recorded history. Regulating for the sake of regulating will create unintended economic consequences, especially in the case of Hours of Service. I encourage FMCSA to take into consideration the implications of their proposed rule before solidifying their position in the coming months.

I ask unanimous consent that members have five legislative days to submit statements and support materials for the record. Without objection, so ordered.

This hearing is now adjourned. Thank you again for coming and testifying.

[Whereupon, at 11:02 a.m., the Subcommittee hearing was adjourned.]



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Written Testimony of
Paul James
President, Rex Oil Co.

Submitted to the
House Small Business Committee
Subcommittee on Oversight, Investigations, and Regulations

June 14, 2011

Good morning, Chairman Coffman, Ranking Member Altmire and members of the committee. Thank you for the opportunity to testify before you today on FMCSA's proposed changes to the Hours of Service regulations.

My name is Paul James. I am president of Rex Oil Company in Denver. Rex Oil was founded in 1946 as one of the first Conoco jobberships in Colorado. In 2001 it merged with James Oil Company to become one of the largest and most diversified petroleum distribution businesses in Colorado. We employ more than 60 people including more than 20 drivers with a hazmat endorsement.

I am one of approximately 8,000 independent small business petroleum marketers that are members of the Petroleum Marketers Association of America (PMAA). A majority of PMAA's members are private motor carriers employing CDL drivers with HAZMAT endorsements to transport gasoline, diesel fuel, jet fuel, kerosene and heating oil to both wholesale and retail customers in DOT specification cargo tank vehicles and transport vehicles. These drivers engage in short-haul local delivery service from petroleum terminals to intermediate storage facilities and/or end users, and most stay within a 100-mile air radius or closer to home base to which they return at the end of each daily shift.

I understand that FMCSA is proposing these changes as a result of a lawsuit filed by truck safety advocates who believe the current regulations do not adequately address driver fatigue issues. However, petroleum marketers have concerns about the proposed changes and we appreciate the opportunity to share my concerns with you.

PMAA Opposes a Reduction of the Daily Maximum Driving Hours from 11 to 10.

PMAA opposes any reduction in the maximum daily drive time. A one hour reduction as proposed would have negative impacts on drivers and small business petroleum transporters. First, the reduction would hurt drivers. Short haul petroleum drivers are largely paid at an hourly rate. Reducing their maximum daily drive time would also reduce their paychecks. Thus the proposed reduction unnecessarily penalizes drivers and would reduce their overall standard of living.

Second, the reduction in maximum daily driving hours would drive costs up for small business petroleum transporters. With fewer hours to drive each day many companies would be forced to hire additional drivers or delay deliveries to the following day. In the petroleum marketing industry, product prices change daily. Often, it is advantageous from a price point perspective to purchase, pick up and deliver petroleum products on the same day. In addition, it is not uncommon for drivers to experience unexpected delays at petroleum terminal facilities. As a result, drivers often need every hour available to them under the current HOS regulations to complete their daily runs. Delaying product delivery by one day due to fewer available driving hours could increase small business operating costs significantly as it would likely force them to hire new drivers. Hiring additional drivers to pick up and deliver the same amount of product means prices for those commodities will also rise. Moreover, given the chronic shortage of experienced drivers, small business petroleum transporters who already operate on very small margins will be forced to hire less experienced drivers at lower hourly rates. The daily reduction in driving hours would thus decrease overall safety by putting less experienced drivers on the road.

PMAA Opposes Changes to the 34- Hour Restart Period.

PMAA opposes new restrictions on the 34-hour restart provision. In the NPRM, the FMCSA proposes imposing limits on the 34-hour restart period required at the end of a driver's work week before a return to duty is allowed. Specifically, the FMCSA is proposing the 34-hour restart provision include two nightly periods between 12:00 AM and 6:00 AM. This change would be extremely detrimental to small business petroleum transporters, particularly those supplying residential heating oil. Often during the winter heating season, drivers are required to respond to emergency calls after their shift is over to re-start residential furnaces and deliver additional product to customers who have run out in the middle of the night. These deliveries are essential to prevent pipes from freezing and to protect people - particularly the elderly - from death due to exposure. The average emergency call takes two hours from portal to portal and

generally fits within the driver's maximum on duty time and maximum daily driving time. However, the required midnight to 6:00 AM periods within the 34-hour restart would make such deliveries nearly impossible without a significant increase in product prices to support the hiring of the new drivers that would be required to cover emergency calls. The cost for residential heating oil and propane is already prohibitively high for the poor, working poor and elderly customers living on fixed incomes. These customers have a disproportionately high rate of emergency calls since they cannot afford to keep the fuel tanks that power their furnaces full. Again, this change would impose significant costs on small business petroleum transporters or all kinds who would be forced to hire additional drivers to maintain current delivery schedules.

PMAA Opposes the Proposed 30 Minute Driver Rest Break Proposal.

PMAA opposes the 30 minute break time proposal. Requiring a 30-minute driver break within the first seven hours of driving time does not result in any appreciable reduction of fatigue among short haul petroleum drivers. Unlike long haul drivers, short haul petroleum drivers are not driving lengthy uninterrupted, monotonous stretches of limited access highways for days or weeks at a time. Instead, these drivers are making short local runs between gas stations, farms, homes and commercial fleet operations to deliver product in the communities where they live. The drivers are stepping in and out of their trucks during loading and unloading activities followed by a sporadic period of non-driving activity and inactivity. Drivers are waiting for fuel to drop into storage tanks, waiting in line at terminal facilities – sometimes for several hours – to pick up product, and filling out delivery tickets and/or bills of lading. All of these tasks are often punctuated by stretches of time when the driver is idle and at rest. These varied activities are stimulating rather than monotonous and sedative, involve physical activity and higher brain function than would occur by long stretches of driving time. Moreover, small business petroleum transporters encourage drivers to take rest breaks when needed. Short haul drivers often stop along their delivery route for coffee breaks and lunch. These drivers have more opportunity to take rest breaks because they operate largely on local roads rather than confined to limited access interstate highways for long periods of time. In addition, there is no disincentive for short haul drivers to take rest breaks since they are paid by the hour and not the mile. Consequently, PMAA does not believe that the proposed rest breaks are appropriate for short haul drivers since fatigue is not a significant issue.

PMAA Supports Changes to HOS to Count Time Spent in a Parked CMV as Off-duty Time

PMAA requests the FMCSA adopt a provision that would allow time spent by a driver in a parked Commercial Motor Vehicle (CMV) to count as off-duty time. PMAA makes this request because private short haul drivers often spend significant periods of time parked in line at terminal facilities as they wait to load product. When fuel is in high demand or when branded products are on allocation, driver wait time may last up to three hours. During these extended wait times, the CMV is parked and the driver remains in the cab. The FMCSA requires drivers to count no driving wait time as on duty time. PMAA requests that the FMCSA allow up to three hours waiting in a parked CMV to be counted as off-duty time when a driver stays within a 100 air mile radius of their home base and return each day at the end of their shift. This would provide much needed flexibility to local short-haul deliveries of petroleum products that face increasing waiting time at terminals for branded supplies of compliant fuel for the geographic area in which they work. The three-hour allowance would be similar to what the FMCSA already allows under the oil field exemption. PMAA believes that this change can be made without contributing to driver fatigue or reducing overall safety.

PMAA is Concerned that the FMCSA Fatigue Data is Flawed

PMAA believes that the estimate of the percentage of fatigue-related crashes in the NPRM Regulatory Impact Analysis (RIA) is incorrectly inflated in two ways: First, the FMCSA overstated the percentage of single-vehicle truck crashes (which are more likely to be fatigue-related) compared to multi-vehicle crashes. More specifically, FMCSA approximately doubled the weight given to single-vehicle truck crashes in its large truck crash causation study. Second, the FMCSA appears to be treating any crash in which fatigue is listed as an "associated factor" as a fatigue-caused crash. That approach is not just contrary to prior research methods, it is also at odds with the agency's own report to Congress in March

2006 in which it stated that for associated factors: "No judgment is made as to whether any factor is related to the particular crash, just whether it was present." Applying the data in this way incorrectly doubles the FMCSA's analysis of the number of truck-involved crashes that are likely caused by fatigue.

In past rulemakings, the agency has found fatigue to be a causal factor in just seven percent of crashes. In fact, in just 2008, the FMCSA noted that while the best data on fatigue as a factor in fatal truck accidents showed only a 2.2 percent relationship, it remained confident that its seven percent figure is accurate. Now, the FMCSA is claiming without adequate data to back up their assertion, that it recognizes a 13 percent fatigue factor. However, data collected by the trucking industry and included in the docket demonstrates that since the current HOS rules were introduced in 2003, the industry has achieved a continually improving safety record, reaching the lowest fatality and injury rate levels in recorded history. PMAA is concerned that the proposed HOS changes are based on incorrect analysis of fatalities attributed to driver fatigue. Given the significant improvements in fatalities since 2003, and the flawed data analysis in the RIA, PMAA believes there is no need to address driver fatigue for short haul private drivers at this time.

CONCLUSION:

It is essential that the FMCSA take into consideration the differences between short haul and long haul drivers. As the FMCSA acknowledged in the preamble to the NPRM, the trucking industry is diverse and different sectors have different operational characteristics. Private petroleum carriers are not trucking firms but distributors and retailers that move their own goods between bulk storage facilities and retail outlets. Private short-haul petroleum transporters operate on a regular basis over local routes determined by the location of their bulk storage facilities and end-user customers in the local community. These drivers return to home base every night at the end of their shift. Fatigue is thus a less significant factor among short haul drivers as opposed to long haul drivers with sleeper births that travel long distances for days on end along the nation's interstate highways. PMAA believes that the proposed changes in the NPRM should not apply to short haul drivers.

PMAA appreciates the opportunity to submit these written comments and is happy to provide further information.

Statement of:

**Mr. James Burg
President
James Burg Trucking Company
Warren, MI**

On behalf of:

**American Trucking Associations
950 N. Glebe Road, Suite 210
Arlington, VA 22203-4181**

Before the:

**HOUSE OF REPRESENTATIVES
COMMITTEE ON SMALL BUSINESS
SUBCOMMITTEE ON INVESTIGATIONS,
OVERSIGHT AND REGULATIONS**

***Do Not Enter: How Proposed Hours of Service Trucking
Rules are a Dead End for Small Businesses***

Tuesday, June 14, 2011

Introduction



Statement of The American Trucking Associations on Hours of Service

Chairman Coffman, Ranking Member Altmire, and members of the Subcommittee, my name is James Burg and I am the President of James Burg Trucking Company, a small business located in Warren, Michigan. I started James Burg Trucking Company in 1984 at the age of 19 with one truck. We now operate 75 trucks and employ 80 people. I personally hold a commercial driver's license and have driven over 1.3 million miles.

I am testifying today on behalf of the American Trucking Associations (ATA). ATA is the national trade association for the trucking industry and is a federation of affiliated State trucking associations, conferences, and organizations that together have more than 37,000 motor carrier members representing every type and class of motor carrier in the country. Thank you for the opportunity to testify.

Mr. Chairman, today I will speak about the Federal Motor Carrier Safety Administration's (FMCSA) proposed changes to the hours of service (HOS) regulations. These changes, if finalized, would have a profoundly negative impact on small businesses, would restrict productivity, and would result in greater congestion and increased emissions. These impacts are significant since there are some 500,000 trucking companies in the United States and 99 percent of these companies are small businesses.

These proposed changes come at a time when the pool of qualified drivers has shrunk, the cost of purchasing equipment and maintaining new equipment has risen, and general operating costs have been climbing. If these proposed hours of service rules are finalized, I will need to add additional trucks and drivers - and their corresponding expenses - simply to counter the loss in productivity. By my estimates, we would need to increase our retained earnings by between 20 and 25% just to maintain our current level of financial stability.

Not only would these changes profoundly impact small trucking companies but other small businesses as well. The resulting loss in productivity would likely be felt by small business shippers, manufacturers, and retailers in the form of increased costs. In addition, the proposed rules would complicate the scheduling of pick-ups and deliveries and inexplicably complicate logistics networks and supply chains in ways that would further hamper the growth of small businesses.

I strongly support ATA's position with respect to the proposed rules. My company and all of ATA's member companies believe FMCSA should abandon its proposed rule and retain the current HOS regulations. This belief is founded upon the following primary tenets:

- The safety record of the trucking industry has improved dramatically while operating under the current HOS rules. Regulatory compliance has also substantially improved. Hence, these proposed changes are unjustified.
- The changes proposed by FMCSA would cause enormous productivity losses in the trucking industry. The Agency's previously estimated that changes like the ones proposed would cost society over \$2 billion annually.



Statement of The American Trucking Associations on Hours of Service

- These productivity losses would disproportionately impact small businesses since 99% of the trucking industry is comprised of them.¹
- The changes proposed by FMCSA would have virtually no benefit in terms of reducing fatigue-related truck crashes and, in fact, would create other types of truck safety concerns such as promoting aggressive driving and increasing the number of trucks on the road during peak hours of congestion. FMCSA's own cost benefit analysis acknowledges that the safety benefits of the proposed rules would not outweigh the economic costs.
- Only by adding creative, questionable "health-related" benefits, does the proposal pass the cost/benefit test. However, FMCSA's attempt to justify its proposal by including driver health benefits lacks basis. As explained below, the Agency has misinterpreted and misapplied the sleep duration/mortality risk studies it relies upon. Hence, there is simply no scientific support for the health benefits the Agency has claimed would result from its proposal.
- Many other elements of the Agency's cost/benefit analysis are fundamentally flawed. An independent review of this analysis by Edgeworth Economics found that the Agency made numerous crucial errors in its analysis that render its conclusions erroneous.

I. Changes are Unjustified - Positive Safety Impact of the Current Regulations

Truck safety has improved to unprecedented levels since 2003 when the basic framework for the current hours of service regulations was first published. The numbers of truck-related injuries and fatalities have both dropped more than 30% to their lowest levels in recorded history.

For instance, between 2003 and 2009:²

- The number of truck-involved fatalities declined from 5,036 to 3,380 (33%)
- The number of truck occupant fatalities declined from 726 to 503 (31%)
- The number of truck-involved injuries declined from 122,000 to 74,000 (39%)

In the notice of proposed rulemaking on this issue, the FMCSA suggested that these improvements could be attributed to the economic downturn. Presumably, the agency claims that the slow economy has resulted in reduced activity and corresponding exposure to crashes. However, this claim is without merit since in this same period truck mileage did not decline.

Since the number of crashes, injuries, and fatalities dropped as mileage increased, the rate of these events per mile has dropped as well. In other words, safety has improved despite the additional exposure.

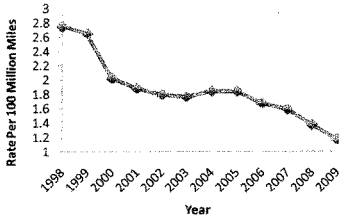
¹ Notice of Proposed Rulemaking *Electronic On-Board Recorders and Hours of Service Supporting Documents*, FMCSA, 76 Federal Register at 5544.

² National Highway Traffic Safety Administration. "Traffic Safety Facts - Large Trucks Factsheets 2004 - 2009."

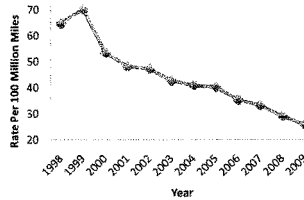


Statement of The American Trucking Associations on Hours of Service

Large Truck Fatality and Injury Rates 1998 - 2009



Large Truck Fatality Rate
Per 100 Million Vehicle Miles Traveled
1998-2008



Large Truck Injury Rate
Per 100 Million Vehicle Miles Traveled
1998-2008

Also, data FMCSA developed in the context of its new safety monitoring and measurement program - *Compliance, Safety, Accountability (CSA)* - confirms that the current rules promote safety. Specifically, a preliminary analysis conducted on behalf of FMCSA by the University of Michigan Transportation Research Institute (UMTRI) demonstrates a very strong correlation between compliance with the current hours of service rules and crash rates. In other words, carriers who carefully comply with the current rules consistently have low crash rates; carriers that deviate from these rules have higher crash rates. Though perhaps not a cause and effect relationship, the correlation is very strong.

Not only has safety improved since the framework of the current rules was first implemented, but the rate of compliance with the regulations has improved measurably as well. For instance, during the period of 2006-2010 the states completed more roadside safety inspections than ever before. Even so, as more enforcement effort was expended to monitor the safety of motor carriers in this period, fewer hours of service violations were identified. According to FMCSA's website, between 2006 and 2010:³

- The number of driving time violations decreased 31%
- The number of on-duty limit violations decreased 29%

All of these elements together lead to the reasonable conclusion that changes to the current HOS rules are unjustified.

II. Objections To The Proposed Reduction in Driving Time

ATA members strongly object to FMCSA's preference to reduce driving time from 11 to 10 hours per duty day. As explained below, and as the agency has repeatedly found in prior rulemakings, such a reduction would be ineffective in reducing fatigue-related crashes, and may actually increase crash risk. This change would also reduce productivity, driver pay, and competition in rural markets. Eliminating use of the 11th

³ Federal Motor Carrier Safety Administration. "Roadside Inspection Out-Of-Service Rates," Analysis and Information Online, <http://a.fmcsa.dot.gov/> (2011).



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hour would be cost-prohibitive, as the agency's data and historical findings have confirmed.

FMCSA's preference for a 10-hour driving time limit is without statistical basis and is inconsistent with past statements and findings by the agency. It is puzzling how FMCSA could completely reverse course on this issue after having repeatedly studied the use of the 11th hour and rendered findings on the resulting costs and benefits of potentially reducing driving time. These findings are well documented in statements the agency made in rulemakings it conducted over the past eight years. Here are some examples:

"The operational and scheduling flexibility of an 11-hour limit, even when it is not utilized fully, is both economically and socially valuable. According to drivers who commented to the docket, the 11-hour limit in the 2003 rule enables them to get home more often, when the 10-hour limit would leave them stranded at roadside, out of hours. It also allows them to get home without pushing quite as hard as they might be tempted to do under a 10-hour limit."⁴

"...as a result of the 2003 rule, the 11th hour serves primarily to reduce the stress of trying to complete a run by the end of the 10th hour. With an extra hour of driving time, drivers are able to relax a bit and perhaps drive less aggressively."⁵

"...eliminating the 11th hour is unlikely to be cost effective under any reasonable set of circumstances."⁶

Moreover, the basis for reducing driving time seems to be grounded in the erroneous assumption that the 11th hour is used extensively by a majority of motor carriers and drivers as a means to maximize productivity. However, in the past the agency concluded that such is not the case and that extensive use of 11th hour is logistically impossible because of vagaries in the operating environment (e.g., waiting for loads, loading and unloading, traffic, etc.).⁷ After extensive review, the agency went on to say that drivers use 11th hour not to maximize driving time, but for operational flexibility.⁸

Though the agency might be tempted to consider simply eliminating the 11th hour because it is not used extensively, it must realize that doing so would not simply impact the trips where it *is* used, but those trips where it *might* be used. Absent the ability to potentially use part of the 11th hour when needed, many runs that are usually completed in 10 hours cannot be routinely attempted. The risk of a violation and the corresponding consequences, which are severe, is simply too great. In short, eliminating the 11th hour would only serve to render certain routes impractical or would pressure drivers to make runs in tighter time constraints.

Finally, a reduction in driving time could ultimately increase crash risk. In effect, since more trucks and drivers would be needed to carry the same amount of freight, more drivers would experience a first hour of driving each day. Carriers consistently report that

⁴ 70 Federal Register at 49981

⁵ Ibid at 50011

⁶ 73 Fed. Reg. 69567

⁷ 73 Federal Register at 69570

⁸ 73 Federal Register at 69570



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this is the hour of a driver's shift when he/she is most crash prone. Ironically, it is also most likely to occur between 6 a.m. and 9 a.m. when there is greater traffic congestion and, according to recently released FMCSA research, drivers are more likely to be drowsy.⁹

III. Objections to the Proposed Restart Restrictions

ATA members also strongly object to the proposed restriction on the restart provision. Today, a driver's weekly allowable on-duty time restarts after 34 consecutive hours off-duty. FMCSA has proposed changing the restart to require a driver to have two consecutive nights off between the hours of midnight and 6 a.m. Depending on when a driver gets off duty, the period to restart the clock would be between 34 and 60 hours.

Such a restriction would have numerous harmful effects on productivity and safety. In addition, it is unnecessary given the agency's prior finding that a period of at least 34 consecutive off-duty hours is sufficient to obtain needed rest and that the provision is not used by the industry to maximize working hours. Finally, as discussed below, it is premature and inappropriate to use the study and findings that FMCSA relies upon to propose these changes.

In past rulemakings, FMCSA has repeatedly supported retention of the 34 hour restart provision. For instance, in 2005 the agency said:

*"In adopting the 34-hour recovery period, FMCSA has taken into account the weekly accumulation of driving and on-duty time allowed during each 7-and 8-day period, the adequacy of the 34-hour recovery, the costs versus benefits of retaining the restart, the overwhelming support of the 34-hour recovery by the transportation industry, including motor carriers and drivers, the long-term effect on driver health, and the overall safety aspects of adopting this provision."*¹⁰

and in 2008 the agency said:

*"This rulemaking rests on a wide-ranging body of data and comprehensive analyses..." "By adopting HOS regulations that include increased daily off-duty time...and sufficient time for two full sleep periods before restarting the 60- or 70-hour clock, the rule ensures CMVs are "operated safely" and drivers' responsibilities "do not impair their ability to operate the vehicles safely..."*¹¹

Now, based on a single, tenuous, DOT-funded study¹² released just weeks before the proposed rule was published, the agency has completely reversed course on its prior conclusions. It is remarkable that FMCSA would completely discount its prior findings based on a study comprised of 13 individuals (not truck drivers) tested on simulators and

⁹ Barr, Lawrence C., C. Y. David Yang, Richard J. Hanowski, and Rebecca Olson, *Assessment of Driver Drowsiness, Distraction, and Performance in a Naturalistic Setting*, (FMCSA-RRR-11-010) Prepared for U.S. Department of Transportation Research and Special Programs Administration, February, 2011.

¹⁰ 70 Federal Register at 50017

¹¹ 73 Federal Register at 69571

¹² Van Dongen, Hans P.A., PhD, Gregory Belenky, MD, *Investigation into Motor Carrier Practices to Achieve Optimal Commercial Motor Vehicle Driver Performance: Phase I*, Prepared for the U.S. Department of Transportation, Federal Motor Carrier Safety Administration (FMCSA-RRR-10-005) December 2010.



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evaluated in an in-residence laboratory. In short, the study is far too limited to use as the basis for major regulatory changes.

In fact, the authors of this study acknowledge that the scenarios posed in the study did not control for real world conditions typically encountered during daytime driving, such as increased traffic density.

Not surprisingly, the authors of this small, laboratory-based study said:

*"Further research is needed to compare the "worst case" and "best case" schedules in terms of real-world driving performance, safety and cost."*¹³

The authors go on to say:

*Although it may be inferred that the results of the present study set a lower limit for levels of impairment to be expected in the CMV driver population, validation of the study findings in a sample of drivers in a real-world field study (such as that currently being sponsored by the FMCSA in conjunction with Transport Canada) is important."*¹⁴

FMCSA is very familiar with such field studies since it is currently conducting one with motorcoach drivers on similar hours of service issues. In fact, FMCSA is using these very same researchers to collect and analyze the data from this field study.

ATA also takes issue with the basic justification for limiting use of the restart. In prior rulemakings, the agency repeatedly pointed to the many benefits of the restart. But now FMCSA contradicts these claims and argues that the restart provision is being abused.

For example, in 2005 the agency said....

*As the Agency pointed out in the preamble to the 2005 rule, use of the 34-hour restart to generate routinely the very long driving and on-duty times critics fear—up to 84 hours on duty in 7 days or 98 hours in 8 days—requires an imaginary world with "nearly perfect logistics for picking up and delivering a load * * * in other words, total elimination of waiting time to load, mechanical and equipment problems, and traffic- and weather related delays."*¹⁵

But the agency has reversed itself and now says:

*"Drivers who are on the road for several weeks at a time could, therefore, work very long hours even if they cannot actually reach the maximum allowed because of delays in pick-ups and deliveries."*¹⁶

As discussed in the Regulatory Impact Analysis section below, the agency erroneously arrived at an assumption of the number of carriers/drivers that are working to the very limits of the rules. The proposal also erroneously suggests that every driver is subject to

¹³ Ibid.

¹⁴ Ibid.

¹⁵ 70 Federal Register at 50022

¹⁶ 75 Federal Register at 82182



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weeklong sleep deprivation, or should be subject to the same restrictions of the few who might be.

Likely Harm of Restart Restrictions

Due to the proposed nighttime rest requirement, the majority of drivers who take a restart will, on any given day, conclude their restart periods and be eligible to drive at the same time - 6 a.m. Naturally, this could trigger a surge in truck traffic that will exacerbate morning rush hour and congestion. Subsequently, travel delays will increase which - while heightening frustration - will undoubtedly reduce productivity. For truck drivers this delay will be especially frustrating since it will exacerbate the impact of the reduction in driving and working hours imposed by the other components of this proposal.

The nighttime rest restriction will also have environmental and safety impacts. Increased congestion during the morning rush hour will lead to greater emissions by all motorists. Further, truck drivers trapped in rest areas for extended periods (up to 54 hours) will - at times - need to idle in order to run passenger compartment and cargo compartment climate control systems. Finally, the increased congestion will lead to greater vehicle interaction which will likely trigger an increase in crashes.

The productivity loss resulting from the proposed 34-hour restart restrictions, coupled with the other proposed changes, would trigger the need for additional drivers. As the

agency aptly pointed out in 2007, this need would result in an additional crashes and congestion.

*Motor carriers that need more drivers to compensate for reduced driving time may not be able to find them, and even if new drivers are located, their inexperience may cause additional crashes and offset gains made in highway safety since 2003.Disruptions in the supply chain caused by truckers' inability immediately to comply with a new HOS rule, to say nothing of an increase in crashes and congestion associated with 106,000 inexperienced drivers hired to satisfy a new HOS rule, would be contrary to the public interest, especially when the economy is already fragile...*¹⁷

Complexity of Proposed Restart

In addition to being unnecessary and unjustified, the proposed restart restrictions are complex and - to a degree - unenforceable. In effect, drivers and carrier safety managers will need to determine that at least 168 hours have passed since the beginning of the driver's last restart period and that the restart period included two nighttime rest periods. Similarly, law enforcement officers will need to verify when the driver claims to have taken the restart and that all of the conditions have been met.

¹⁷ 72 Federal Register at 71268



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IV. ATA's Objections to the Proposed Rest Break Requirements

ATA believes it is inappropriate and unnecessary to require drivers to take rest breaks of a prescribed duration at specific times as proposed by FMCSA. As we will discuss below, drivers frequently take such breaks under the current rules, but simply cannot log them as off-duty time. Also, taking rest breaks is impractical for drivers of certain types of freight.

Moreover, ATA is puzzled by FMCSA's attempt to mandate rest breaks for commercial motor vehicle drivers. Intuitively, the agency (and government in general) should act only when there is evidence of a problem. However, in this instance there is little or no evidence that drivers are not taking breaks during the course of the workday. In fact, the agency has pointed out (in the subject NPRM) that only a relatively small percentage of drivers operate each day without taking breaks.¹⁸ If that is the case, regulating that breaks *must* be taken and *when* they must be taken only serves to further restrict drivers and reduce flexibility/productivity.

It appears FMCSA has simply proposing rest breaks as a means to shorten the maximum workday by an hour for reasons related to the agency's justification of the proposed rules in the cost-benefit analysis.

V. Objections to the Proposed On-Duty Time Restrictions

For the first time FMCSA is proposing not only to prohibit drivers from driving when they reach their duty time limits, but that they stop working at that time as well. As FMCSA's role is to protect highway safety, ATA believes it is inappropriate to prohibit drivers from completing other duties at the end of their shifts since highway safety will not be threatened. In other words, since drivers won't be driving while potentially tired, there is no need to restrict their activities.

The reduction in flexibility presented by this component of the proposed rules is troubling for several reasons. First, absent the ability to complete non-driving activities at the end of their shifts (e.g., paperwork), drivers may feel pressured to reach destinations more quickly. This scenario adds to driver stress and may threaten highway safety. Second, some drivers may find themselves stranded at shippers and consignees, but unable to move to a location where they can safely and legally rest. For instance, a driver who is at the end of his 13th hour, has available driving time, and who chooses to utilize the 16 hour provision, may find himself stranded at a loading dock due to loading/unloading delays.

A "hard-stop" at the end of the driving window has other negative implications as well. For instance, the last function every driver completes at the end of his or her shift is the post-trip vehicle inspection. Prohibiting a driver from working at the end of the window will undoubtedly mean that some drivers will feel rushed and, as a result, will do incomplete vehicle inspections. Further, there are instances when working beyond the end of the driving window is simply necessary.

¹⁸ 75 Federal Register 82180



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VI. Flaws in FMCSA's Regulatory Impact Analysis (RIA)

As detailed below, an independent review of FMCSA's Regulatory Impact Analysis found that the agency had substantially underestimated the costs and overstated the benefits of the proposed rule. After correcting for errors, the report concluded that rather than *benefitting* society, FMCSA's proposal will cost society \$320 million dollars annually. In addition, according to an author whose research was used to justify the benefits of the proposal, FMCSA misused his research and the study cannot be used to quantify benefits as the agency has done.

Summary of Problems with the RIA

On February 16, 2011, ATA filed in the HOS docket a review of the RIA prepared by an independent, third party consulting firm, Edgeworth Economics. In short, the report concluded that FMCSA vastly overstated the benefits and underestimated the costs associated with Option 2 in the RIA. Below is a summary of report's main conclusions.¹⁹

1. FMCSA misused data from the 2005 and 2007 Field Surveys by failing to consider that carriers sampled in those surveys, particularly those chosen for compliance reviews due to poor safety/compliance performance, may drive more intensely than other carriers. Also, FMCSA assumed, inappropriately, that drivers who were measured by the surveys to be out of compliance with current HOS rules would fully comply with the new, more restrictive rules.
2. FMCSA abandoned its logistics model (used in previous RIAs) and instead estimated costs using a series of assumptions based only on the agency's "judgment and knowledge of the industry."
3. FMCSA overstated the role of driver fatigue in crashes. The agency relied on the Large Truck Crash Causation Study (LTCCS) finding that 13 percent of crashes studied had driver fatigue listed as an "associated factor." This figure is almost double the 7-percent estimate of fatigue used in the 2007 RIA. Additionally, FMCSA treated the LTCCS's "associated factor" coding as an indication that fatigue was the "cause" of that crash. This treatment contradicts the LTCCS report itself which says that no judgment is made as to whether any associated factor is related to the reason for a particular crash, just that the factor was present.
4. In previous RIAs and in public comments related to those analyses, FMCSA repeatedly asserted that the current rules provide sufficient flexibility for drivers to eliminate any concern about fatigue caused by accumulation of on-duty time (as opposed to "acute" fatigue caused by a long tour on a particular day). FMCSA has now reversed its position and estimated substantial crash-reduction benefits associated with reducing weekly work time.
5. FMCSA calculated the cost of crashes by long-haul drivers using an assumption of 434,000 crashes per year. However, the annual number of crashes by truck drivers has fallen substantially - to 286,000 in 2009.

¹⁹ *Review of FMCSA's Regulatory Impact Analysis for the 2010-2011 Hours of Service Rule*; Edgeworth Economics; February 2011, pp 21-22.



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6. FMCSA erroneously claimed that small reductions in work time will translate into increased sleep and, as a result, improve driver health. This error stems primarily from two flawed assumptions. First, the claim that small reductions in work will result in proportional increases in sleep contradicts the NPRM which states that "the Agency has no basis for estimating the extent to which drivers who have an extra hour a day or hours per week off duty will use that time to exercise and sleep." Second, FMCSA attributes reductions in mortality to very small changes in sleep levels for drivers who already obtain a "normal" amount of sleep (e.g., 6-8 hours). Further, the agency ignores the conclusions of sleep researchers cited in the RIA, who state that "there is no evidence that sleeping habitually between 6 and 8 [hours] per day in an adult is associated with harm and long term health consequences."

Due to these errors, the report finds that the proposed rule would result in a net cost of \$320 million per year.

VII. More Appropriate Ways to Address Driver Health

ATA questions FMCSA's implied claim that it is proposing to revise the hours of service rules out of a desire to improve driver health. To specifically address driver health issues, FMCSA has a panel of medical experts called the Medical Review Board (MRB). The MRB was chartered by Congress to "establish, review, and revise medical standards for operators of commercial motor vehicles that will ensure that the physical condition of operators of commercial motor vehicles is adequate to enable them to operate the vehicles safely."²⁰ In its October 5, 2006 Federal Register notice forming the MRB, FMCSA specifically stated that it would be using this advisory body to fulfill the following duties:

- *Provide FMCSA with ongoing medical expertise to shape decisions about the health and wellness of drivers including physical qualifications, medical advisory criteria and safety research;*
- *Advise FMCSA on the development of uniform driver physical qualification (medical) standards and commercial motor vehicle driver health and wellness.²¹*

To that end, the MRB started meeting in 2006 and made its first recommendation, on Diabetes Mellitus (Endocrine Disease), to the FMCSA Administrator later that year.²² Since then, the MRB has issued recommendations on 13 other conditions: Schedule II Licit Medications, Cardiovascular Disease, Seizure Disorders, Sleep Disorders, Renal Disease, Vision issues, Musculoskeletal Disease, Hearing issues, Psychiatric Disease, Substance Abuse, Stroke, Multiple Sclerosis and Parkinson's Disease, and Traumatic Brain Injury (TBI).²³ However, FMCSA has not acted through rulemaking on any of these recommendations.

²⁰ See Public Law 109-59 § 4116.

²¹ 70 Federal Register at 57643

²² See <http://www.fmcsa.dot.gov/rules-regulations/TOPICS/mep/report/Diabetes-Commentary-prot.pdf>.

²³ See <http://www.fmcsa.dot.gov/rules-regulations/topics/mep/mep-reports.htm> for access to all MRB reports



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Despite Congressional direction and stated agency intent, FMCSA has instead published an NPRM proposing to restrict the hours of service in the name of driver health and wellness. Yet, at no time did FMCSA invite the MRB to weigh the health benefits of restricting the hours of service. Based upon the other driver medical and wellness issues that the MRB has examined and Congress' requirement that its membership be knowledgeable about the motor vehicle industry, this panel represents exactly the body best able to evaluate any scientific evidence the Agency might use to justify a rulemaking.

Since FMCSA has an advisory body that is chartered to examine driver health and qualification issues, ATA recommends that the Agency abandon its roundabout attempt to promote driver health and wellness through an hours of service rule. Instead, FMCSA should act on the MRB's many recommendations to improve the driver medical qualification standards. This route is the surest one to promoting driver health.

Conclusion

FMCSA's proposed changes to the hours of service rules are unnecessary and unjustified. Both safety and compliance have improved under the current regulations which have been time-tested since 2003. In contrast, FMCSA's proposal to replace these rules with an untested set of regulations leaves safety to chance.

In contrast, the productivity losses and other negative impacts of the proposed rule on small businesses are very predictable. Past estimates by DOT placed the net cost to society of similar changes at over \$2 billion annually. These effects would be disproportionately felt by companies just like mine, James Burg Trucking, since 99 percent of the trucking industry's over 700,000 motor carriers are classified as small businesses.

Making these changes is illogical not only because safety has improved under the current rules, but because FMCSA's own cost benefit analysis acknowledges that the safety benefits of the proposed rule do not outweigh the costs. Only by applying creative "driver health" benefits can the agency justify making these changes. However, the agency mischaracterized the findings of the sole study upon which it makes this tenuous claim.

Given these many reasons, the only rational and reasonable course of action is for FMCSA to abandon this proposal, retain the current hours of service regulations, and spend its resources better enforcing the current rules.



**STATEMENT OF
RUSTY RADER**

**CO-OWNER,
J.J. KENNEDY, INC.**

**ON BEHALF OF THE
NATIONAL READY MIXED CONCRETE ASSOCIATION**

BEFORE THE

**COMMITTEE ON SMALL BUSINESS
SUBCOMMITTEE ON INVESTIGATIONS, OVERSIGHT AND REGULATIONS**

ON

HOURS OF SERVICE OF DRIVERS

JUNE 14, 2011

**STATEMENT OF
RUSTY RADER
CO-OWNER,
J.J. KENNEDY, INC.
ON BEHALF OF THE
NATIONAL READY MIXED CONCRETE ASSOCIATION
BEFORE THE
COMMITTEE ON SMALL BUSINESS
SUBCOMMITTEE ON INVESTIGATIONS, OVERSIGHT AND REGULATIONS
ON
HOURS OF SERVICE OF DRIVERS**

June 14, 2011

Chairman Coffman, Ranking Member Altmire and other members of the committee, thank you for this opportunity to share my views on the proposed Hours of Service (HOS) regulations currently being promulgated by the Federal Motor Carrier Safety Administration (FMCSA).

My name is Rusty Rader, I'm a Co-Owner of J.J. Kennedy, Inc., a family owned ready mixed concrete company based out of Fombell, PA. J.J. Kennedy, Inc. was founded in 1905 and currently employs 65 people. We operate six ready mixed concrete plants with thirty-two concrete mixer trucks, and we deliver nearly 100,000 yards of concrete annually.

The current HOS regulations our nation's commercial motor vehicles are operating under are not perfect, however they are manageable and much more flexible for operations, such as the ready mixed concrete industry, than the new HOS rule proposed by FMCSA last December.

As with most small businesses, owning and operating a ready mixed concrete company means that you are responsible for everything whether it's ordering inventory, hiring employees, meeting environmental and labor regulations, dealing with an array of mandates from federal, state and local governments, or in the case of HOS, making sure our drivers are compliant with an already complicated and burdensome safety measure. Adding another layer of regulation only hinders our ability to run a successful small business, especially during these trying economic times.

J.J. Kennedy, Inc., as well as the ready mixed concrete industry, takes issue with a number of the proposed HOS changes. Specifically:

1. "Requiring off-duty time immediately following the end of the driving window":

Never before has FMCSA limited the on-duty time in which a driver is allowed to perform his/her work. It has only regulated the amount of time a driver can safely drive.

By forcing companies to release drivers at the end of the driving window, and not allowing them to continue on-duty work, will hurt any company's competitiveness. Many ready mixed concrete companies use a driver to help with additional duties at the plant such as inventory control and batching of concrete. By limiting their on-duty time to 14 and 16 hour increments, FMCSA has overstepped its boundaries and responsibilities by restricting working time not just driving time. This will force employees to lose pay as the nature of construction dictates a schedule that frequently exceeds the proposed limits.

2. "Possibly reducing driving time from 11 to 10 hours":

Safety related incidents for truck traffic has been declining since the rule to allow 11 hours of driving time per day was adopted. J.J. Kennedy, Inc. and the industry see no justifiable reason to reduce that number. To the contrary, a reduction in driving time would cause more trucks to be on the road to deliver the same volume of concrete; thus producing more traffic congestion and increasing the use of fossil fuels in direct opposition to the current administration's policy to reduce the nation's carbon footprint.

3. "Mandating a break of 30 minutes every 7 hours":

Ready mixed concrete drivers spend less than 50% of their on-duty time actually driving, the other 50% is spent at the plant waiting to be dispatched, at the jobsite waiting for the contractor to receive the concrete, unloading concrete, and performing other administrative duties. Companies need to have the flexibility to give breaks as the schedule dictates throughout the day. For example: a concrete delivery often takes more than 2 ½ hours to complete. Concrete is a perishable product. Once a delivery is started it must be completed or the concrete may harden in the truck causing thousands of dollars worth of damage, and potentially violating a delivery contract. If a driver were to start work at 5 a.m. he/she may be required to take the 30 minute lunch break as early as 9 a.m. due to the length of time required to complete another delivery. Every day is different in the construction field, thus companies need the flexibility to deliver concrete when the customer needs it. The drivers also have a flexible start time where one day they start at 7 a.m. and the next at 12 p.m. Ready mixed concrete deliveries do not happen on a regular 9 a.m. to 5 p.m. schedule, nor do concrete customers always plan deliveries. Often customers order concrete on an "as soon as possible" basis.

4. "Limiting restarts of the 60/70 hour clock to once in 7 days":

Weather plays a huge factor in the placement of concrete. Many companies operate on a very busy summer schedule and use a reduced workforce for the winter months. Most ready mixed concrete truck drivers use the "Construction Materials Exemption" of 24 hours to restart their weekly clocks. A rainy day will often stop deliveries for an entire day more than once a week. Many ready mixed concrete drivers use this 24-hour off-duty period to reset their weekly clock more than once in a 7 or 8 day period allowing construction schedules to continue when the weather improves. The proposed changes would eliminate this much needed practice. Drivers should have the flexibility to restart their weekly clock as they see fit instead of once per week. Construction schedules

fluctuate and companies need the ability to stay compliant with the regulations and still service their customers. The current “Construction Materials Exemption” and how it’s employed by ready mixed concrete truck drivers has not had any adverse effects on safety or compliance.

5. “Including at least two periods between 6am and midnight within a 34-hour restart period”:

Many ready mixed concrete producers, especially those in the southern tier and desert southwest, work exclusively at night during the hot summer months. Along with reduced traffic congestion, the cooler temperatures are better for the placement of concrete, as well as meeting temperature specifications of the product. By mandating a driver’s off-duty time to include at least two consecutive periods of midnight to 6 a.m., reduces the number of hours available to meet construction and delivery schedules to an unacceptable level. Not every work day takes place during daylight hours, making this proposed change overly restrictive.

6. “Limiting on-duty time to 13 hours in a driving window”:

NRMCA sees no justification to limit on-duty time. FMCSA should restrict its regulations to “driving time” as previously mentioned. During 16-hour-window-days, this would require a mandatory minimum of three hours of non-productive, non-paid time in which an individual may be forced to be away from his or her family. This regulation makes no sense for a short-haul driving industry like ready mixed concrete.

Lastly, J.J. Kennedy, Inc. and the ready mixed concrete industry believe a better approach to increasing safety on our nation’s roads and highways, and helping to foster better flow of commerce is rather to improve some of the regulations already in place. One example of this, with regards to HOS, is the driver’s daily log or Record of Duty Status (RODS).

For the ready mixed concrete industry, a consequence of the current HOS rule has resulted in a lack of common sense in the daily log regulations. The driver’s daily log has been the primary regulatory tool used by the federal government, state governments, drivers, and commercial motor carriers to determine a driver’s compliance with the HOS regulations. The information obtained from the log is used to place drivers out of service when they are in violation of the maximum limitations at the time of inspection. It has also been used in determining a motor carrier’s overall safety compliance status in controlling excess on-duty hours, a major contributory factor in fatigue induced accidents.

From the inception of the log requirement 70 years ago, exemptions from preparing the driver’s daily log have been allowed for drivers of commercial motor vehicles who operate wholly within a specified distance from their normal work reporting location (e.g. garage, terminal or plant). Currently, the 100 air-mile radius log exemption is applicable if:

- (1) The driver returns to the work reporting location and is released from work within 12 consecutive hours;
- (2) At least 10 consecutive hours off duty separate each 12 hours on duty;
- (3) The driver does not exceed 11 hours maximum driving time following 10 consecutive hours off duty; and
- (4) The motor carrier that employs the driver maintains and retains for a period of 6 months accurate and true time records.

This exemption, which is found in 49 C.F.R. § 395.1(e), was first provided in 1980 as part of an effort to reduce the paperwork burden on drivers and motor carriers (See 45 FR 22042). However, the historic basis for the exemption has always been grounded in the common sense notion that drivers in the short-haul trades are less subject to the fatigue related affects of extended hours of driving time typically associated with cross country travel. Like many other short-haul operators, concrete mixer truck drivers are on-call and deliver product on a just-in-time basis. They operate exclusively in the short-haul construction industry, generally beginning and ending each shift at the same plant location and rarely exceeding a 50 air-mile radius of the work reporting location. In fact, industry studies show that a concrete mixer driver's average delivery is only 14 miles from the ready mixed plant and mixer drivers are actually driving only 4 to 6 hours per day.

As a result, concrete mixer drivers are eligible for the 100 air-mile radius log exemption contained in § 395.1(e) and ready mixed concrete producers employing these drivers are subject to the reduced recordkeeping requirements specified in § 395.1(e)(5). This latter provision enables a company to keep track of concrete mixer drivers' hours through an electronic time clock that indicates the start time, number of hours on-duty, and the time the driver gets off work each day. Unfortunately, concrete mixer drivers are often unable to take full advantage of the 100 air-mile radius exemption. This is almost always caused by a driver surpassing the 12-hour on-duty threshold contained in § 395.1(e)(1)(ii). In these instances, drivers are required to retroactively complete lengthy log sheets on the days they exceed the threshold (See FMCSA 395.1 Interpretation #22).

The current HOS regulations afford drivers a maximum of 14 consecutive hours of on-duty time per shift (after which drivers may not drive), yet drivers who otherwise meet the requirements of the 100 air-mile radius log exemption must still complete a log if they exceed 12 hours of on-duty time during the shift. Unlike in the long-haul trades, it is very difficult in the ready mixed concrete industry to predict on any given day whether the 12-hour threshold will be surpassed. If the driver surpasses the threshold but did not expect to do so, he or she must go back and retroactively log his/her duty status for the entire day. This is simply not practical for concrete mixer truck drivers, as their duty status changes frequently throughout the day and completing an accurate logbook from memory is a difficult task. To preempt such difficulties, many ready mixed concrete producers have instructed their drivers to log every day just in case they happen to exceed the threshold, which is contrary to the intent of the 100 air-mile radius logging exemption.

The FMCSA has claimed that the 12-hour return to work reporting location limit is a necessary safeguard to ensure that drivers adhere to driving time limitations. (See 64 FR 72373, 72375). Yet, as indicated above concrete mixer truck drivers drive only 4 to 6 hours per day, clearly not fatigue inducing operating conditions. Requiring them to return to the plant within 12 hours so that they don't exceed 11 hours of driving time is regulatory overkill and unnecessarily burdensome. Notwithstanding repeated requests from NRMCA and other short-haul operators, the FMCSA has yet to provide any data to underpin the seemingly arbitrary 12-hour return time limit.

The Paperwork Reduction Act (PRA) requires agencies to ensure that their ICRs have practical utility, are not duplicative, and impose the least possible burden. In the case of the 100 air-mile radius log exemption, all three of these congressional directives have been ignored by the FMCSA. As a result, concrete mixer truck drivers and other short-haul drivers, have for years been forced to complete a burdensome paperwork requirement from which they are clearly exempt.

To show its commitment to the PRA, FMCSA should initiate a process that would provide a common-sense fix for the 100 air-mile radius exemption. The remedy would simply involve raising the 12-hour on-duty threshold in § 395.1(e)(1)(ii) and § 395.1(e)(1)(iii)(A) to 14 hours, consistent with the maximum allowable number of hours per shift, after which the driver may not drive. This would allow concrete mixer truck drivers to take full advantage of the 100 air-mile radius log exemption.

In conclusion, the less time ready mixed producers spend with "bureaucratic overhead," the more time they can spend pouring concrete, employing more people and building America's economy.

Again, thank you for the opportunity to comment on how FMCSA's proposed HOS regulations will affect J.J. Kennedy, Inc. and the ready mixed concrete industry.

Testimony of

MR. JOHN D. MORRISSETTE

PRESIDENT

INTERSTATE VAN LINES

On Behalf of

The American Moving & Storage Association

Regarding

**DO NOT ENTER: HOW PROPOSED HOURS OF SERVICE
TRUCKING RULES ARE A DEAD END FOR SMALL
BUSINESSES**

Before the

*Small Business Subcommittee on
Investigations, Oversight and Regulations
UNITED STATES HOUSE OF REPRESENTATIVES*

June 14, 2011

American Moving & Storage Association

1611 Duke Street, Alexandria Virginia 22314 ♦ 703-683-7410

Good morning Chairman Coffman and distinguished Members of the Subcommittee. I am John D. Morrisette, President of Interstate Van Lines located in Springfield Virginia. Thank you for the opportunity, on behalf of the 3000 members of the American Moving & Storage Association, to share our views on the proposed Hours of Service rules.

Our industry is unique and the proposed changes will have a devastating effect on our ability to service our customers. Our industry is comprised primarily of small and micro-businesses that have been hard hit by the economy, particularly due to the housing market collapse. We already have downsized as an industry in response to the economic troubles we have faced and now we would be forced to restructure and reduce the efficiency of our business operations due to the proposed hours of service requirements.

The household goods industry differs from the general trucking industry not only in the type of cargo we carry but

also in the type of service we provide and in how we conduct our daily operations. Our drivers operate all over the country in residential communities and our shipments are loaded and delivered from high rise condominium buildings and remote ranches; we spend more time on tree-lined residential streets than at loading docks on established freight lanes. We are an industry that prides itself on customer service; our driving hours are important but in many ways secondary to our ability to take care of our customers' special needs and their unique possessions.

One of the things that set us apart from our general freight trucking counterparts is that our drivers typically spend a greater part of their available on-duty time packing/loading/unloading rather than driving as compared

to the general freight industry. Overall, our long haul drivers average 90,000 – 100,000 miles per year versus the general freight industry's 125,000 – 150,000 miles per year. Instead of on-duty driving hours, as part of their job serving our customers, our on-duty drivers:

- Enter private residences, rather than commercial warehouses;
- Sort, wrap and pack shipments of personal items, including dishes, glasses, clothing, specialty items, and disassemble and reassemble furniture and appliances;
- Load and unload their vehicles, which is a skill set that is unique to our industry; loading general freight does not require the same degree of special training. The loading and unloading of furniture, household

goods and fragile personal possessions is very specialized – we don't use forklifts;

- Unload and carry these personal items into the customer's new residence;
- Reassemble and sometimes even arrange the customer's furniture;
- Don't move general commodities – they move personal possessions and memories – and they must at all times move the customer's belongings with the utmost care while doing so in the customer's presence where the slightest inattention to detail will be noticed;
- Do their own inventories of each customer's items while at the residence;

- Complete the contract (Bill of Lading) with our customers on-site at the customer's residence;
- Deal directly with our customers (rather than a warehousemen or shipping clerk) on a one-to-one basis and they represent our companies and our industry as frontline ambassadors for quality professional service.

In addition, we are called upon daily to satisfy the various and frequently changing schedules of our customers. The proposed hours of service changes are complicated, difficult to understand and difficult for the customer to appreciate when the regulations act to affect the timing of their move. Customers' plans change, they add items, they decide to move into a unit on a higher floor, their mortgage closing gets delayed, the landlord will not let them move in until the unanticipated last-minute painting is

dry, their flight was cancelled, and so on; the list of potential schedule changes is nearly endless. All of these issues can force pickup and delivery changes that are beyond the move's original schedule and beyond the mover's control. These situations are compounded by the fact that our vehicles transport several households in one trip and any schedule change for one shipment affects all of the others on board.

The proposed HOS changes will severely limit our flexibility to meet our customers' scheduling needs. Moves that are delayed and run over the duty-time day will mean that an additional trucks and drivers must be dispatched to finish the move at substantial additional cost to meet the customer's schedule. Fewer hours to service

individual shipments will mean fewer loads and reduced revenue for individual drivers.

Requiring drivers to be released from duty when they are not driving or scheduled to drive does not affect the public safety and should not be a part of the new rules. It will require multiple days to be added to complete moves and the additional cost will be passed along to the customer. Every business will need to increase its staffing and fleet size to compensate for the loss of hours to maintain service levels and customer expectations. The capital required to increase the fleets would be devastating to many businesses and likely prohibitive for small businesses. Small businesses that can't afford necessary trucks and drivers may be driven out of the industry.

The health and well-being of our industry's drivers are of the utmost importance to us. Our industry fully supports the efforts of the FMCSA to promote safety and to protect driver health. However, we submit that, in recognition of the unique aspects of the customer-service model of our industry, the proposed Hours of Service changes should not be applied to the interstate household goods industry, and the current rules should continue to apply.

Thank you for this opportunity to testify. I look forward to answering any questions you may have.

**Statement of
Chairman Scott Tipton
Subcommittee on Agriculture, Energy and Trade
On Tuesday, June 14, 2011
Before the House Small Business Committee Subcommittee on Investigations Oversight and
Regulations Hearing: How Proposed Hours of Service Tucking Rules are a Dead End for
Small Business**

Thank you Chairman Coffman and Ranking Member Altmire for convening today's hearing. I would like to join my colleagues in welcoming our panelists as we continue to examine how new proposed regulations on hours for service trucking rules will negatively impact small businesses. I would also like to welcome Paul James who is from my home state of Colorado and providing testimony on behalf of the Petroleum Marketers Association of America.

Hours of Service regulations are meant to improve safety and reduce the number of fatigue-related crashes by placing limits on how long truck drivers can be operating their vehicles. However, considering that since 2003 fatigue-related accidents are down by 33 percent while miles traveled have increased by nearly 8 billion per year, the new regulations proposed by the Federal Motor Carrier Safety Administration are excessive and will result in significant additional costs for small businesses. Small businesses rely on truckers to deliver their goods throughout the United States. These new regulatory burdens would increase costs for businesses that are already struggling at a time when they can least afford it. Small business trucking operations will also be negatively impacted as of the number of hours they are able to work will be severely restricted, causing them lost income and lost jobs.

I consider new regulations or legislation bad public policy when they pick winners and losers and interfere with the market without any real benefit to the American people, and this new regulation would designate roadway transportation a loser. Since 2003, safety on our roadways in relation to truckers has continued to increase. The federal government should be concerned in getting goods transported in the fastest and safest way possible, but not overreach when doing so. I hope the testimony provided today will encourage the Administration to take a second look at these new regulations and reevaluate them. I am also particularly concerned that outdated data may have been used to justify these policies and I would also encourage new relevant data be used when reconsidering this matter.

Again, Chairman Coffman, thank you for holding today's hearing. I do have a few subsequent questions at this time.

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Congress of the United States
House of Representatives

June 17, 2011

The Honorable Mike Coffman
Chairman
Subcommittee on Investigations,
Oversight and Regulations
Committee on Small Business
2361 Rayburn HOB
Washington, DC 20515

The Honorable Jason Altmire
Ranking Member
Subcommittee on Investigations,
Oversight and Regulations
Committee on Small Business
B 343-C Rayburn HOB
Washington, DC 20515

Dear Chairman Coffman and Ranking Member Altmire:

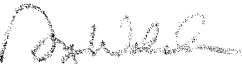
I am pleased to see that the Subcommittee on Investigations, Oversight and Regulations of the House Small Business Committee has held a hearing on the Federal Motor Carrier Safety Administration's proposed rule on Hours of Service for non-passenger carrying trucks.

As I've traveled throughout my district in southern, central, and eastern Oregon, I've heard from small businesses about how the new regulations will result in higher costs for small businesses that rely on motor carriers, while posing significant difficulties for small trucking companies by reducing the hours they are able to work. In this tough economy with such high fuel prices, small trucking companies cannot afford these costly new regulations.

I have enclosed statements from three small trucking companies in my district about the effect these new regulations will have on their business. Please include this letter and their statements in the official hearing record.

Thank you for your attention to this important matter.

Best regards,



Greg Walden
Member of Congress

Enclosure

Combined Transport- Central Points, Oregon

First, I am very concerned about the reduction to 10 hours from 11 hours per day driving time. This has the potential to reduce our productivity by as much as 9%. As a long haul carrier operating in 48 states and Canada, our drivers utilize the 11th hour almost 85% of the time. This results in an actual loss of productivity to our company of over 7.5%. In terms of dollars, this would reduce our revenue by approximately \$7,000,000. Our company only averages net profit of 1-1.5% so this HOS change would devastate us.

Another change that would adversely affect us is the elimination of the 34-hour restart. Over 75% of our drivers periodically utilize this restart provision. It is difficult to estimate the productivity impact on our fleet but it could be another 1-2% reduction.

Other changes that would hurt our company is the lack of flexibility on when our drivers take breaks, and how they would be forced to travel during congested periods. I believe this reduced flexibility would negatively impact safety, hurt our fuel economy, increase pollution, and add to congestion which further reduces our timeliness and productivity.

We would have two choices to respond if these new HOS rules were implemented. We could add more trucks and drivers. The problem with this solution is we cannot hire and retain enough drivers for the amount of trucks we have currently. Plus, adding more trucks and trailers adds cost, puts more inexperienced drivers on the road, and adds to congestion. The other solution is to try to raise our rates and pass on this loss of productivity onto our customers. In this competitive environment, it is not easy to pass on 100% of our costs. Many trucking companies would be put out of business before they could successfully pass on those costs. I am not sure how successful we would be. But this proposed regulation has the potential to put our entire work force of 325 drivers, 75 office workers and 10 shop worker (all based in Southern Oregon) out of work!

There is no reason to change the HOS rules. Since 2003 when the framework of the current rules was first put into effect, truck-related fatalities have dropped 33% and truck-related injuries have dropped 39%, both to their lowest levels in recorded history. Reliable sources indicate that fatigue is responsible for between 1.5% and 7.5% of all truck crashes. Further, the Trucks in Fatal Accidents database shows that a large majority of truck crashes occur in the first few hours of driving, not the last. Accordingly, more restrictive hours of service rules are not only unjustified, but will be ineffective at reducing fatigue-related crashes. In fact, the agency's own cost-benefit analysis shows no safety justification for the proposed rules.

We must stop these proposed rules from going into effect. They hurt all business and there is no benefit that even comes close to offsetting those costs.

Thanks again for the opportunity to voice my concerns.

Michael S. Card
President
Combined Transport, Inc.
Central Point, OR

Siskiyou Transportation, Inc.- Ashland, Oregon

The majority of our operations involve the transportation of logs from the woods to the mill. Since the last change in 2003 we have learned to function very well with the current rules, in fact they have helped us. The 34 hour restart provision is probably the most valuable to our operation. Log hauling generally occurs Monday through Friday. The drivers have the weekends off and are generally home each night. The 34 hour restart lets our drivers begin a new clock each Monday morning, allowing for a much more efficient operation. The proposed change to that provision would have a negative impact on our operations. The 11 hour driving rule would also be an issue. As mentioned, log trucks and drivers are home each night, it is simply the way the system works due to primarily regional hauls etc. A reduction in the 11-hour driving rule would likely cost us loads due to the fact that that last load may put the driver over hours, and it would hardly be reasonable to have the driver overnight 1 hour away from home. The timber industry has suffered greatly over the past decades, and with it the number of mills has diminished, leaving them further apart. Thus, causing the hauls to be longer than they used to be. This would of course cost our company money, but obviously would require more trucks to be on the road to haul the same number of loads.

It is hard to put a value on the potential costs due to the many variables involved, however, I would estimate this would cost our log hauling company of 10 employees approximately \$130,000 annually.

Mark D Gibson
Siskiyou Transportation, Inc.
Ashland, OR.

FV Martin Trucking Co.- White City, Oregon

F V Martin Trucking Co. operates 20 log trucks and 10-15 local trucks and we would be negatively affected by changing the HOS again. Business is picking up and we need 9% more trucks and drivers, which are not available. The 34 hour restart in the existing rules is crucial to our business. The statistics show we are safer now than ever before. Retraining drivers and law enforcement every few years due to changes in hours of services rules is costly to my company and the regulators.

Troy Hutchens
Vice President
F V Martin Trucking Co
White City, Oregon

Statement for the Record of

**TODD SPENCER
EXECUTIVE VICE PRESIDENT
OWNER-OPERATOR INDEPENDENT DRIVERS ASSOCIATION**

Before the

**COMMITTEE ON SMALL BUSINESS,
SUBCOMMITTEE ON INVESTIGATIONS, OVERSIGHT AND
REGULATIONS
US HOUSE OF REPRESENTATIVES**

Regarding

*DO NOT ENTER: HOW PROPOSED HOURS OF SERVICE
TRUCKING RULES ARE A DEAD END FOR SMALL BUSINESSES*

JUNE 14, 2011

On behalf of



**Owner-Operator Independent Drivers Association
1 NW OOIDA Drive
Grain Valley, Missouri 64029
Phone: (816) 229-5791
Fax: (816) 427-4468**

Chairman Coffman and Ranking Member Altmire, it is a privilege to submit this testimony on behalf of the Owner-Operator Independent Drivers Association (OOIDA).

My name is Todd Spencer. I have been involved with the trucking industry for more than 30 years, first as a truck driver and owner-operator; and then as a representative for our nation's small-business trucking professionals. I am currently the Executive Vice President of the OOIDA.

As you are most likely aware, OOIDA is the national trade association representing the interests of independent owner-operators and professional drivers on all issues that affect small-business truckers. The more than 152,000 members of OOIDA are small-business men and women in all 50 states who collectively own and operate more than 200,000 individual heavy-duty trucks.

The majority of the trucking community in this country is made up of small businesses, as 93 percent of all carriers have less than 20 trucks in their fleet and 78 percent of carriers have fleets of just 6 or fewer trucks. In fact, one-truck motor carriers represent nearly half of the total number of motor carriers operating in the United States.

I am submitting this statement on behalf of OOIDA and my fellow professional drivers. Before discussing the Federal Motor Carrier Safety Administration (FMCSA)'s proposed changes to the current hours-of-service (HOS) regulations and the impact they would have on small business trucking, I want to highlight the trucking industry's current safety record and the role truck drivers play in highway safety.

Trucking has never been safer – and the key to the safety of the industry is not a new government regulation or mandated technology. The key to this historic level of safety are the hundreds of thousands of professional drivers out on the road every day. Trucking-related fatalities have dropped to a historic low, once again, dropping 20.4 percent from 2008 to 3,380 fatalities in 2009. And when trucking-related accidents are examined for fault, studies show that 75 to 80 percent of all accidents involving large trucks are not the fault of the truck driver.

According to the latest data from the National Highway Traffic Safety Administration, "fatigue" was a factor in only 1.4 percent of all fatal wrecks involving truckers. That may come to surprise to many, who often hear that that fatigue is a factor in 30 to 40 percent of all fatal crashes involving trucks. However, the author of the report used as the source for this statistic made it very clear during a recent National Transportation Safety Board forum that this number was not accurate and was only intended as a research note in a larger study. Incidentally, for passenger vehicle drivers, "fatigue" was reported to be a factor in 16.6 percent of all crashes.

Despite this historic level of safety, federal regulators and others continue to push regulations and mandates down on drivers while ignoring meaningful actions such as addressing detention time at shippers and receivers. From the HOS revisions that are the subject of today's hearing to mandated electronic on-board recorders and continued efforts to require speed limiters, these efforts are rarely based upon sound science and clear cost benefit analysis. Instead, they are based upon the impression that drivers are inherently unsafe on the road, a proposition that the facts clearly do not support. Professional truck drivers play an important role in our nation's

economy, exclusively hauling around 70 percent of our nation's freight; however, the current regulatory environment seems focused on only seeing them as a problem.

The Professional Truck Driver's Perspective

To fully comprehend a truck driver's standpoint on the hours-of-service regulations, it is necessary to acknowledge how the majority of drivers in the trucking industry are compensated. Drivers are normally paid by how many miles they drive, therefore, the fewer miles driven, the lower their compensation.

Under the current HOS regulations, drivers may drive a maximum of 11 hours a day within a 14-hour "on-duty" window. The remaining 10 hours of a 24-hour day is supposed to be reserved for resting. For the vast majority of drivers the time spent "on-duty, not driving" is often, or sometimes always, uncompensated. There are general and administrative functions that are required of drivers such as completing paperwork, fueling, performing or undergoing safety inspections, and general maintenance that require daily on-duty uncompensated time that counts against their 14-hour on-duty clock. To some extent, drivers can predict and control those administrative duties, but there are many other activities that occur regularly that are also uncompensated yet highly unpredictable.

Detention at a shipper or receiver is the most significant form of uncompensated and unpredictable delays. The time waiting to get to a dock, which can last from a few hours to upwards of an entire day, not only impacts a driver, but has a broader impact on society. FMCSA has estimated that this wasted time costs our economy an estimated \$6.6 billion yearly. The impacts to drivers include missed loads and having to pay late fees, despite the fact that the delay was out of the drivers' control. Shippers and receivers have for too long gotten away with wasting truckers' time without any accountability for their role in the ultimate effect it has on highway safety. Any revision of HOS regulations should take necessary steps to address detention time, including providing necessary and safety-related regulatory oversight to shippers and receivers.

Waiting to load or unload, physically loading or unloading, manually sorting and stacking freight and taking care of mechanical breakdowns are a few examples of these unpredictable, uncompensated activities that count against the 14-hour clock. In addition there are the delays from congestion, work zones, detours and inclement weather which reduce earnings potential because drivers paid by the mile must count this time against their 14-hour running clock. The 14-hour clock can only be stopped by spending either a minimum of 10 consecutive hours off-duty, or 8 consecutive hours in the sleeper berth of the vehicle and at least 2 more hours off later in the day. Even though the driver must take the additional 2 hours off-duty, those hours do not stop the 14-hour clock.

In light of the forgoing realities, it is easy to understand that drivers want to get in as much compensated driving time as possible each day. In a survey done by OOIDA of its members, 66 percent reported that they forego short rest breaks, naps and meals under the 14-hour rule in order to perform as much compensated driving time as they can. In fact, most drivers report that they seldom drive more than 10 hours per day, but still feel compelled to continue driving when they would like to take a break to compensate for either planned duties or unpredictable delays.

Many shippers and receivers penalize drivers for showing up late for prearranged appointments. The charges are often significant and place undue pressure and stress on a driver trying to comply with the HOS. These charges are assessed regardless of whether a driver has operated legally or was delayed because of an event beyond their control such as weather related road closures, highway accidents or delays at a previous appointment.

The costs for small motor carriers have increased tremendously in the last two years. The steep and fluctuating cost of fuel, maintenance, equipment, parts and supplies, equipment to comply with idling restrictions, and the rising cost of engines to meet emissions standards has caused a vicious circle of potential and real small carrier bankruptcies. Drivers strive to be safe to provide for their family's future, so when they state that they feel the rules are not flexible enough to allow for rest breaks for instances such as when they need rest or want to pull over to avoid congestion, they are the ones who know and should be listened to.

The Need to Maintain the 11-hour Driving Limit

Under its December 29, 2010 proposal, FMCSA is calling for a reduction in the current 11-hour daily driving limit to 10 hours. OOIDA and its members strongly oppose this change because it will have a significant impact on driver flexibility and is not supported or justified by safety data compiled since 2003 when the current rule went into effect. If driving time was the critical factor in accidents, then large truck crash rates should have risen after 2003; however, statistical evidence shows that precisely the reverse happened. As outlined above, trucking industry safety performance has steadily increase since 2004, with both fatality and injury rates from crashes involving large trucks declining each and every year.

In addition to statistical accident data from FMCSA, numerous studies – including those cited by FMCSA to support their proposed changes – illustrate that eliminating the 11th hour of driving time has no direct tie to increased highway safety. The Virginia Tech Transportation Institute's naturalistic driving study sponsored by the Department of Transportation found that crashes tend to happen most often earlier in the driving period, especially in the first driving hour, and that there was no statistically meaningful difference in critical-incident risks between the 2nd and 11th hours. The Blanco study, provided by FMCSA as a supplemental document for comment under its proposal, found that most drivers do not use the 11th hour, but concluded that when they do, the likelihood of safety-critical events is not statistically greater when compared to the 10th driving hour. In fact, the Study does not find a statistically significant difference between the 8th through 10th and the 11th hour.

What will the elimination of the 11th driving hour mean for small business truckers? According to OOIDA's 2011 HOS survey, almost 92 percent of responding OOIDA members supported retention of the 11-hour rule to avoid an adverse impact on their operations. Two-thirds of OOIDA members use the 11th hour 1-4 times per week for operational flexibility. The time is used for making pick-up and delivery appointments, finding available truck parking at the end of the workday, or for making it home at the end of a trip, all ensuring that drivers are compliant with HOS rest requirements. Thus, eliminating the 11th hour of driving will reduce daily productivity and increase costs for many of OOIDA's members without quantifiable safety benefits.

The 34-Hour Restart Provision: Maintaining Driver Flexibility

OOIDA and small business truckers have consistently supported the 34-hour restart provision for several reasons. It helps drivers eliminate many errors associated with maintaining a “re-cap” of their HOS from week to week. It also allows long-haul drivers to maximize their productivity during extended periods on the road. Finally, and most importantly in terms of the fatigue associated with long driving hours, it allows drivers to return to their homes sooner than was possible under the old rule.

OOIDA members are predominately long haul drivers, spending hundreds of days a year away from home. Their time at home is a time to be with friends and family and most importantly get the best possible rest and restorative sleep. Indeed, FMCSA found that more than two-thirds of drivers take more than 44 hours off duty during their restart periods.

Specifically, the proposal calls for restricting the 34-hour restart by requiring two overnight rest periods of between midnight and 6 am and limiting its use to only once during a 7-day period. FMCSA neglects to cite any naturalistic study to support the single usage of the restart provision in a 7-day period. It appears that this restriction is nothing more than an attempt to prevent drivers from ever using the restart to work more than an average of 70 hours per week, even when they have gotten the rest they need. There is virtually no accumulated sleep deficit that cannot be alleviated with 34 hours off duty, whether it happens one or more times per week. Arbitrarily requiring drivers to wait substantially longer simply because they already used their weekly hours will often keep them on the road for extended off-duty layovers – exactly the problem that the trucking industry has always considered problematic and that the current 34-hour restart provision helped to ameliorate.

Drivers, not FMCSA Should Control Their Total On-Duty, Non-Driving Time

Past HOS rules, including those currently in place, have never regulated the overall “bottom-line” time spent working. There is simply no evidence showing a nexus between the amount of non-driving on-duty time and decreased highway safety. The revisions to the HOS rules proposed by FMCSA break with this history and for the first time call for regulating non-driving on-duty time.

This change is especially concerning since it would make the rules unworkable for many drivers, as they would become accountable for violations of which they have little or no control. Earlier this year, the Government Accountability Office issued a study showing the impact of detention time on drivers and the trucking industry. According to that study, drivers who use more than 13 hours of on-duty time often do so because of delays in loading or unloading that are beyond their control. Drivers will often show up at a facility with many on-duty hours left to spare. While they arrive hoping to drop or pick up their load quickly so they can leave in order to get a safe place to park and take their required 10-hours off-duty, many times those on-duty hours evaporate due to delays exclusively under the control of shippers and receivers.

FMCSA maintains that most drivers do not work 14 hours, so the proposed 13-hour restriction should have a limited impact. That statement is at odds with reality and is not true for the long haul drivers that make up a large portion of OOIDA’s membership. More than a quarter

responding drivers reported that the 14-hour limit had caused them to lose loads, while approximately two-thirds reported that the cap had caused them to forgo driving breaks, naps, and meal breaks. 91 percent of drivers responding to OOIDA's 2011 HOS study reported that a reduction from 14 to 13 on-duty hours would affect them due to the loading and unloading process. Additional restrictions on available on-duty hours will inversely increase pressures on drivers by discouraging needed rest breaks in order to allow for maximum available work time in an even smaller "work window."

Drivers are in the Best Position to Determine Length and Timing of Needed Breaks

While FMCSA's stated goal in these revisions is to "encourage drivers to take rest breaks when needed," the proposal contains a requirement that drivers take a mandatory 30-minute break, a requirement that flies in the face of this goal and does not reflect the variation in individual needs of drivers.

One driver may need several breaks of varying lengths distributed throughout the driving window while another may need multiple breaks later in the driving window, and yet another may need one daily break for a meal. Moreover, any particular driver's needs may change from day to day, depending upon weather, congestion, detention at the dock, and personal business. With such great variation in individual needs, neither the number, timing, or length of breaks in an on-duty or driving cycle should be mandated.

Concerns with the Science Behind FMCSA's Proposal

As noted throughout this testimony, many of the changes to the HOS rules proposed by FMCSA lack solid scientific evidence and support. The Regulatory Impact Analysis (RIA) used to support changes in the HOS rules is largely based upon studies and data collected before the current HOS rules took effect. Thus, it fails to account for the positive impact on reducing fatigue of the required 10 hours of off-duty time versus the 8 hours required under the old rules. It also fails to consider the negative health impacts and associated costs that will result from the additional nights drivers will spend on the road under the proposed rules. FMCSA's misplaced reliance on outdated statistics, together with erroneous assumptions about the industry, has resulted in a significant overstatement of the economic benefits from the proposed rules. The result is an RIA that attributes a grossly overstated value to the assumed benefits.

Unfortunately, the current regulatory process provides no requirement for peer review of RIA data and conclusions, allowing faulty information to backstop regulations that will have a significant impact on industry, especially small business.

Conclusion

Above summarizes OOIDA's views on this matter; our Association's full comments on FMCSA's proposal have been filed under the docket for this rulemaking.

A common theme throughout this testimony and our full comments is one of flexibility. OOIDA believes that HOS provisions giving drivers some additional operation flexibility that was lacking under the pre-2003 rules, particularly the 11-hour daily driving limit and the unrestricted 34-hour restart provision, contributed to this result and should be retained going forward. These

provisions have been used wisely by most drivers, in a manner that helps them more frequently get back to their homes, the place where they get the best quality sleep.

The changes being proposed are not only unnecessary in an HOS system that appears to be working well, but are inconsistent with the Administration's Executive Order 13563, which commits the government "to eliminating excessive and unjustified burdens on small business, and ensuring that regulations are designed with careful consideration of their effects, including their cumulative effects, on small business. As FMCSA itself acknowledges, this rulemaking will have a significant negative impact on small business truckers in terms of lost productivity and on consumers who ultimately pay higher prices for goods shipped. The cumulative effect of these HOS rule changes, when combined with impacts from other completed or ongoing federal rule makings and the fact that the issue of detention time continues to cost drivers valuable time and money, could well place insurmountable regulatory challenges on small business.

Thank you for the opportunity to submit this statement for the record and thank you for holding today's hearing to highlight these important issues.

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June 17, 2011

Statement for the Record

Submitted by TEANA, NASTC and AEMCA

Re: Hearing of the House Small Business Subcommittee
on Investigations, Oversight and Regulations
June 14, 2011

Enclosed for submission to the hearing record are the comments of The Expedite Alliance of North America (TEANA), the National Association of Small Trucking Companies (NASTC) and Air & Expedited Motor Carriers Association (AEMCA) submitted to the FMCSA in its relevant rulemakings governing both its proposed hours of service regulations and the directly related imposition of electronic onboard recording devices to measure hours of service.

Respectfully submitted,



Henry E. Seaton
Counsel for TEANA, NASTC and AEMCA

APPENDIX A

March 3, 2011

Docket No. FMCSA-2004-19608 – Hours of Service of Drivers

COMES NOW, the National Association of Small Trucking Companies (NASTC), The Expedite Alliance of North America (TEANA), and the Air & Expedited Motor Carrier Association (AEMCA) and files its comments in Docket No. FMCSA-2004-19608.

Identity of the Parties

1. NASTC is a for-profit company based Gallatin, Tennessee, which represents over 2,600 for-hire motor carriers, the vast majority of which operate as irregular route over-the-road carriers and are governed by the hours of service regulations.

2. TEANA is a nonprofit association which has approximately 75 members and represents over 500 carriers which provide over-the-road hotshot service, delivering time sensitive shipments in vehicles of different sizes, including pickups, straight trucks and tandem axle tractors.

3. AEMCA represents approximately 150 motor carriers which provide ex-air expedited service in accordance with FMCSA and TSA regulations. Its members provide long haul substituted motor for air service as well as pickup and delivery.

Background

Petitioners are committed to highway safety and to ensure that no driver or owner-operator is required to operate a commercial motor vehicle while fatigued or unrested. NASTC, in particular, has taken an active part in the hours of service regulations, offering testimony and comments in the rulemaking which led to the current rule.

At the outset, the parties maintain that missing from both the current and proposed rule is any real effort to address and monitor fatigue rather than to monitor and restrict hours of service based upon on-duty and drive time which ultimately does not address driver alertness or fitness for duty.

Modern science has developed a variety of cost effective measures for measuring driver alertness, biorhythms, and fatigue.

The FMCSA cannot force a driver to sleep or get meaningful rest whether in a sleeper berth or during a 34 hour restart and until the Agency is committed to a third millennium method for measuring actual fatigue, Petitioners submit that more and more complicated hours of service limitations similar to the ones proposed here only results in more confusing and difficult to enforce rules which ultimately straightjacket productivity, create highway congestion, and eliminate driver flexibility and home time.

Focused Comments

The current rule is far from perfect. It does not count "the value of a nap". The sleep studies by Colonel Belenky, one of the very experts initially relied upon by the Agency, confirms this. The current rule gives too much weight to "Circadian Rhythm" cycles and eliminates the driver's ability to take full use of split sleeper berths when needed because of road conditions, rush hour congestion, and other unanticipated delays.

Notwithstanding the limitations of the current rule, Petitioners join with virtually every other industry group in supporting retention of the current rule as preferable to the proposed new rule. The current rule has proven efficient in reducing highway crashes. The system is not broken and accordingly does not need an additional fix.

Reduction in Drive Time

The Agency consideration of reducing the drive time from 11 to 10 hours should be summarily rejected. The benefits of drive time reduction are negligible, if any. The existing distribution patterns have been established to facilitate a minimum of 500 mile length of haul which, depending upon driving conditions, can be compromised by this reduction. Efficiency studies show that reduction of drive time would have a negative effect upon productivity and the concomitant increase in new equipment due to heightened emissions standards results in increased fixed costs to be allocated over reduced productivity if this change is made.

Change in 34 Hour Restart

With loss of flexible sleeper berth, one provision in the current law which has proven very helpful is the 34 hour restart. This allows a long haul owner-operator employee driver to get restorative sleep and to obtain some flexibility in scheduling deliveries and pickups. The new proposal, which would require inclusion of two midnight to 6 a.m. periods virtually assures additional highway congestion and missed pickups and deliveries. Many shippers and distribution centers, particularly in the grocery house industry, require early morning delivery so that the product can be worked across the dock and delivered the same day. Carriers making such deliveries do not need to assume care, custody and control of a subsequent load before starting the 34 hour off duty restart. Hence, if at the close or near end of the driving period, the driver must take 34 hours off duty including two midnight to 6 driving periods, the driver's "off duty time" away from home has just increased by as much as 14 hours. Then, when free to resume commercial activities, the driver finds himself in morning traffic competing with commuters to get to an a.m. pickup.

The Agency has very simply not done a cost benefit analysis of the loss in productivity resulting from this rule and has not shown how any possible "Circadian Rhythm" safety benefit could outweigh the increased safety problem imposed by additional second morning congestion.

Termination of All Work at the End of 14 Hours

Under the current regulation, a driver is precluded from driving a commercial motor vehicle after the fourteenth hour. Under the new proposed rule, a driver would be precluded from performing any work after the fourteenth hour. This means that if a driver is backed into a dock for loading or unloading, at the end of the fourteenth hour, he would be in violation of HOS unless he closed the doors, interrupted the loading and unloading, and told the shipper that the partial load must stay on the truck for 10 hours until the process could be resumed.

As a practical matter, this answer is not viable for the shipping community and some flexibility needs to be maintained in the absence of some concomitant showing that highway safety is somehow affected.

For the above stated reasons, Petitioners ask the Agency to confirm its present safety ruling unmodified by proposed changes. The rules are complex enough as it is. Ultimately the Agency should treat the issue of fatigue in a meaningful way without making hours of service compliance more complex and less efficient.

Respectfully submitted,



Henry E. Seaton
Counsel for NASTC, TEANA and AEMCA

APPENDIX B

April 1, 2011

Re: Electronic On-Board Recorders and Hours of Service Supporting Documents – Notice of Proposed Rulemaking
FMCSA 2010-0167

COMMENTS OF THE NATIONAL ASSOCIATION OF SMALL TRUCKING COMPANIES, AIR & EXPEDITED MOTOR CARRIERS ASSOCIATION AND THE EXPEDITE ALLIANCE OF NORTH AMERICA

COMES NOW, the National Association of Small Trucking Companies ("NASTC"), Air & Expedited Motor Carriers Association ("AEMCA") and The Expedite Alliance of North America ("TEANA"), by and through Counsel, and files their comments with respect to the mandatory EOBR proposal set forth in Docket No. FMCSA-2010-0167.

Interest of the Parties

NASTC as a for-hire corporation which represents approximately 2,600 for-hire motor carriers, all of which are subject to FMCSA regulations, would be affected by the proposed rulemaking.

AEMCA is a not-for-profit trade association whose members total over 150 carriers. Many of its members conduct operations both within a 100 mile radius of fixed terminals (PU and PD) and over-the-road operations which are required to comply with RODS.

TEANA is a not-for-profit association which represents 85 motor carriers which provide expedited hot shot services. TEANA drivers may, on a given day, be required to complete a paper log, may operate a commercial motor vehicle within the 100 mile exemption, or may provide service using equipment which is not subject to logging requirements (less than 10,000 gvw).

Petitioners' Position

In general, Petitioners represent small motor carriers which as here relevant are frustrated by cumbersome and confusing attempts to monitor and regulate drivers' hours of service while ignoring potentially more effective technology to measure, record and prevent unsafe driving due to fatigue.

The proposed EOBR technology is a technological improvement on a "tachograph," a device proposed by the industry as an answer to cumbersome paper logs over 40 years ago. The EOBR, like the tachograph, makes no effort to measure driver alertness, is tied to the truck, and when coupled with a "punch the clock" mentality makes no allowances for congestion, road conditions, and offers no measure of driver alertness.

Over 10 years ago, during the Agency's landmark review of the hours of service, the industry and the Agency was involved in an in-depth study of

sleep deprivation, the issues causing fatigue and an array of technological advancements which had merit in measuring and preventing "fatigued driving." Similarly, for approximately 15 years the industry has been confounded by the "supporting document rule" and the lack of needed clarity over what documents must be segregated and toe tagged for the Agency's potential use in conducting an audit of paper logs. Clearly, the current hours of service requirements, the supporting document requirement and the problems with a driver accurately maintaining a paper log create a situation in which change is welcome.

Moreover, with the development of GPS technology, the cost of installing EOBRs has been reduced and Petitioners acknowledge that driver reluctance to accept electronic logs has diminished over time. Militating in favor of voluntary purchase and installation of EOBRs by small carriers is the realization that EOBRs provide a competitive advantage to the user. In any system developed by the Agency to monitor, much less rate carrier safety based on hours of service violations, use of EOBRs offers a significant competitive advantage. Based on points assigned under SMS methodology, carriers without EOBRs are 50% more likely to accumulate the fatigued driving points than their electronic logging counterparts, not because their drivers are "more fatigued" or are cheating on their logs, but because of inadvertent paperwork and errors in completing RODS paperwork.

Thus, to encourage installation of EOBRs through the granting of relief from strict enforcement of the "supporting document rule" would be a proposal Petitioners could well support. Yet, to mandate EOBR technology with the attendant cost on 482,000 small businesses in the name of safety is an expensive overreach of Agency authority which cannot be justified based upon the NPRM.

Reply Points

1. Relief from supporting document rule. Clearly, any proposal involving use of EOBRs should be flexible and should incentivize the industry to absorb the cost of new technology through eliminating otherwise unnecessary regulatory burdens. In this regard, the Agency can and should grant further relief from the so-called supporting evidence rule for carriers which use EOBRs. If the EOBR is a tamper-proof recordation as it purports to be, it is in and of itself a primary supporting document which, in the absence of fraud, can be validated and supported by motor carriers keeping and segregating a select number of documents. The Agency, in addressing the long awaited supporting document issue and in responding to the ATA's Writ of Mandamus, should not miss the opportunity to incentivize the voluntary use of EOBRs by addressing proactively the supporting document rule.

2. Cost benefit analysis misses key issues. The Agency candidly recognizes that 99% of the carriers impacted by this mandatory rule would be small businesses under the SBA definition and are hence entitled to the protections afforded by the Regulatory Flexibility Act and the Paperwork Reduction Act. Under SMS/CSA 2010 methodology as published by the

Agency, less than 100,000 of the 482,000 small motor carriers regulated by the Agency are subject to more than 4 roadside log inspections per year.

To date, the Agency has offered no analysis either in this rulemaking or in its other public statements about the nature and state of compliance of the missing 400,000 carriers it regulates but does not currently monitor under the SMS system. Clearly, under penalty of an \$11,000 fine, the Agency cannot justify requiring the installation of a \$1,500-\$2,000 per cvm unit on a truck for a company whose whole fleet will only be subject to a roadside inspection less than 4 times per year.

Inflexibility of Rule

Citing President Obama's January 19 memorandum concerning regulatory flexibility, small business and job creation, the Agency invited public comment concerning the extent to which flexibility could be incorporated into the rulemaking. In this regard, any rule which mandates \$2,000 worth of hardware and a monthly maintenance fee on a tandem axle tractor which might or might not be driven beyond the 100 mile radius exemption is expensive and inflexible.

Motor carriers which operate pickup and delivery operations or who ordinarily confine their operations to short haul areas must have operating flexibility and cannot limit either equipment or drivers. Power equipment is often slip seated and drivers who typically log may be asked to provide service in a PU and PD unit unequipped with an EOBR. Similarly, any EOBR line haul unit may be used in local service by drivers with no RODS requirement.

As currently written, the EOBR requirement would impose needless costs on hundreds of thousands of small businesses whether they can justify the investment or in the exercise of their business judgment need it or not and regardless of when the unit is used – daily or once a year – in line haul operations.

Clearly, any rule involving EOBRs should have a simple waiver procedure which allows small businessmen to make informed business decisions before requiring installation of an expensive EOBR device.

Absent uniform compatibility profiles and mandates, EOBRs installed on owner-operator units would only necessitate additional installation costs and the incurring of unused vendor contracts as owner-operators elect to move from one carrier to another which is their right to do so in a free market on a regular basis.

Technology and Compatibility Concerns

The notice of proposed rulemaking does not address obvious technology and incompatibility concerns.

An alleged patent holder, PJC Logistics, has sued over 100 motor carriers alleging that current GPS technology embedded in EOBRs currently available in the marketplace is subject to patent violations. User fees are demanded from motor carriers.

Until and unless the FMCSA can confirm that EOBR technology is not subject to patent lawsuits which would subject mandatory users to additional user fees, no EOBR rule is appropriate.

With respect to compatibility, many of Petitioners' members provide transborder service between the U.S. and Canada. Currently Canada requires any electronic onboard recording device capable of printing and presenting a paper log. This paper log requirement would limit the ability of a motor carrier to use EOBR technology without this additional function to provide transborder service. In addition, California and possibly other states are examining the possibility of passing their own laws in this respect. Until and unless the Agency can address the issue of compatibility, any consideration of this notice of proposed rulemaking is premature and its cost/benefit analysis is inaccurate.

Conclusion

Before the Agency considers mandating EOBRs which measure hours of service based upon computer technology wired to trucks, it should consider a third millennium solution to measuring fatigue based on monitored biorhythms, ocular movement and a whole host of cutting edge technologies which have only been further developed since the hours of service issues ten years ago. Moreover, the advantages of EOBRs in measuring hours of service compliance, competing with other carriers under SMS methodology together with relief from the supporting document rules are sufficient incentive, Petitioners believe, to drive further acceptance of the EOBR while preserving needed discretion and flexibility for split line haul/PU and PD operations.

Until and unless the Agency can quantify its inspection benefits with respect to the 300,000 or 400,000 carriers who do not cross scales enough to be measured the imposition of the per unit cost has no demonstrable impact on compliance much less safety and should not be mandated given the analysis required to support the rule under the Obama initiative and the supporting statutes.

Respectfully submitted,

/s/ Henry E. Seaton

Henry E. Seaton
Counsel for NASTC,
AEMCA and TEANA

APPENDIX C

June 7, 2011

Docket No. FMCSA-2004-19608 – Hours of Service of Drivers

COMES NOW, the National Association of Small Trucking Companies (NASTC), The Expedite Alliance of North America (TEANA), and the Air & Expedited Motor Carrier Association (AEMCA) and files this response to the Agency's submission of four new studies in support of Docket No. FMCSA-2004-19608.

Statement of Case

Petitioners filed the attached timely response to the Agency's initial Notice of Proposed Rulemaking. Therein, Petitioners supported retention of the current rule. They urged the Agency to consider more contemporary sleep studies by Colonel Gregory Belenky which suggest that the current rule gives too much weight to circadian rhythm cycles and eliminates driver ability to take full use of sleeper berths when needed because of road conditions, rush hours congestion, and other unanticipated delays.

Reply to Introduction of Four Studies

By Notice dated Monday, May 9, 2011 the Agency has released for comment four new documents obviously intended to further bolster its Notice of Proposed Rulemaking and demonstrate a safety benefit by further restricting drivers' hours of service, lengthening the restart, and restricting non-driving time at the end of the 14th hour. In reopening the comment period, the Agency has made clear that comments will only be considered on the four documents which the Agency has released.

Overview of Research Presented

The four research projects commissioned or approved by the Agency and released for public comment ignore scientific criticism of previous circadian rhythm studies which underlie the existing and proposed rule and belie the need for a more thoroughgoing analysis of the issue if the current rule is to be altered.

In promulgating the current rule in 2003, the FMCSA relied heavily on then available circadian sleep studies to suggest that the flexibility of over-the-road drivers should be restricted to ensure that 10 consecutive hours off were provided to obtain restorative sleep and to discourage or minimize nighttime driving.

Since highway deaths involving commercial motor vehicles have declined since the 2003 rules were passed, the current restrictions on driver productivity have been attributed to the new hours of service and the current rule unfortunately forms a baseline for the new court mandated rule. In this context, the four studies submitted by the Agency do not reevaluate current sleep science dealing with circadian rhythms, the positive effects of the value of a nap, road congestion, or other factors that should be considered in a systemic review of the hours of service regulations.

Virginia Tech Study

Properly seen, this study does not form the factual predicate for further restricting driver productivity in the name of safety, for imposing artificial lunch breaks or for attenuating the 34 hour restart in the name of circadian rhythm. In fact, the authors of this study conclude:

"Breaks can be used to counteract the negative effects of time-on-task. The results from the break analyses indicated that significant safety benefits can be afforded when drivers take breaks from driving. This was a key finding in the current study and clearly shows that breaks can ameliorate the negative impacts associated with time-on-task." (At p. 78.)

"While the focus areas that were investigated in the current study (workday characterization, driving, non-driving work and breaks from driving) have provided important information to explain some of the parameters that may impact SCEs due to time on task, there are other factors not investigated in the current effort, that must also be considered." (At p. 78.)

The authors suggested that key unaddressed issues including that among those key factors are "educating drivers on the importance of sleep hygiene, company policies that allow drivers to rest when needed, and ... other countermeasures to address behind-the-wheel drowsiness..." (At p. 79.)

Petitioners submit that correctly seen, the report is supportive of flexible rest breaks to break the monotony of shift work.

The researchers found this study "reinforces the hypothesis that there is not an increase in risk associated with the 11th driving hour as compared to the 10th driving hour." (At p. 77.)

Thus, based upon the conclusions of the Virginia Tech study, identifying, measuring, and eliminating driver fatigue is more than placing further restrictions on productivity at the expense of encouraging and permitting a driver to reasonably adjust his workday to operate efficiently while obtaining restorative rest.

Penn State Study

The Penn State researchers, like those at Virginia Tech, were careful to state that their research was not definitive or all inclusive. Their findings were broken into LTL and truckload segments and the authors themselves cast doubt on their LTL findings, noting:

"This model shows no consistent trend relating crash odds to driving hours. The study team believes that the crash odds increase in the last hour is in need of further analysis. At least a portion of the increase in odds may be attributable to the low sample size of observations in the last hours of driving." (At p. 31.)

It is clear that the Penn State study offers no support for reducing driving hours from 11 to 10.

Furthermore, the Penn State analysis of the truckload sub-sample involved mostly day driving when traffic densities are higher and crashes result from driver error in vehicle-to-vehicle interactions. The failure of this report and other reports to examine fatigue related crash instances based upon time of day, highway congestion and other factors undercuts the efficacy of continuing to use circadian sleep cycles as the major building block of HOS regulations to the detriment of a realistic reevaluation of the value of a nap or flexible use of driver time which encourages a driver to drive while rested and rest when tired.

Thus, the two lengthy studies introduced by the Agency from Virginia Tech and Penn State, correctly seen, do not support further restriction on driver flexibility, an extension of the 34 hour restart or the reaffirmation of circadian rhythm sleep cycles which would force an over-the-road driver to spend two consecutive midnight to 6 a.m. periods away from home in order to gain "restorative sleep". Both studies recognize other factors such as rush hour congestion and the value of two or more rest breaks during a driving shift should be encouraged rather than necessarily proscribed by effective regulations.

The Florida Studies

The two Florida Department of Transport studies submitted for discussion were prepared in October and November of 2010 as case studies for transit bus operators in Florida and are based on data collection based upon four city transit bus operations. Any data collected on transit workers driving buses during split rush hour shifts is arguably anomalous to the felicitous use of flexible sleeper berths by over-the-road drivers to get off the road during rush hour and obtain needed rest.

The studies found:

"It is important to recognize that the operational characteristic of city buses differs from those of ... [the] trucking industry. Unlike trucks, for example, routes are scheduled during peak hours because that is the time when buses get more riders. Also, city buses use mostly city streets while trucks mostly ride on highways. Buses stop more frequently.... Based on the above reasons, one may argue that the findings regarding the influence of operator fatigue on safety of vehicles other than city buses may not apply...." (See "Analysis of Relationship" p. 4.)

To their credit, these studies recognize that driver fatigue is classified in two subcategories – sleep related (SR) and task related (TR) fatigue and involves more than just hours of service. Task related fatigue or TR, the research suggests, is delineated from sleep fatigue and can be subcategorized into active fatigue caused by increased task loads such as high density traffic, poor visibility and inclement

driving conditions while passive fatigue results from monotonous driving, extended driving periods, and automated systems. (See "Analysis of Relationship" p. 3.)

Thus, the four studies, correctly seen, hardly paint a picture justifying further hours of service restrictions in the name of safety on an industry with a dramatically improving safety record.

On the contrary, these studies suggest that managing fatigue and ensuring safe operations is not an inflexible, one-size-fits-all "shift work" in which driver productivity is straight-jacketed regardless of driving conditions which, in effect, mandates that a driver must drive when tired and spend two weekend nights on the road 60 miles from home in order to comply with "one-size-fits-all" government regulations.

What is the Answer?

Petitioners submit that if the Agency proposes to re-open the hours of service regulations 8 years after they were passed in response to court challenge, then the four studies to which this comment is directed, demand a fresh analysis of fatigue, the causal relationship to crashes. Attached is a scientific paper entitled "Sleep Science and Fatigue Risk Management" which was testimony given to the Committee on Transportation and Infrastructure's Aviation Subcommittee by Professor Belenky and others on September 16, 2010.

The Belenky study implicitly calls into question the value of further restricting a driver's hours of service so as to preclude the flexibility which sleeper berths actually offers to allow drivers to manage fatigue, operate productively and get home safely without exacerbating highway safety:

"Recent studies have demonstrated that performance is a function of total sleep time in 24 hours, regardless of whether the sleep is consolidated or split (Belenky, et al., 2008) and irrespective of sleep stages (e.g., NREM and its stages or REM sleep). Thus, it does not appear to matter whether sleep is obtained in a single, consolidated sleep bout or distributed in 2 or 3 bouts over 24 hours (split sleep). Given equal total sleep time, split sleep appears to sustain performance as well as sleep consolidated into a single sleep bout (Belenky, et al., 2008). Thus, total sleep time measured by actigraphy can be used to predict performance in operational settings (Ancoli-Israel, et al., 2003)." (At p. GB14-15.)

Consideration of the four new studies submitted by the Agency simply begs the question, if the Agency is to rely upon new studies to revisit the basic operating compromises in the 2003 regulations, should not err on the side of flexibility and consider the studies of its own experts to consider the unaddressed issues of the value of a nap, the problems of highway congestion, the countervailing benefits of encouraging nighttime driving for truckload movements, etc.

Conclusion

To be sure, the current rule is not perfect. The industry has learned to live with it, highway safety has improved while it has been in force and given the various factors admitted and acknowledged in this study, no case can be made for further restricting hours of service, productivity, and driver flexibility.

The four studies do not establish a factual or scientific basis for changing the current hours of service requirements for over the road truckers. Two of the studies are inapposite and apply to transit operations which are dissimilar from the needs of over the road truckers which use sleeper berths. In the remaining 2 studies, the researchers expressly note that unmeasured or countervailing issues including "company policy that allows drivers to rest when needed" and "countermeasures to address behind the wheel drowsiness" which affect any dispositive conclusion which could otherwise be reached.


Importantly, the studies submitted by the Agency contain no current fatigue management data. Omitted are important conclusions reflected in the attached Belenky study which show that over the road trucking need not be straight-jacketed by productivity which preclude drivers from resting when tired, getting off the road when traffic conditions are bad and otherwise managing their own life productively.

Clearly omitted from the Agency's discussion is any contemporary management of fatigue. Measured under the HOS is productivity without any reference to the biology of fatigue.

Clearly, third millennium science offers the Agency advances over the current hours of service requirements. Attached is an article in the Wall St. Journal this date which shows that the actigraph technology discussed by Colonel Belenky in his study is now a reality, effectively measures fatigue not hours of service, and should be considered at least on a pilot or alternative basis.

Petitioners submit that as part of any final rule, the Agency should allow private industry to propose and conduct pilot programs aimed at measuring fatigue, not hours of service, and allowing reasonable driver flexibility to get miles and get home.

Respectfully submitted,



Henry E. Seaton
Counsel for NASTC, TEANA and AEMCA

ATTACHMENTS

March 3, 2011

Docket No. FMCSA-2004-19608 – Hours of Service of Drivers

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Background

Petitioners are committed to highway safety and to ensure that no driver or owner-operator is required to operate a commercial motor vehicle while fatigued or unrested. NASTC, in particular, has taken an active part in the hours of service regulations, offering testimony and comments in the rulemaking which led to the current rule.

At the outset, the parties maintain that missing from both the current and proposed rule is any real effort to address and monitor fatigue rather than to monitor and restrict hours of service based upon on-duty and drive time which ultimately does not address driver alertness or fitness for duty.

Modern science has developed a variety of cost effective measures for measuring driver alertness, biorhythms, and fatigue.

The FMCSA cannot force a driver to sleep or get meaningful rest whether in a sleeper berth or during a 34 hour restart and until the Agency is committed to a third millennium method for measuring actual fatigue, Petitioners submit that more and more complicated hours of service limitations similar to the ones proposed here only results in more confusing and difficult to enforce rules which ultimately straightjacket productivity, create highway congestion, and eliminate driver flexibility and home time.

Focused Comments

The current rule is far from perfect. It does not count "the value of a nap". The sleep studies by Colonel Belenky, one of the very experts initially relied upon by the Agency, confirms this. The current rule gives too much weight to "Circadian Rhythm" cycles and eliminates the driver's ability to take full use of split sleeper berths when needed because of road conditions, rush hour congestion, and other unanticipated delays.

Notwithstanding the limitations of the current rule, Petitioners join with virtually every other industry group in supporting retention of the current rule as preferable to the proposed new rule. The current rule has proven efficient in reducing highway crashes. The system is not broken and accordingly does not need an additional fix.

Reduction in Drive Time

The Agency consideration of reducing the drive time from 11 to 10 hours should be summarily rejected. The benefits of drive time reduction are negligible, if any. The existing distribution patterns have been established to facilitate a minimum of 500 mile length of haul which, depending upon driving conditions, can be compromised by this reduction. Efficiency studies show that reduction of drive time would have a negative effect upon productivity and the concomitant increase in new equipment due to heightened emissions standards results in increased fixed costs to be allocated over reduced productivity if this change is made.

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With loss of flexible sleeper berth, one provision in the current law which has proven very helpful is the 34 hour restart. This allows a long haul owner-operator employee driver to get restorative sleep and to obtain some flexibility in scheduling deliveries and pickups. The new proposal, which would require inclusion of two midnight to 6 a.m. periods virtually assures additional highway congestion and missed pickups and deliveries. Many shippers and distribution centers, particularly in the grocery house industry, require early morning delivery so that the product can be worked across the dock and delivered the same day. Carriers making such deliveries do not need to assume care, custody and control of a subsequent load before starting the 34 hour off duty restart. Hence, if at the close or near end of the driving period, the driver must take 34 hours off duty including two midnight to 6 driving periods, the driver's "off duty time" away from home has just increased by as much as 14 hours. Then, when free to resume commercial activities, the driver finds himself in morning traffic competing with commuters to get to an a.m. pickup.

The Agency has very simply not done a cost benefit analysis of the loss in productivity resulting from this rule and has not shown how any possible "Circadian Rhythm" safety benefit could outweigh the increased safety problem imposed by additional second morning congestion.

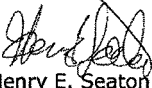
Termination of All Work at the End of 14 Hours

Under the current regulation, a driver is precluded from driving a commercial motor vehicle after the fourteenth hour. Under the new proposed rule, a driver would be precluded from performing any work after the fourteenth hour. This means that if a driver is backed into a dock for loading or unloading, at the end of the fourteenth hour, he would be in violation of HOS unless he closed the doors, interrupted the loading and unloading, and told the shipper that the partial load must stay on the truck for 10 hours until the process could be resumed.

As a practical matter, this answer is not viable for the shipping community and some flexibility needs to be maintained in the absence of some concomitant showing that highway safety is somehow affected.

For the above stated reasons, Petitioners ask the Agency to confirm its present safety ruling unmodified by proposed changes. The rules are complex enough as it is. Ultimately the Agency should treat the issue of fatigue in a meaningful way without making hours of service compliance more complex and less efficient.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Henry E. Seaton", written over a horizontal line.

Henry E. Seaton
Counsel for NASTC, TEANA and AEMCA

Sleep Science and Fatigue Risk Management:

Testimony to the Committee on Transportation and Infrastructure's Aviation Sub-Committee

regarding the Pilot Flight and Duty Time Rule

Thursday, September 16, 2010

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Abstract

Fatigue risk management applies 1) the science of sleep, frequently as instantiated into mathematical modeling, 2) the tactics, techniques, and procedures of sleep and performance measurement in the operational environment, complemented by 3) the clinical practice of sleep medicine to reduce the risks of poor performance, lost productivity, and error, incident and accident in the workplace. As envisioned here, fatigue risk management in aviation will in the short-term improve performance, productivity and safety and in the longer term improve flight crew and other commercial aviation operational personnel health and well being.

Introduction to Fatigue Risk Management

Fatigue risk accrues from the extended work hours, early starts, and the shift work necessary to staff 24x7 operations. This is visibly apparent in Figure 1, a composite image of the earth at night.



Figure 1: A composite image of the earth at night graphically illustrating the extent of 24x7 operations and the reality driving the need for extended work hours, early starts, and shift work. *Courtesy of NASA*

Fatigue risk management applies sleep science and the clinical practice of sleep medicine to reduce fatigue and improve performance, productivity, safety, health, and well-being in the workplace (Belenky and Akerstedt, in press). By mitigating the “fog of fatigue”, it enables the management of fatigue risk (Moore-Ede, 1995). Error, incident, and accident causation in any particular case is multi-factorial, complex, and tightly-coupled (involving multiple, interdependent, linked processes) (Perrow, 1999). With respect to any particular accident, ascribing a causal role to fatigue is difficult (Hersman, 2010), nevertheless an increase in fatigue appears to shift the performance distribution toward increased risk, making error, incident, and accident more probable and decreasing the likelihood of recovery even if the error is detected (Thomas, et al., 2007; Van Dongen, et al., 2010).

Applying the science of sleep enables fatigue-friendly rostering and scheduling and other fatigue-related “anti-fogmatics”, otherwise known as fatigue countermeasures, that blunt the adverse effect of extended work hours, shift work, and cumulative fatigue on performance, productivity, health, and well being. Applying the clinical practice of sleep medicine in the occupational setting enables the assessment of sleep disorders and their effects on alertness, performance, productivity, and safety in the workplace and their detection, treatment, and evaluation of treatment outcome.

Fatigue risk management has both short and long-term horizons. The short-term horizon is framed in terms of reducing the immediate risk of error, incident, and accident (Gander et al., in press). The long-term horizon is framed in terms of improving health and well being across a person’s working life, particularly in reducing obesity, insulin resistance, metabolic syndrome, type II diabetes, hypertension, cardiovascular disease, and cognitive decline (Van Cauter, et al., 2008; Mullington, et al., 2009).

One way of applying the science of sleep to create fatigue-friendly rosters and schedules involves integrating sleep and fatigue-related experimental findings, technologies, and metrics as components of personal biomedical status monitoring. In the not too distant future, personal biomedical status monitoring will be available to measure and integrate a plethora of parameters, including metabolic indices (e.g., blood glucose, caloric expenditure); cardiovascular parameters (e.g., blood pressure, EKG, and arterial intima function); inflammatory markers (e.g., leukocytes, IL-6, and high sensitivity C-reactive protein); behavioral metrics (e.g., sleep/wake history, circadian rhythm phase and amplitude); metrics of cognitive performance (e.g. reaction times, memory); and workload (e.g., time on task and metrics of task intensity). Personal biomedical status monitoring will form the basis of open- and closed-loop systems to monitor and intervene when necessary, in order to sustain human health, well-being, and operational performance. With respect to operational performance,

biomedical status monitoring will provide diagnostics and prognostics for the person in the operational loop by supplying inputs (e.g., sleep/wake history, circadian phase, and workload) to mathematical models to predict individual performance in real-time. These predictions will be benchmarked against, and individually adjusted to predict, actual performance (Olofsen, et al., 2004), and used as the evidence-base for real-time fatigue risk management.

To make a military analogy, sleep can be viewed as an item of logistic resupply with respect to sustaining operational performance. In managing fuel consumption, a battalion logistics officer can measure how much fuel the battalion has on hand, apply a simple mathematical model taking as input miles to be driven and estimated mileage by vehicle type to estimate how long this fuel will last, and with this estimate in hand plan for timely resupply. Similarly in managing sleep-loss related fatigue, one can measure sleep/wake history in operational personnel using actigraphy, and use this sleep/wake history as input to a mathematical model predicting how long this sleep will sustain individual performance. In light of these predictions, one can adjust operations to ensure timely resupply of sleep, by arranging a sleep opportunities of adequate length and sleep-conducive circadian placement. Eventually, models will integrate individual performance predictions to predict work group performance.

Components of fatigue and relation to fatigue risk management

Fatigue is a function of the interaction of multiple factors including sleep/wake history, circadian rhythm phase, and workload, and is modulated by individual differences in response to these factors (Wesensten et al., 2004; Van Dongen, et al., 2005). A fatigue-inducing factor is one that shifts the fatigue-risk distribution in the direction of increasing risk of error, incident, or accident. Figure 2 shows experimental data capturing the interaction of

sleep/wake history (in this instance, of total sleep deprivation), circadian rhythm phase, and time on task (a component of work load) on cognitive performance (Wesensten et al., 2004). Individuals vary one from another in their sensitivity to these factors (Van Dongen, et al., 2005). This relative variability in sensitivity to sleep loss appears to be an enduring individual trait (Van Dongen, et al., 2005). Thus, the ability of an individual to perform in the workplace varies over time as a function of, at a minimum, sleep/wake history, circadian rhythm phase, workload, and the trait-like individual variability in sensitivity to these factors. Measuring/estimating these parameters and integrating their effects on performance through mathematical modeling can provide the basis for effective fatigue risk management systems (FRMS).

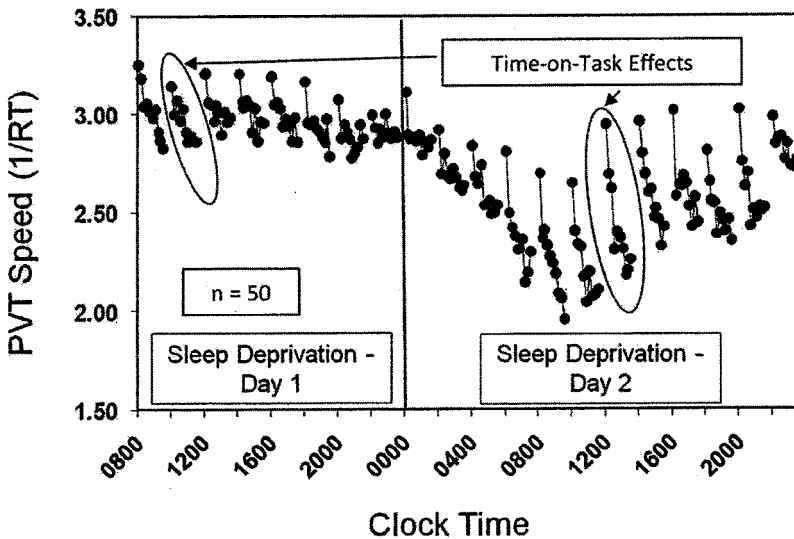


Figure 2: The effect of fatigue (a combination of time awake, time of day, and time on task) on psychomotor vigilance task (PVT) performance (expressed as the inverse of reaction time (1/RT)) in 50 healthy participants (13 women) (age range 18-30 years; mean = 22.4) deprived of sleep for 40 consecutive hours. Time awake and time on task degraded performance and this degradation was modulated by the circadian rhythm (time of day). Note the amplification of the time on task effect (red ellipses) by time awake and time of day. *Adapted from Wesensten, et al., 2004.*

Measuring fatigue

Fatigue is operationally defined subjectively by self-report and objectively by degraded alertness and task performance (McDonald et al., in press). Self-report of fatigue consist of a verbal response (e.g., the subject says “I am tired”) or a written response (e.g., by marking the Samn-Pirelli Fatigue Scale) (Samn and Perelli, 1982). Degraded operational task performance can be measured by a variety of tasks, some more sensitive than others (Balkin et al., 2004). The psychomotor vigilance task (PVT) is particularly sensitive to attentional lapses and has other desirable psychometric properties (Dinges and Powell, 1985; Balkin et al., 2004; Dorrian et al., 2005). There are neurophysiological correlates of fatigue as well, such as polysomnographically measured sleep latency (Carskadon, et al., 1986). Tasks such as the PVT are not intrinsic to workplace performance but are added metrics that to acquire takes a person away from the actual work the person is doing (McDonald, et al., in press). In contrast, embedded metrics are metrics that are taken from actual workplace performance, are seamless and invisible, and therefore do not interrupt the normal flow of work (McDonald, et al., in press). An example of such an embedded metric is lane deviation as an indicator of driver performance in the commercial trucking industry. Lane deviation can be measured effectively in both simulation and in real world, over-the-road operations (Philip, et al., 2005). Another embedded metric, fuel economy, may also be modulated by fatigue (Van Dongen, et al., 2010). Other systems, such as flight operational quality assurance (FOQA) in commercial aviation, may provide useful information about performance. We humans increasingly find ourselves embedded in robotic and automated systems, especially in the workplace – “... all watched over by machines of loving grace” in the words of the poet, Richard Brautigan

(<http://www.redhousebooks.com/galleries/freePoems/allWatchedOver.htm>) – and as a result

embedded performance metrics will be increasingly available across a variety of workplaces and operational platforms.

Sleep, Circadian Rhythm, Workload, the Operational Environment, and Operational Performance

Sleep, sleep loss, and measuring sleep/wake history

Total sleep deprivation and chronic partial sleep restriction (collectively, sleep loss) leads to fatigue. Fatigue from sleep loss yields degraded efficiency and productivity at work and leads to increased errors, incident, accidents, and economic loss. These economic losses accrue to employers, employees, and to society (Folkard, et al., 2005). In the longer term, there is increasing evidence that sleep loss is associated with adverse effects on mental and physical health, such as weight gain and obesity (Knutson, et al., 2007), hypertension and cardiovascular problems (Meir-Ewert, et al., 2004) gastrointestinal disease, chronic fatigue, substance/alcohol abuse, family problems, and mood difficulties (Costa, et al., 2004). Thus, the adverse effects of sleep loss include both immediate and longer term effects.

In laboratory studies both acute, total sleep deprivation and chronic, partial sleep restriction lead to decrements in task performance, well-being, and health. Acute, total sleep deprivation degrades cognitive performance linearly over days, modulated within days by the circadian rhythm, with an average over the each day loss of capacity useful task performance of 17-25% per day (Thorne, et al., 1983; Thomas, et al., 2000). Mild, moderate, and severe sleep restriction (7, 5, or 3 hours time in bed/night for 7 days, respectively) leads to sleep-dose-dependent decreases in performance over time in comparison to baseline or to sleep augmentation (9 hours time in bed/night) (Belenky, et al., 2003) (see Figure 3). For 7 and 5 hours time in bed/night, performance appears to stabilize at lower levels after 3-4 days while for the 3 hours time in bed/night performance continues to degrade across the 7 day

experimental period. In a complementary study of chronic sleep restriction, 6 and 4 hours time in bed/night for 14 days led to sleep-dose-dependent degraded task performance (Van Dongen, et al., 2003). Of clear operational importance is the finding that even mild sleep restriction (7 hours time in bed/night) degrades performance over time (Belenky, et al., 2003). In the first mentioned study (Belenky, et al., 2003), at the end of the 7 day sleep restriction period participants were allowed 8 hours time in bed/night recovery sleep for 3 nights. In contrast to acute total sleep deprivation, where recovery is complete in 1-2 days, performance in the 7, 5, and 3 hour time in bed groups did not recover to baseline task performance over the 3 day recovery period. This is of operational importance as chronic sleep restriction is common, not to say ubiquitous, and total sleep deprivation is rare. In a follow on study to the sleep restriction and recovery study described above, it was found that that preloading/augmenting sleep prior to the sleep restriction yielded more rapid recovery (Rupp, et al., 2008).

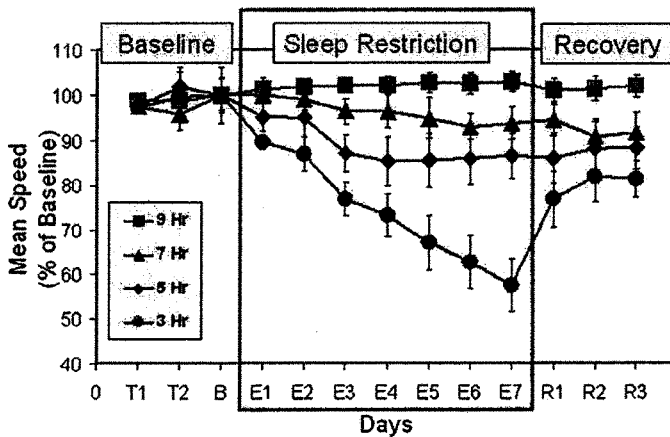


Figure 3: The effect of three levels (conditions) of sleep restriction (3, 5, or 7 hours time in bed/night) and one level (condition) of sleep augmentation (9 hours time in bed/night) over seven days (E1-E7) and compared to baseline (8 hours time in bed/night; B) and recovery (again 8 hours time in bed/night; R1-R3) on psychomotor vigilance task (PVT) performance (expressed as the inverse of reaction time (1/RT)) in 68 healthy adults (16 women) (age range 24-62 years; mean age = 37.3; 16-18 participants per sleep condition). *Adapted from Belenky, et al., 2003.*

The laboratory standard for measuring sleep/wake history is polysomnography (PSG), which uses the combination of electroencephalogram (EEG), electrooculogram (EOG), and electromyogram (EMG) to score total sleep time, sleep efficiency (% of sleep opportunity spent asleep), and the stages of sleep (N1, N2, N3, and REM). While PSG has been applied to recording and scoring sleep/wake history in the field, its dependence on an electrode array makes it impractical in most field settings. In field studies of sleep and performance, sleep diaries have been used but do not reliably measure total sleep time or sleep efficiency. In contrast to PSG and sleep diaries, the actigraph (a wrist-worn device containing an accelerometer, signal processing hardware and software, and memory) is comparable to PSG in measuring total sleep time and sleep efficiency (Ancoli-Israel, et al., 2003). The actigraph is a device about the size of a sports watch. Using its accelerometer, the actigraph measures arm movements and sums and records them typically in one-minute bins. From this activity record, using a validated against PSG sleep-scoring algorithm, a sleep/wake history for 30 consecutive days can usually be obtained before the device needs to be downloaded. Battery life and memory capacity are the limiting factors in the length and temporal resolution of the actigraph in collecting sleep/wake history. The actigraph is a useful tool for conducting field measurements over extended periods (days, weeks, months) and may have utility when combined with mathematical modeling when applied to fatigue risk management.

The circadian rhythm and measuring circadian rhythm phase

The circadian rhythm, a sinusoidal, 24-hour rhythm in core body temperature, sleep, and task performance, is set by the suprachiasmatic nucleus (SCN) of the hypothalamus, the endogenous biological clock in the brain (Moore, et al., 2002) (see Figure 4). The SCN itself receives direct input from the retina of the eye and responds to blue light with a distinctive phase response curve (Wright, et al., 2005). Core body temperature peaks around 2000 hrs and reaches its nadir between 0400-0600 hours. The circadian rhythms in task performance and sleep propensity parallel the circadian rhythm in core body temperature. Task performance peaks in mid-evening just subsequent to the peak in the circadian temperature rhythm and troughs in the early morning just subsequent to the trough in circadian temperature rhythm. Sleep propensity follows the circadian rhythm in core body temperature making it difficult to fall asleep and to stay asleep when core body temperature is rising or high and easy to fall asleep and to stay asleep when core body temperature is falling or low. The circadian rhythm modulates the risk of injury, a correlate of degraded performance. Risk of injury increases depending on the shift worked, with the lowest rates of injury risk on morning shifts and highest rates on night shifts (Folkard and Tucker, 2003). Thus, injury rates on the job are highest during the late night/early morning circadian low (Folkard and Tucker, 2003). Mild to moderate sleep loss, common for night shift workers who typically experience restricted sleep during the day (Akerstedt, 2003), leads to decrements in performance (Belenky, et al., 2003). Sleep/wake history and the circadian rhythm interact to affect alertness, sleep propensity, and performance.

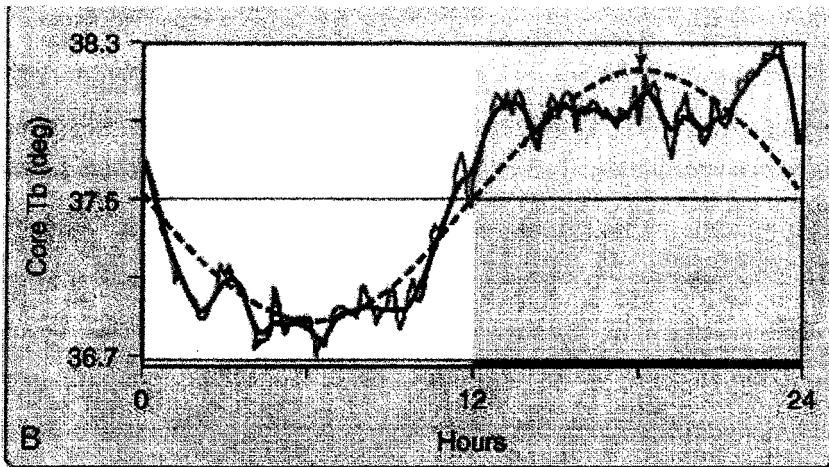


Figure 4: The circadian rhythm in core body temperature. Performance follows the temperature curve, peaking just after the peak in temperature. Sleep propensity follows the inverse of the temperature curve, peaking when body temperature is lowest. *From Kryger, Roth and Dement, 2005.*

The laboratory standard for measuring circadian rhythm phase is dim light melatonin onset (DLMO) (Lewy and Sack, 1989). Measuring DLMO requires laboratory control and dim light and is not suitable for field measurement. An alternative metric to DLMO is core body temperature measured by swallowable temperature pill or rectal probe (Edwards, et al., 2002). Because of masking effects of movement, core body temperature measurements require laboratory control and constant routine and are also not suitable for field measurement. In a person habituated to a particular time zone, circadian phase can be estimated in the field by self report on the basis of the local time zone alone. However, in crossing time zones any predictability by self report is destroyed because of the sensitivity of the SCN to light exposure in the early morning and late afternoon/early evening hours. The cross over point of the phase response curve of the SCN in a person habituated to a local time zone is in the temporal vicinity of 0300 hours, the midpoint of subjective night (Moore, 1997). In an individual habituated/synchronized to a time zone, exposure to light before the

crossover point of the phase response curve is seen by the SCN as a late sunset and stimulating a circadian phase delay, while exposure to light after the crossover point is seen by the SCN as an early dawn stimulating a circadian phase advance. The maximum phase response (shift in circadian phase) to light exposure is at dawn and dusk. This variability in the phase response curve makes the prediction of shifting phase angle by self-report when crossing multiple time zones difficult without exact knowledge of initial circadian phase and light exposure at the level and position of the eye. In theory, and perhaps in practice, accurate measurement of light exposure at the level and position of the eye combined with accurate mathematical models describing the SCN phase response curve to light may enable the accurate prediction of circadian phase with shifting time zones (Bierman, et al., 2005).

Workload

Workload is not satisfactorily operationally defined and therefore not easily measured in either laboratory or field. Some studies have equated workload with time on task, a component of workload. Fatigue as a result of time on task has been shown to be relieved by breaks within shift (Knutson, et al., 2007). Thus, fatigue from time on task recovers with simple rest, a break from task performance, and does not require sleep to recover. In contrast, fatigue and performance decrements related to time awake are only reversed by sleep (Dawson and McCulloch, 2005). Fatigue resulting from working long hours or overtime shifts increases the risk of accident (Dembe, et al., 2005). Workload, time of day, and sleep loss all interact to affect task performance.

The operational environment

The operational environment is defined as a work setting in which human task performance is critical and if human performance degrades the system will fail. In the operational environment, the human-in-the-operational-loop has limited time to decide and act (Wesensten, et al., 2005). There are a large variety of operational settings. These include

military operations, maritime operations, medicine, the modes of land transportation, aviation, security work, energy generation, resource extraction (mining and drilling), financial markets, and industrial production. In brief, any 24x7 operation and any operation involving extended work hours or shift work is an operational setting. In these settings, the operational characteristics described previously (i.e., shift timing and duration, work intensity, and difficulty and complexity of the work tasks) degrade performance directly through the effects of workload and/or working through the circadian low and indirectly by reducing the amount of time available for sleep or placing the sleep opportunity at a non-propitious time for sleep, thus reducing total sleep time, a primary determinant of alertness and performance (Wesensten, et al., 2005). The effects of fatigue on real-world or realistically-simulated operational performance can be complex. In an aviation simulation study, after completing a multi-day international run (fatigued) versus coming into the simulation after a few days at home (rested), Boeing 747 2-pilot crews were better able to detect errors but less able to manage them successfully (Petrilli, et al., 2007).

Operational task performance

This finding of degradation in complex task performance seen in simulator studies is complemented by evidence from laboratory studies in which some forms of complex task performance are degraded more than simple task performance (Harrison and Horne, 2000; Nilsson et al., 2005). There is however counter-evidence suggesting further subtleties (Tucker et al., 2010). Evidence from imaging studies suggests total sleep deprivation selectively deactivates the prefrontal cortex as indicated by a larger decrease in glucose uptake (regional cerebral metabolic rate glucose (rCMRglu) than the rest of the brain as measured by positron emission tomography using 18-fluoro-2-deoxyglucose as tracer (Thomas et al., 2000). This decrease in rCMRglu reflects a general decrease in neuronal firing as the brain depends on just in time delivery of glucose and, then, oxygen (Magistretti,

et al., 1995). As the prefrontal cortex is responsible for complex task performance, including judgment, planning, situational awareness and the integration of reason with emotion, this physiological evidence supports the behavioral findings under conditions of sleep loss (Harrison and Horne, 2000).

In complementary fashion, evidence from other imaging studies suggests that the prefrontal cortex is selectively targeted for recuperation during sleep, as the prefrontal cortex remains deactivated during both non-rapid eye movement (NREM) sleep and rapid eye movement (REM) sleep, while the rest of the brain returns to approximately waking levels of activation during REM sleep.

A case example in which complex task performance degraded more than simple task performance comes from the debriefings conducted by one of the authors (GB) of friendly fire incidents during the 1990-1991 Gulf War (Operation Desert Storm). In one such incident, sleep restriction contributed to Bradley Fighting Vehicle crews losing their orientation to the battlefield (a complex task) and therefore causing them to mistake friend for foe while maintaining their ability to lay cross hairs on the target and shoot accurately (a simple task) resulting in the destruction of a friendly Bradley (Belenky et al., 1996).

Consolidated sleep, split sleep, and sleep fragmentation

Split sleep, in the form of biphasic sleep, occurs naturally in cultures in which people regularly take siestas (Webb and Dinges, 1989). Recent studies have demonstrated that performance is a function of total sleep time in 24 hours, regardless of whether the sleep is consolidated or split (Belenky, et al., 2008) and irrespective of sleep stages (e.g., NREM and its stages or REM sleep). Thus, it does not appear to matter whether sleep is obtained in a single, consolidated sleep bout or distributed in 2 or 3 bouts over 24 hours (split sleep). Given equal total sleep time, split sleep appears to sustain performance as well as sleep

consolidated into a single sleep bout (Belenky, et al., 2008). Thus, total sleep time measured by actigraphy can be used to predict performance in operational settings (Ancoli-Israel, et al., 2003).

Similarly, in some work settings involving night shift work and/or early starts, splitting sleep into main sleep period and supplementary naps is common. In a field study of physicians in training, assessing sleep and performance and comparing when working night float versus day shift, physicians averaged about 7 hours of total sleep time by actigraphy per 24 hours in both night float and day shifts (McDonald, et al., 2009). However, they obtained this sleep quite differently depending on which type of shift they were working. If working the day shift, the physicians obtained their 7 hours of sleep at night in a consolidated main sleep. If working night float, the physicians split their sleep and obtained their 7 hours of sleep in a main morning sleep of approximately 4 hours, supplemented with night time naps totaling 3 hours. Performance on the PVT, taken at approximately the same clock times going on and going off shift, was the same on night float and day shift.

Split sleep (2-3 multi-hour sleep bouts across a 24 hour period) should be clearly distinguished from fragmented sleep (sleep interrupted every few minutes). Sleep fragmented with even subliminal arousals (change in sleep stage in response to a stimulus) at a frequency of every 2-3 minutes can lose all recuperative value (Bonnet and Arand, 2003). In contrast, it appears that sleep bouts greater than 20 minutes in length have minute by minute recuperative value equivalent to consolidated sleep (Bonnet and Arand, 2003).

[L1] Individual differences in response to factors causing fatigue

There are substantial differences between individuals in degree of performance degradation resulting from sleep loss (Van Dongen, et al., 2005). These differences appear to be enduring characteristic that is present on subsequent retest, and therefore trait-like. Recent

work has associated this trait-like difference with genetic markers (Viola, et al., 2007). There are also cohort differences associated with age. Older individuals perform less well than younger individuals when both are rested but perform better than younger individuals when sleep-restricted (Bliese, et al., 2006). There are individual differences in phase angle and amplitude of circadian rhythm which are likely to affect fatigue as measured by self-report and objective performance measures.

Predicting performance from the components of fatigue

In the 1980s, one of the authors (GB) was directing the U.S. Army's research program in sleep and performance, measuring sleep in the field environment by actigraphy. Actigraphy was a young, developing technology. When presented with early field actigraph studies, U.S. Army General Maxwell Thurman (General "Max") harrumphed and said, "I don't care how much they sleep, I want to know how well they perform." An actigraphically recorded sleep/wake history is a marvel of applied information technology, but in and of itself an actigraphically-derived sleep/wake history does not speak directly to the actigraph wearer's performance. Keeping General Max's response in mind, we developed a mathematical model taking sleep/wake history and estimated circadian phase as its inputs and yielding a minute-by-minute prediction of performance as its output. Our model and other similar models have become commercial products with application in the developing field of fatigue risk management (Wesensten, et al., 2005; Mallis, et al., 2004). General Max would be pleased – with actigraphy we will know how much people sleep and applying mathematical models to the actigraphic data we will be able to predict how well they will perform.

Systems of fatigue risk management

Outline of a fatigue risk management system (FRMS)

The traditional technique for managing fatigue risk in the workplace has been and still to a large extent is hours of service regulations. Hours of service rules were first promulgated in early 19th century Britain in response to the industrial revolution (Cornish and Clark, 1989). Such regulations typically specify the number of permissible hours on duty in 24 hours and sometimes weekly or other longer term limits as well. They take into account homeostatic sleep drive but not the effects of the circadian rhythm on performance and sleep propensity. Such rules are prescriptive and hence rigid and, as a defense against fatigue risk, are brittle. As there is a negative correlation between work hours and hours of sleep, i.e., longer work hours predict less sleep (Basner, et al., 2007; McDonald et al., 2008), this approach, as a broad first cut, has merit for normal day shift work where the person works during the day and sleeps at night. It is worth noting that employees who work afternoon shifts sleep more than employees working standard day shifts (Lauderdale, et al., 2006). When work and sleep are in harmony with the circadian rhythm in sleep propensity and performance, hours of service regulations are a reasonable approach. Where prescriptive rules breakdown are when the work schedule involves extended work hours, early morning starts, or night shifts as these simple prescriptive rules do not take into account the circadian rhythms in performance and sleep propensity.

The National Transportation Safety Board (NTSB) has taken an active role in working to reduce errors, incidents, and accidents in aviation by recommending a move away from simple prescriptive rules toward a system for managing fatigue risk that takes into account not just the effects of time awake but seeks to “set working hour limits for flight crews, aviation mechanics, and air traffic controllers based on fatigue research, circadian rhythms, and sleep and rest requirements” (http://www.nts.gov/recs/mostwanted/aviation_reduce_acc_inc_humanfatig.htm). More recently, The Honorable Deborah Hersman, the Chairman of the NTSB, has expressed

support for moving beyond working hour limits to full-on fatigue risk management (<http://www.nts.gov/speeches/hersman/daph100305.html>).

In contrast to prescriptive hours of service regulation, evolving fatigue risk management systems are a flexible, multi-layer defense in depth against fatigue risk. In one conceptualization (Dawson and McCulloch, 2005), an organizational FRMS would include tactics, techniques, and procedures to ensure that employees have an adequate sleep opportunity both in terms of total sleep opportunity duration over 24 hours and in terms of placement relative to the circadian rhythm in sleep propensity. Further, it would measure (e.g., by sleep diary or wrist-worn actigraph) the use made by employees of the sleep opportunity that was available to them. Finally, given the sleep opportunity and the use made of it, an FRMS would evaluate (e.g., by self- or co-worker report, or with added or embedded performance metrics, or model-based performance predictions) how well employees are performing in the workplace while on duty.

Creating and implementing fatigue-friendly rosters and schedules

An FRMS can be implemented in a variety of forms from the technologically simple to the technologically complex. FRMS in Air New Zealand has been in use for around 15 years, overseen by a collaborative group with a combination management, crew member, and scientific/medical membership. The process originally consisted of soliciting and reviewing voluntary fatigue reports from pilots and flight attendants, and undertaking specific studies on highly reported trips or duties; these studies used a combination of subjective ratings such as the Samn-Perelli fatigue scale (Samn and Perelli, 1982), along with reaction time based performance tests. More recently, studies have asked pilots to complete a Samn-Perelli assessment just prior to descent (at top of descent), on a routine basis, and on some fleets this is being inputted directly into aircraft flight management computers. In FRMS such as the one used by Air New Zealand, the fatigue data collected is typically used to refine specific

flights and schedules within the framework of existing prescriptive hours of service regulations (Petrie, et al., 2004; Powell, et al., 2008). easyJet has evolved a more complex system involving a detailed fatigue report form, as well as actigraphically-measured sleep/wake history, and FOQA data that is used to obtain specific exceptions to prescriptive hours of service regulations

(http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/afs/afs200/media/aviation_fatigue_symposium/StewartComplete.pdf). Most recently, Boeing has entered the FRMS field by integrating mathematical modeling predicting fatigue risk from sleep/wake history and circadian rhythm phase into commercial rostering and scheduling software produce what potentially could be a turnkey fatigue risk management system (Romig and Klemets, 2009). In FRMS such as being developed by Boeing, the model has the potential to become the rule, replacing prescriptive hours of service regulations.

Whether operating within prescriptive rules, used to obtain relief from specific aspects of prescriptive rules, or replacing prescriptive rules, implementation of an FRMS occurs within a complex context, e.g., regulatory environment, labor/management agreements, economic imperatives, and organizational structure. There are synergies if FRMS is implemented in the context of broader safety and operational risk management. The aim of FRMS is to maximize on shift performance and total sleep time in 24 hours within existing operational constraints.

Screening, diagnosing, and treating sleep disorders

A common cause of degraded performance and excessive day time sleepiness is inadequate sleep. Inadequate sleep can result from a number of factors including sleep disorders - in particular, obstructive sleep apnea (OSA). OSA is a respiratory impairment characterized by severely disturbed breathing during sleep due to the blockage of airflow in

the upper airway (Carskadon and Dement, 1981). This results in frequent arousals triggered by the drive to breathe, causing fragmentation of sleep which degrades its recuperative value, and leads to performance impairments and excessive day time sleepiness (Adams et al., 2001; Lavie, 1983). For instance, patients suffering OSA experience often report falling asleep briefly when stopped at traffic lights or while sitting quietly on the couch in the afternoon (Johns, 1993; Johns & Hocking, 1997). An increased risk of OSA is associated with male gender, increasing age, and being overweight. A middle aged, overweight male who snores loudly, has been witnessed by others choking, gasping, or having apneas (cessation of respiratory movement) during sleep and complains of excessive daytime sleepiness or insomnia likely has sleep apnea. It has been reported that commercial vehicle drivers have a higher incidence of OSA when compared to the general population (Horne & Reyner, 1995; Howard et al., 2001). Individuals who suffer from this disorder are statistically more likely to be involved in car crashes (George, Boudreau & Smiley, 1997; Young et al., 1997; Stoohs et al., 1994) and are potentially at a higher risk of other occupational accidents (Rodenstein, 2009). Notably, treatment of the OSA has been shown to reduce in motor vehicle accidents (Mazza, et al., 2006), highlighting the importance of early diagnosis and effective treatment of the disorder.

Age, gender, body mass index and neck circumference have been identified as independent predictors of sleep disordered breathing (Young et al., 2002). The Multivariable Apnea Prediction Scale (MAPS) (Maislin et al., 1995) is one screening tool that incorporates age, gender, body mass index and responses to three questions into a predictive equation for sleep disordered breathing. The questions relate to frequency of snorting or gasping; loud snoring; and episodes of choking, breathing stopping or struggling for breath at night. This questionnaire predicts sleep apnea risk using a score between zero and one (low to high probability of sleep disordered breathing), with relatively high sensitivity. In a clinical

sample, the MAPS has been found to have a 95% sensitivity for detecting sleep disordered breathing (98% sensitivity for severe disease), with a specificity of 68%, as compared to PSG (Gurubhagavatula, et al., 2001).

Identification and treatment of OSA is an important part of reducing excessive sleepiness in workers, thereby reducing accident risk and increasing productivity in the workplace. Incorporated into an FRMS should be a mechanism for screening for those at-risk for OSA and other sleep disorders in order that the at-risk population can be formally evaluated with an overnight sleep study and, if diagnosed, treated. A two step screening process could involve an initial screening questionnaire such as the MAPS and, depending on available funding, those who were found to be at a higher risk for OSA could undergo nocturnal oximetry or overnight PSG recordings as further evaluation and/or formal diagnosis. Screening could be 1) routine as a part of a yearly physical exam, and/or 2) triggered by evidence of drowsiness or poor performance (by observation or added or embedded performance metrics) given adequate sleep opportunity and good use made of it. Similar recommendations have been made by the National Transportation Safety Board (NTSB) (http://www.nts.gov/recs/letters/2009/H09_15_16.pdf). Application of sleep apnea screening by Schneider Trucking according to Deborah Hersman, Chairman of the NTSB, “reduced preventable crashes by 30%, reduced the median cost of crashes by 48%, improved fleet retention rate by 60% over fleet average, and achieved health care savings of \$539 per driver per month” (<http://www.nts.gov/speeches/hersman/daph100526.html>).

Evaluating effect of fatigue risk management implementations on error, incident, and accident, performance, and productivity

A fatigue risk management system is data driven. It operates on the principle of the process of iterative improvement dubbed “test, operate, test, exit (TOTE)” (Miller, et al.,

1960), and the similar to the “observe, orient, decide, act (OODA) loop” posited by John Boyd (Coram, 2002; Wenden, et al., 2005; [http://en.wikipedia.org/wiki/John_Boyd_\(military_strategist\)](http://en.wikipedia.org/wiki/John_Boyd_(military_strategist))). For fatigue risk management “test” involves monitoring of added or embedded measures of performance together with observation of error, incident, or accident; and/or loss of productivity and making absolute or relative comparisons to previous performance or some standard of performance, and thus detecting a drift away from nominal. “Operate” involves changing something in the system, e.g., the work schedule that operational experience suggests will correct the observed drift away from nominal performance. This is followed by another “test” to determine the effectiveness of “operate”. This is an iterative process, repeating as many times as necessary until “test” yields nominal values, at which point the process exits. The iterative FRMS approach is qualitatively different from the promulgation of hours of service rules.

Error, incident, and accident reporting are fundamental to corporate safety management systems into which FRMS is logically folded. There is evidence that fatigue causes a decrease in productivity perhaps preceding an increase in error, incident, and accident, making loss of productivity a leading indicator (in the economic sense of early indicator) of fatigue (Thomas et al., 1997; Van Dongen, et al., 2010). Evaluating productivity and performance in the workplace is a critical component of fatigue risk management.

Summary of current practice and future promise of fatigue risk management

The current practice of fatigue risk management includes applying sleep science to reduce the risk of error, incident, or accident 1) within the context of the existing hours of service regulations and 2) by gaining exceptions to the existing regulations. For its future promise, fatigue risk management will replace the existing regulations (and labor management agreements) with sleep-science-derived mathematical models predicting

individual and group performance from sleep/wake history, circadian rhythm phase, and workload derived from personal biomedical status monitoring integrated into rostering and scheduling software. Both the Federal Aviation Administration (FAA) and the International Civil Aviation Organization (ICAO) are putting forward proposals for the transition from hours of service (HOS) rules to fatigue risk management systems (FRMS). In the future, the model, informed by sleep and performance data, promises to become the rule.

References

- Adams, N., Strauss, M., Schluchter, M., and Redline, S. (2001) Relation of measures of sleep-disordered breathing to neuropsychological functioning. *Am. J. Respir. Crit. Care Med.*, 163, pp. 1626-31.
- Ancoli-Israel, S., Cole, R., Alessi, C., Chambers, M., Moorcroft, W., and Pollak, C.P. (2003) The role of actigraphy in the study of sleep and circadian rhythms. American Academy of Sleep Medicine Review Paper. *Sleep*, 26, no. 3, pp. 342-392.
- Akerstedt, T. (2003) Shift work and disturbed sleep/wakefulness. *Occup. Med.*, 55, pp. 89-94.
- Balkin, T.J., Bliese, P.D., Belenky, G., Sing, H., Thorne, D.R., Thomas, M., Redmond, D.P., Russo, M., and Wesensten, N.J. (2004) Comparative utility of instruments for monitoring sleepiness-related performance decrements in the operational environment. *J. Sleep Res.* 13, pp. 219-227.
- Basner, M., Fomberstein, K.M., Razavi, F. M., Banks, S., William, J.H., Rosa, R.R., and Dinges, D.F. (2007) American time use survey: Sleep time and its relationship to Waking Activities. *Sleep*, 30, no. 9, pp. 1085-1095.
- Belenky, G. and Akerstedt, T. (in press) Introduction to occupational sleep medicine. In M. Kryger, T. Roth, and W.C. Dement (Eds.) *Principles and Practice of Sleep Medicine*, 5th Edition.
- Belenky, G., Hursh, S.R., Fitzpatrick, J. (2008) Split sleeper berth use and driver performance: a review of the literature and application of a mathematical model predicting performance from sleep/wake history and circadian phase. Report prepared for The American Trucking Associations, Sleep and Performance Research Center, Washington State University, Spokane, WA.

Belenky, G., Marcy, S.C., and Martin, J.A. (1996) Debriefings and battle reconstructions following combat. In J.A. Martin, L. Sparacino, and G. Belenky (Eds.) *The Gulf War and Mental Health: A Comprehensive Guide*, Praeger, Westport, CT.

Belenky G., Wesensten N.J., Thorne, D.R., Thomas, M.L., Sing, M.L., Redmond, D.P., Russo, M.B., and Balkin, T.J. (2003) Patterns of performance degradation and restoration during sleep restriction and subsequent recovery: a sleep dose-dependent study. *J. Sleep Res.*, 12, pp. 1-12.

Bierman, A., Klein, T.R., and Rea, M.S. (2005) The daysimeter: A device for measuring optical radiation as a stimulus for the human circadian system. *Meas. Sci. Technol.*, 16, pp. 2292-2299.

Bliese, P.D., Wesensten, N.J., and Balkin, T.J. (2006) Age and individual variability in performance during sleep restriction. *J. Sleep Res.*, 15, no. 4, pp. 376-385

Bonnet, M.H. and Arand, D.L. (2003) Clinical effects of sleep fragmentation versus sleep deprivation. *Sleep Med. Rev.*, 7, no. 4, pp. 297-310.

Carskadon, M.A., Dement, W.C., Mitler, M.M., Roth, T., Westbrook, P.R., and Keenan, S. (1986) Guidelines for the multiple sleep latency test (MSLT): A standard measure of sleepiness. *Sleep*, 9, no. 4, pp. 519-524.

Carskadon, M.A. and Dement, W.C. (1981) Respiration during sleep in the aged human. *J. Gerontol.*, 36, pp. 420-23.

Coram, R. (2002) *Boyd: The Fighter Pilot Who Changed the Art of War*. Little, Brown, New York.

Cornish, W.R. and Clark, G. (1989) *Law and Society in England 1750-1950*. Sweet Maxwell, London.

Costa, G., Akerstedt, T., Nachreiner, F., Baltieri, F., Folkard, S., Dresen, M.F., Gadbois, C., Gartner, J., Sukalo, H.G., Marmá, M., Kandolin, I., Silverio, J., and Simoes, A. (2004) Flexible working hours, health, and well-being in Europe: some considerations from a SALTSA project. *Chronobiol. Int.*, 21, pp. 831-844.

Dawson, D. and McCulloch, K. (2005) Managing fatigue: it's about sleep. *Sleep Med. Rev.*, 9, pp. 365-380.

Dembe, A., Erickson, J., Delbos, R., and Banks, S. (2005) The impact of overtime and long work hours on occupational injuries and illnesses: new evidence from the United States. *Occup. Environ. Med.* 2005 September; 62(9): 588-597

- Dorrian, J., Rogers, N.L. and Dinges, D.F. (2005). Psychomotor vigilance performance: neurocognitive assay sensitive to sleep loss. In Kushida, C.A. (Ed.). *Sleep Deprivation: Clinical issues, pharmacology, and sleep loss effects*. New York: Marcel Dekker, pp. 39–70.
- Edwards, B., Waterhouse, J., Reilly, T., and Atkinson, G. (2002) A comparisons fo the suitabilities of rectal, gut, and insulated axilla temperatures for measurement of the circadian rhythm of core temperature in field studies. *Chronobiol. Int.*, 19, no. 3, pp. 579-598.
- Folkard, S., and Tucker, P. (2003) Shift work, safety, and productivity. *Occup. Med.*, 53, pp. 89-94.
- Gander, P.H, Graeber, R.C., and Belenky, G. (in press) Fatigue Risk Management. In Kryger, M., Roth, T. and Dement, W.C. (Eds.) *Principles and Practice of Sleep Medicine*, 5th Edition, Elsevier, Philadelphia, PA.
- George, C.F., Boudreau, A.C., and Smiley, A. (1997) Effects of nasal CPAP on simulated driving performance in patients with obstructive sleep apnoea. *Thorax*, 52, no. 7, pp. 648-653.
- Gurubhagavatula, I., Maislin, G., and Pack, A.I. (2001) An algorithm to stratify sleep apnea risk in a sleep disorders clinic population. *Am. J. Respir. Crit. Care Med.*, 164, pp. 1904-1909.
- Harrison, Y. and Horne, J.A. (2000) The impact of sleep deprivation on decision making: a review. *J. Exp. Psychol. Appl.*, 6, no. 3, pp. 236-249.
- Hersman, D. (2010) Remarks of Honorable Deborah A.P. Hersman, Chairman, National Transportation Safety Board Before The National Sleep Foundation, Washington, DC March 5, 2010, <http://www.nts.gov/speeches/hersman/daph100305.html>.
- Horne, J.A. and Reyner, L.A. (1995). Sleep related vehicle accidents. *Br. Med. J.*, 310, no. 6979, pp. 565-567.
- Howard, M., Worsnop, C., Campbell, D., Swann, P., and Pierce, R. (2001) Sleep disordered breathing in Victorian transport drivers. *Am. J. Respir. Crit. Care Med.*, 163, no. 5, pp. A933.
- Jewett, M.E., Dijk, D.J., Kronauer, R.E., and Dinges, D.F. (1999) Dose-response relationship between sleep duration and human psychomotor vigilance and subjective alertness. *Sleep*, 22, no. 2, pp. 171-179.
- Johns, M.W. (1993) Daytime sleepiness, snoring, and obstructive sleep apnea. The Epworth Sleepiness Scale. *Chest*, 103, no. 1, pp. 30-36.

Johns, M. and Hocking, B. (1997) Daytime sleepiness and sleep habits of Australian workers. *Sleep*, 20, no. 10, pp.844-849.

Knutson, K.L., Spiegel, K., Penev, P., and Van Cauter, E. (2007) The metabolic consequences of sleep deprivation. *Sleep Med. Rev.*, 11, pp. 163-178.

Lauderdale, D.S., Knutson, K.L., Yan, L.L., Rathouz, P.J., Hulley, S.B., Sidney, S., and Kiang, L. (2006) Objectively measured sleep characteristics among early-middle-aged adults: The cardia study. *Am. J. Epidemiology*, 164, no. 1, pp. 5-16.

Lavie, P. (1983) Incidence of sleep apnea in a presumably healthy working population: a significant relationship with excessive daytime sleepiness. *Sleep*, 6, pp. 312-318.

Lewy, A.J. and Sack, R.L. (1989) The dim light melatonin onset as a marker for circadian phase position. *Chronobiol. Int.*, 6, no.1, pp 93-102.

Lockley S.W., Brainard, G.C., and Czeisler, C.A. (2003) High sensitivity of the human circadian melatonin rhythm to resetting by short wavelength light. *J. Clin. Endocrinol. Metab.*, 88, no. 9, pp. 4502-4505.

McDonald, J.L., Lillis, T.A., Tompkins, L.A., Van Dongen, H., and Belenky, G. (2008) Effects of extended work hours on objectively measured sleep and performance in industrial employees. *Sleep*, 31, pp. A374.

McDonald, J.L., Tompkins, L.A., Lillis, T.A., Bowen, A.K., Grant D.A., Van Dongen, H.P.A., and Belenky, G. (2009) Work hours, sleep, and performance in medical residents working night float vs. day shift. *Sleep*, 32, pp. A394.

McDonald, J., Patel, D., and Belenky, G. (in press) Sleep and performance monitoring in the workplace: The basis for fatigue risk management. In M. Kryger, T. Roth, and W.C. Dement (Eds.) *Principles and Practice of Sleep Medicine*, 5th Edition, Elsevier, Amsterdam.

Magistretti, P.J., Pellerin, L., and Martin, J.L. (1995) Brain energy metabolism, an integrated cellular perspective. In F.E. Bloom and D.J. Kupfer (Eds.) *Psychopharmacology: The Fourth Generation of Progress*. Raven Press Ltd., New York, pp. 657-670.

Maislin, G., Pack, A.I., Kribbs, N.B., Smith, P.L., Kline, L.R., Schwab, R.J., and Dinges, D.F. (1995) A survey screen for prediction of apnea. *Sleep*, 18, no. 3, pp. 158-166.

Mallis, M.M., Mejdal, S., Ngyuen, T.T., and Dinges, D.F. (2004) Summary of the key features of seven biomathematical models of human fatigue and performance. *Aviat. Space Environ. Med.*, 75, pp. A4-A14.

- Mazza, S., Pepin, J.L., Naegele, B., Rauch, E., Deschaux, C., Ficheux, P., and Lévy, P. (2006) Driving ability in sleep apnoea patients before and after CPAP treatment: evaluation on a road safety platform. *Eur. Respir. J.*, 28, pp. 1020-1028.
- Meier-Ewert, H.K., Ridker, P.M., Rifai N., Price, N., Dinges, D., and Mullington, J. (2004) Effect of sleep loss on c-reactive protein, an inflammatory marker of cardiovascular risk. *J. Am. Coll. Cardiol.*, 43, pp. 678-683.
- Miller, G., Galanter, E., and Pribram, K. (1960) *Plans and the structure of behavior*. Holt, Rinehart and Winston, New York.
- Moore, R.Y. (1997) Circadian rhythms: Basic neurobiology and clinical applications. *Annu. Rev. Med.*, 48, pp. 252-266.
- Moore, R.Y., Speh, J.C., and Leak, R.K. (2002) Suprachiasmatic nucleus organization. *Cell Tissue Res.*, 309, pp.89-98.
- Moore-Ede, M. (1995) Things that go bump in the night. *American Bar Association J.* 81, January, pp 56-60.
- Mullington, J.M., Haack, M., Toth, M., Serrador, J.M., and Meier-Ewert, H.K. Cardiovascular, inflammatory, and metabolic consequences of sleep deprivation. *Prog. Cardiovasc. Dis.*, 51, no. 4, pp. 294-302.
- Nilsson, J.P., Soderstrom, M., Karlsson, A.U., Lenader, M., Akerstedt, T., Lindroth, N.E., and Axelsson, J. (2005) Less effective executive functioning after one night's sleep deprivation. *J. Sleep Res.*, 14, no. 1, pp. 1-6.
- Olofsen E., Dinges D.F., and Van Dongen H.P.A. (2004) Nonlinear mixed effects modeling: individualization and prediction. *Aviat. Space Environ. Med.*, 75, no. 3, Suppl., pp. A134-A140.
- Perrow, C. (1999) *Normal accidents*. Princeton: Princeton University Press.
- Petrilli, R.M., Thomas, M.J.W., Lamond, N., Dawson, D., and Roach, G. (2007) Effect of flight duty and sleep on the decision-making of commercial airline pilots. In J.M. Anca (Ed.) *Multimodal Safety Management and Human Factors: Crossing the Borders of Medical, Aviation, Road and Rail Industries*. Ashgate Publishing Company Ltd., Burlington, Vermont, pp. 259-270.
- Petrie, K.J., Powell, D.M.C., and Broadbent, E.A. (2004) Fatigue self-management strategies and reported fatigue in international pilots. *Ergonom.*, 47, no. 5, pp. 461-468.

Philip, P., Sagaspe, P., Taillard, J., Valtat, C., Moore, N., Akerstedt, T., Charles, A., and Bioulac, B. (2005) Fatigue, sleepiness, and performance in simulated versus real driving conditions. *Sleep*, 28, no. 12, pp. 1511-1516.

Powell, D., Spencer, M., Holland, D., and Petrie, K. (2008) Fatigue in two-pilot operations: implications for flight and duty time limitations. *Aviat. Space Environ. Med.*, 79, no. 11, pp. 1047-1050.

Rodenstein, D. (2009) Sleep apnea: traffic and occupational accidents--individual risks, socioeconomic and legal implications. *Respiration*, 78, no. 3, pp. 241-248.

Romig, E., and Klemets, T. (2009) Fatigue risk management in flight crew scheduling. *Aviat. Space Environ. Med.*, 80, no. 12, pp. 1073-1074.

Rupp, T.L., Wesensten, N.J., Bliese, P.D., and Balkin, T.J. (2008) Banking sleep: Realization of benefits during subsequent sleep restriction. *Sleep*, 32, no. 3, pp. 311-321.

Samn, S.W. and Perelli, L.P. (1982) Estimating aircrew fatigue: A technique with implications for airlift operations. *Tech Rep SAM-TR-82-21*, USAF School of Aerospace Medicine, Brooks AFB, TX.

Stoohs, R.A., Guilleminault, C., Itoi, A., and Dement, W.C. (1994) Traffic accidents in commercial long-haul truck drivers: the influence of sleep-disordered breathing and obesity. *Sleep*, 17, no. 7, pp. 619-623.

Thomas, G.R., Raslear, T.G., and Kuehn, G.I. (1997) The effects of work schedule on train handling performance and sleep of locomotive engineers: A simulator study. *Final Report, DOT/FRA/ORD-97-09*, Federal Railroad Administration, U.S. Department of Transportation, Washington, D.C.

Thomas, M.L., Sing, H.C., Belenky, G., Holcomb, H., Mayberg, H., Dannals, R., Wagner, H., Thorne, D., Popp, K., Rowland, R., Welsh A., Balwinski, S., and Redmond, D.P. (2000) Neural basis of alertness and cognitive performance impairments during sleepiness. I. Effects of 24 h of sleep deprivation on waking human regional brain activity. *J. Sleep Res.*, 9, no. 4, pp. 335-352.

Thorne, D.R., Genser, S., Sing, H., and Hegge, F. (1983) Plumbing human performance limits during 72 hours of high task load. In *Proceedings of the 24th DRG Seminar on the Human as a Limiting Element in Military Systems*. Defense and Civil Institute of Environmental Medicine (DCIEM), Toronto, Canada, pp.17-40.

Tucker, A.M., Whitney, P., Belenky, G., Hinson, J.M., and Van Dongen, H.P.A. (2010) Effects of sleep deprivation on dissociated components of executive functioning. *Sleep*, 33, no. 1, pp. 47-57.

- Van Cauter, E., Spiegel, K., Tasali, E. and Leproult, R. (2008) Metabolic consequences of sleep and sleep loss. *Sleep Med.*, 9 Suppl., pp. S23-S28.
- Van Dongen, H., Belenky, G., Moore, J.M., Bender, A.M., Huang, L., Mott, C.G., and Vila, B.J. (2010) Nighttime driving and fuel use: a high-fidelity simulator study in a sleep laboratory. *Sleep*, 33, pp. A308.
- Van Dongen, H.P.A., Belenky, G., and Krueger, J.M. (2010) Investigating the temporal dynamics and underlying mechanisms of cognitive fatigue. In P.L. Ackerman (Ed.) *Cognitive Fatigue: Multidisciplinary Perspectives on Current Research and Future Applications*. American Psychological Association, Washington, D.C.
- Van Dongen, H.P.A., Maislin, G., Mullington, J.M., and Dinges, D.F. (2003) The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction and total sleep deprivation. *Sleep*, 26, no. 2, pp. 117-126.
- Van Dongen, H.P.A., Vitellaro, K.M. and Dinges, D.F. (2005) Individual differences in adult human sleep and wakefulness: Leitmotif for a Research Agenda. *Sleep*, 28, no. 4, 1-18.
- Viola, A.U., Archer, S.N., James, L.M., Groeger, J.A., Lo, J.C.Y., Skene, D.J., von Shantz, M.J., and Dijk, D-J. (2007) PER3 Polymorphism predicts sleep structure and waking performance. *Curr. Biol.*, 17, pp. 613-618.
- Webb, W.B. and Dinges, D.F. (1989) Cultural perspectives on napping and the siesta. In D.F. Dinges and R.J. Broughton (Eds.) *Sleep and Alertness: Chronobiological, Behavioral, and Medical Aspects of Napping*. Raven Press, New York, pp. 247-265.
- Wesensten, N.J., Belenky, G., Thorne, D.R., Kautz, M.A., and Balkin, T.J. (2004) Modafinil versus caffeine: Effects on fatigue during sleep deprivation. *Aviat. Space Environ. Med.*, 75, pp. 520-525.
- Wesensten, N.J., Belenky, G. and Balkin, T.J. (2005) Cognitive readiness in network centric operations. *Parameters: U.S. Army War College Quarterly*, 35, no. 1, pp. 94-105.
- Wright, K.P., Gronfier, C., Duffy, J.F., Czeisler, C.A (2005). Intrinsic period and light intensity determine the phase relationship between melatonin and sleep in humans. *J. Biol. Rhythms*, 20, no.2, pp. 168-177.
- Young, T., Blustein, J., Finn, L., and Palta, M. (1997). Sleep-disordered breathing and motor vehicle accidents in a population- based sample of employed adults. *Sleep*, 20, no. 8, pp. 608-613.

Young, T., Shahar, E., Nieto, F.J., Redline, S., Newman, A.B., Gottlieb, D.J., Walsleben, J.A., Finn, L., Enright, P., and Samet, J.M. (2002) Predictors of sleep-disordered breathing in community-dwelling adults: the Sleep Heart Health Study. *Arch. Intern. Med.*, 162, pp. 893-900.