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## **FATIGUE PUTS RAIL WORKERS ON A DANGEROUS TRACK** **Irregular schedules, antiquated regulations and railroad culture create crews of weary workers running trains**

By CHARLES BOISSEAU  
Staff

VETERAN railroad conductor Jimmy Davis told his wife the early morning train trip would be "a piece of cake." Instead, it would be his last.

The 57-year-old conductor died along with three other train workers on July 25, 1994, when his Southern Pacific freight train entered a curve of West Texas track and plowed head-on into another train coming from El Paso. The dozen colliding diesel engines burst into flames and created a jolt that some residents of nearby Marathon initially thought was an earthquake.

Federal investigators later concluded the probable cause the crew members of the eastbound train missed a stop signal was they suffered from "reduced alertness consistent with falling asleep and were not aware of the signal indications." The conductor had 4 1/2 hours of sleep in the prior 51 1/2 hours, while the engineer had slept 4 1/2 hours in 35 hours.

More specifically, the railroad's poor scheduling system made it difficult for workers to predict their work and rest times and plan their sleep, the National Transportation Safety Board said.

"My dad always said, 'You know, the unpredictability and the way they are pushing men to the brink, one of these days there's going to be the mother of all accidents,' " said Davis' oldest son, J.C., an engineer for Union Pacific Railroad, which bought Southern Pacific in September 1996. "And he was right."

Worker fatigue is an age-old problem in the 24-hour, seven-day-a-week railroad business, which has long demanded that employees ignore their body clocks and adapt to oddball schedules to move the goods.

But there can be a steep price to pay.

In September, after the first of two safety inspections, federal regulators cited Union Pacific for safety problems including the concern that employees weren't getting enough sleep.

Of 14 accidents on Union Pacific lines in the past year that are under investigation by the NTSB - including three wrecks since June 22 that have claimed seven lives - at least two involve crew fatigue as a possible factor. Among them is the collision at 2:15 a.m. on July 2 in Rossville, Kan., in which an engineer was killed when his train rammed a passing freight train. The ensuing hazardous chemical fire forced 1,000 people to evacuate the area, including 76 residents of a nearby nursing home.

Engineers and conductors in the Houston area and elsewhere in Texas said they often work 70, 80 or more hours a week. Their work schedules have become even more wearisome since the summer, when Union Pacific began suffering from highly publicized traffic tie-ups starting at the railroad's big Englewood Yard in northeast Houston. This has resulted in long delays and longer hours for employees.

Trains magazine has called it the biggest railroad traffic jam since World War I, and one union official likened it to a virus that has spread throughout the railroad's 36,000-mile system, slowing traffic on other railroads as well. Shippers and state regulators have blamed the controversial Union Pacific-Southern Pacific merger for the poor service and spiraling costs to ship everything from coal to Christmas trees.

But many conductors and engineers said despite working longer hours, the hardest part of the job is their ever unpredictable schedules. Often working seven or more days in a row, train workers privately confessed to suffering from exhaustion and sometimes falling asleep or operating trains while drowsy.

"We're not machines," said one 44-year-old conductor, who spoke on the condition of anonymity - like most other railroad employees interviewed.

Workers said the pay is good - about \$45,000 to \$100,000 a year - but the cost is high. Such a lifestyle can result in little family contact, widespread divorce and often a bone-weary exhaustion.

Omaha, Neb.-based Union Pacific - the nation's largest railroad - is not alone. Industrywide, the NTSB has identified crew fatigue as a factor in at least 10 major railroad crashes since January 1988. That's when it first cited fatigue as a probable cause in a head-on collision that killed four Conrail workers in Pennsylvania.

Labor unions complain that since Congress passed the Staggers Act in 1980 to largely deregulate railroads, numerous mergers have taken place and railroads have abandoned thousands of miles of tracks. This has meant fewer railroads are carrying more freight on one-third less track with almost one-third fewer employees than a decade ago.

Railroad industry representatives say that despite the consolidations and reductions in staff since 1980, the number of train accidents has dropped significantly.

Nevertheless, union officials say fatigue has become a serious issue.

"This is the only industry I know of in the world that the majority of its operating employees don't know when they are going to work, don't know how long they are going to work and don't know how long they are going to get off," said Jim Brunkenhoefer, legislative director for the United Transportation Union in Washington, D.C., and an ex-railroad engineer.

"It makes good money, but it's a horrible way to live," he said.

With the rash of recent accidents, there is growing debate about the merits of the 90-year-old federal law that dictates hours of service for the nation's 250,000 railroad workers, most of whom work at the shrinking number of major, or class I, railroads.

The law, unchanged in more than a quarter century, limits train crews to working 12 consecutive hours, and allows them to be called back to work within eight to 10 hours.

But union members fear a change in the law would cut their paychecks.

And, railroads worry a change would greatly increase their costs, requiring them to add more workers. For each new hire, a railroad reportedly can expect to pay an additional \$20,000 a year in fringe benefits alone.

"It's kind of a ticklish situation. No one wants to make the first move on this," said Bob Lauby, director of the rail division of NTSB.

As a result, Congress has been slow to act. A bill in the House to modify the hours-of-service law failed to pass a committee last year and has gained scant support in the Republican-controlled Congress since it was reintroduced in September by Democrats.

Among other things, the bill would provide longer rest periods and mandate that rail employees get at least one day off each week. Meanwhile, some carriers are responding on their own by addressing fatigue in new ways, mindful of recent findings of sleep researchers into such things as circadian rhythms - the internal clock that beckons the body to surrender to sleep at certain times of day.

Some railroads have begun allowing train crews to nap while on duty, developing new scheduling systems and launching widespread employee training and educational programs.

However, safety experts said while such changes likely will improve the situation over time, new technology also must be part of the solution to make safer this historically slow-to-change, macho industry.

### **Coping with fatigue**

At a Houston meeting of the Brotherhood of Locomotive Engineers, Division 366, a 31-year-old engineer consulted a time book and calculated he had worked 96 hours, 15 minutes during the previous seven days.

This included one day in which he was on duty for 18 hours, 10 minutes - well over the 12-hour federal limit. However, the law applies to how long a worker can operate a train. It doesn't count "limbo time" - the time a worker may wait on an idled locomotive for a van to pick him or her up and commute to a terminal.

"After you get back home, do your chores and rest, they're calling us in four to five hours" to go back to work, said the engineer, who is assigned to the railroad's "extra board."

Workers who are on the extra board and those in "pool" service jobs have the most unpredictable schedules. That's because they have no assigned work hours - instead they are on call to work when trains are ready to move. At Union Pacific, workers are called 1 1/2 to 2 hours before they are required to report.

"You get to the point that you are so tired that your ability to make decisions is hampered severely," said one 49-year-old conductor.

Another conductor from Porter showed his time sheets covering a recent seven-day period in which he worked a total of 68 1/2 hours. He started work at a different time each day: 1:30 a.m., 11:55 p.m., 2:15 a.m., 10 p.m., 10:30 p.m., 5:45 p.m. and 7 a.m.

During their off-hours, train workers can try to gauge how long they will be off by calling the railroad's toll-free phone line that gives a recorded message listing train "line-ups." A worker punches in his or her Social Security number, and a recorded message tells where in line a worker is for various jobs.

But these lineups give approximate reporting times and are highly inaccurate, workers said.

And because of the unpredictability, even when workers are given plenty of time off, they aren't necessarily rested. When staying at a motel during a trip to an away-from-home terminal, workers may be awake for 12 to 15 hours and ready to work, but not get a call. Just as they start to tire again, the phone rings.

"When I'm on the conductor extra board or on the pool board you cannot plan your days off," said a conductor. "The thing about it is the uncertainty of when the call's going to come."

Workers said the railroad can reprimand them for being absent when they are called for work. Though they can ask for time off, often subtle or not-so-subtle pressure is applied for them to work. Some said they must lie and claim they are ill to get time off when they are tired.

Some workers said the schedules have become deeply ingrained, and given the nature of the job, they don't believe improvements can be made.

"Fatigue and long hours is nothing new - it's something that's been going on for 100 years," a engineer at Union Pacific's Dayton terminal said last month after completing a 12-hour shift after midnight.

For some, railroading is a family affair. One conductor said his father and grandfather were railroad men, as well as a brother and uncles. Like many other workers interviewed, the conductor said he was attracted to the railroad business after graduating high school because the job paid relatively high wages and provided good benefits.

The conductor recalled that during his initial job interview in the early 1970s, a manager told him the railroad favored hiring family members because they are easier to track down through relatives when called for work. This was before cellular phones and beepers - the electronic leashes railroad workers are attached to today.

But the railroad life is not conducive to a family life, said another conductor, who has had five kids from three marriages.

"Very seldom do you find a railroad worker who has been married once," said a twice-married conductor. "It's not an easy life."

During the past 15 years, the size of the typical railroad crew has shrunk from five to two, as railroads eliminated brakemen and firemen - not to mention cabooses - on most trains. This leaves little room for error, and it contributes to added pressure and stress, workers said.

Many crew members said they not only worry about being overly tired themselves, but also whether employees on oncoming trains and dispatchers are properly rested. Many said they fear the dispatchers they rely on are being overworked.

"I'm just concerned with the way things are going," said the conductor from Porter.

The conductor said he had been working a "pool job" on the Houston-Shreveport, La., line, but recently transferred to a yard job with a regular 60-hour-a-week schedule.

He had become frightened working the route - which workers refer to as "the Rabbit" because of its hilly terrain. The Rabbit is in so-called "dark territory" because it has no electronic signals, which is the case for about 15 percent of U.S. trackage. Crew members on this route must rely solely on a dispatcher in Omaha to communicate to them via radio whether it's safe to proceed over a block of track.

A head-on collision of two Union Pacific trains on June 22 happened on a stretch of "dark territory" track near Devine. Four people were killed in the accident. Dispatcher error is thought to be the cause.

"These last three (fatal) wrecks aren't the last ones you're going to see," predicted one Union Pacific engineer at a union meeting.

Finally, the widespread congestion on Union Pacific has contributed to longer hours in recent months, crew members said.

"UP's caused a lot of fatigue on us," said a 47-year-old engineer for Burlington Northern Santa Fe Railway Co., which operates over many Union Pacific tracks. "It takes two to three crews just to make it to Lafayette, because of their problems. It used to take one."

Working to exhaustion and at odd hours, many train workers confessed they've fallen asleep on the job. Sometimes, they sneak in a nap while their train is stopped at side track waiting for oncoming traffic to pass. Other times they may inadvertently nod off while running the train.

"I can tell you it's happened to me before," said an engineer. "You come past something, and you say man what was that last signal? I've actually gone to sleep for 10 to 15 seconds - you just can't help it."

These brief blackout periods, or "micro sleeps" as sleep researchers refer to them, can be extremely dangerous - especially considering how long it takes to stop a freight train, and the fact many are loaded with dangerous chemicals, experts said. For example, a typical Gulf Coast freight train going 50 mph and weighing 10,000 tons - more than a Navy destroyer - may take

1 1/2 miles to stop with the emergency brakes applied. Such a sudden stop can result in a derailment.

"If the general public had any idea some of the chemicals we haul through this town, they would get real concerned," said Donnie Rainer, general chairman for United Transportation Union Local 293, representing local conductors and brakemen.

Union Pacific is the nation's largest hauler of hazardous chemicals, many of which are produced on the Gulf Coast.

Instead of improving, some Union Pacific engineers said their ability to ask for time off when they are tired has worsened.

Ex-Southern Pacific engineers complained that Union Pacific recently eliminated a rule that had allowed them to request extra time off - up to 18 hours of undisturbed rest when at their home terminal and 12 hours when away from home.

"When we lost that we took a big step backward," one engineer said.

Mark Davis, a spokesman at Union Pacific, said the change was made after going through an arbitration process with the union. In exchange, Union Pacific implemented a policy that allows any of its 3,500 train and engine employees in Texas who work 14 consecutive days to qualify for two days off.

Asked why the company doesn't provide all workers with regular days off each week, Union Pacific spokesman John Bromley said: "We can't do that because of the 24-hour, seven-day-a-week nature of our operation and (because) traffic varies day to day. You always have a constant flux of how many people you need. It's a problem in our industry forever."

### **Fatigue gets more attention**

From 1991 to 1996, 260 train employees and contractors were killed in U.S. train accidents, according to the Federal Railroad Administration.

In 1996, nearly one-third of 2,584 train accidents nationwide were caused by human error. No number is available of how many are suspected as being fatigue-related.

However, accident investigators are paying more attention to fatigue, said Lauby of NTSB. "In the past, we never would have put as a probable cause that the crew member was asleep."

The NTSB has identified irregular work/rest cycles as a contributing factor in a variety of accidents, including the November 1990 head-on collision of two Atchison, Topeka and Santa Fe Railway Co. trains in Corona, Calif., which killed four crew members and injured two others.

Lauby said the agency tracked the on- and off-duty times of one of the engineers involved in the crash and found "there was no consistency in this guy's life at all. He worked 2 in the morning one day, 4 o'clock the next. It was just all over."

More rail accidents attributed to human failure occurred between 2 and 6 a.m. than in any other four-hour segment, and the general accident rate also was higher than at other times, according a survey of 1990 accidents in a recent report on fatigue countermeasures for the American Association of Railroads. These were findings in a 1992 General Accounting Office report to Congress that concluded "higher levels of start time variability will increase the likelihood that engineers will experience fatigue."

The NTSB has recommended Federal Railroad Administration adopt rules that limit the irregular work/rest periods, so far to no avail.

The Texas Railroad Commission - which regulates rail crossings and equipment in the state, but has no authority over worker schedules - recently asked the Federal Railroad Administration to require a 12-hour minimum rest period between shifts before workers in Texas can return to work.

"We believe people should not operate hazardous trains through the neighborhoods of our state unless the engineer and conductor with them has had sufficient time when they were rested," said Jerry Martin, director of the rail division of the commission. "We wanted to say, 'Railroads, you can't work your people to the death to the point the public's safety is endangered.'"

However, it is Congress, not the Federal Railroad Administration that sets the hours. The Federal Railroad Administration has asked Congress to grant

it the same authority over railroad work rules that federal agencies have over the airlines and highway carriers, but Congress has declined, said Ed English, director of the office of safety assurance and compliance for the Federal Railroad Administration.

English said the issue is complicated by the fact that workers want to work long hours to make more money.

"I'm not sticking up for railroads - there are some things railroads could do - but in some cases, union agreements have an impact."

Some workers agreed that there are those who will work as many hours as possible to make more money, even if it makes them bone-tired.

"Some guys are greedy," admitted one conductor. But he said, "Ninety percent of us want our rest."

The railroad industry cites figures that show train accidents have fallen dramatically since 1980.

"Our industry is getting safer," said Charles Dettmann, executive vice president of safety and operations for the American Association of Railroads. "That is not saying that this industry is denying there is a fatigue issue."

While conventional wisdom says decreasing the number of hours an employee can work - from 12 to, say, 10 or eight - would help solve the problem,

Dettmann disagreed. Railroads could still end up with fatigued workers at various times of day.

"It's not an answer you can legislate," he said.

Martin Moore-Ede, president of Circadian Technologies, a consulting firm in Cambridge, Mass., agreed.

"The most important thing you can do to solve the problem of fatigue on train crews is to put people on regular and predictable schedules. It's by far the most effective solution," said Moore-Ede, whose firm focuses on dealing with fatigue in 24-hour industries, including railroads. "When you look at

most railroads, including Union Pacific, it's almost a total irregular system, without regular scheduling in place."

### **Working on solutions**

Some railroads are beginning to tackle worker fatigue in new ways, coming up with new schedules, and implementing training and education programs that take into account recent findings of sleep researchers.

Illinois Central Railroad recently launched a scheduling system that limits the time crews spend on the road, so workers can spend more quality time at home. Workers run trains shorter distances and then catch trains back to their home terminal each night.

"Illinois Central has over 90 percent of their crews home every night," Dettmann said.

At Conrail, the railroad is assigning crews to specific trains to provide more predictability in their schedules, he said.

Burlington Northern - widely seen as an industry leader in fatigue issues - in August launched a program to allow train crews to take "strategic naps" for up to 45 minutes under certain conditions.

"We like to look at it like we're promoting planned naps, to avoid unplanned naps," said Al Lindsey, director of safety and rules for Fort Worth-based Burlington Northern, the second-largest railroad operating in the Houston area after Union Pacific. "You don't want to wait until you can't keep your eyes open."

Previously, employees could be fired for taking a nap, even when a train was stopped on a side track in the middle of the night.

Among the rules of the new so-called "power nap" policy: Employees are restricted to sleeping 45 minutes and only when the train is stopped. (The time limit keeps them from getting into a deep sleep "inertia" that can be disorienting when a person wakes, according to sleep researchers, Lindsey said.) Also, one of the crew members must remain awake while the other sleeps.

"It's a big change," Lindsey admitted. "Culturally it's really been difficult on people, but not only did the science tell us to do it, we make a point of (educating employees) on what we're trying to do."

One Burlington Northern engineer said, "It makes a world of difference just having that 30-minute nap." Admitting to violating company rules by taking naps in the past, he added: "Now when you take that nap you get a little deeper sleep, and you get more rest out of it."

Seeking other ways to lessen worker fatigue, Burlington Northern in June formed a fatigue countermeasures committee made up of company officials, federal regulators and union officials to evaluate programs and make recommendations.

During 1997, the Fort Worth-based company sent almost half of its 43,000 employees to a 1-hour, 15-minute training program to learn about fatigue and common misconceptions. (One misconception: It's not true the individual is the best judge of how tired they are. Scientific research shows they are the worst judge, Lindsey said.)

The firm also expects soon to contract with a research firm to evaluate company lodging locations and develop better sleeping environments - looking at everything from the lighting and mattresses to sleep-inducing sound machines, Lindsey said.

New scheduling initiatives appear to be the biggest priority - and the most troublesome.

For example, in Spokane, Wash., Burlington Northern tested a new schedule in which workers were assigned to one of four six-hour pools over a 24-hour period. A worker could count on being called within one of those "window" periods. If not called, the worker would have the day off and plan to work during his next window period.

Company surveys showed the system reduced fatigue and also provided a side benefit of increasing workers' planned activities with their families, Lindsey said.

But union workers voted against implementing the new schedule. This was after the company said it could not guarantee employees would make the

same amount of money as before - a guarantee they offered during a three-month test period.

"We do not want safety used . . . against us to reduce costs," Brunkenhoefer said, referring to the union members' objections. "We want a situation that we solve safety on safety (issues), not another method in which they can reduce their (worker) earnings."

Still, Burlington Northern considers the project a success. While rejecting the window scheduling, employees on the "extra board" liked a new system in which they were assigned eight days on duty and got three assigned days off, Lindsey said.

"The problem with set work windows is the trains themselves are unpredictable. But I think we can move very rapidly with (implementing) the assigned days off, which will probably have a big factor on alertness," Lindsey said.

For its part, Union Pacific recently hired a consulting firm, Alertness Solutions, to help develop a four-year program to address fatigue.

Alertness Solutions is headed by Mark Rosekind, who previously ran the Fatigue Countermeasures program for NASA's Ames Research Center, which since 1980 has been studying fatigue in flight operations and other transportation modes.

Rosekind said the multifaceted program being developed for Union Pacific will include many of the same initiatives that Burlington Northern has launched, including training for all of its 54,000 workers, installing a strategic napping program and setting up scheduling systems so workers have more predictable rest times.

Rosekind said he also will act as part of a scientific advisory committee to evaluate all the fatigue-related services and products that are "coming out of the woodwork." He said Union Pacific has been approached by companies pitching everything from high-energy drinks, diet programs and educational videotapes to combat worker fatigue.

But changes won't come quickly to a business as tradition-bound as railroads, Rosekind added. While some programs can be implemented within

a few months, such as education and napping, other efforts like improving worker schedules will take years to install, he said.

"Fatigue is complex enough that there is no simple solution, or magic bullet," Rosekind said. "There's a huge cultural change that has to happen in the rail industry to get these things incorporated on a daily basis."

"There's a macho image in the railroad industry," agreed Denny Holland, who was appointed in September to a new position as director of alertness management for Union Pacific. "We work long hours and work hard, and that kind of culture may need to change too."

### **A high-tech safety net**

These new initiatives are "certainly going to improve the situation," said Lauby of the NTSB. But they still won't go far enough, he said.

The NTSB continues to push for a new technology to safeguard against human error, called Positive Train Separation. This is on-board train computer technology designed to automatically stop trains before they run into each other or derail because of excessive speed.

The safety board has advocated the industry implement Positive Train Separation for more than a decade.

"The reasons we have made these PTS recommendations is we really don't see another way to prevent these (fatigue-related) accidents. All these programs are very good and they help to improve the situation but our job is to prevent accidents," Lauby said.

"You cannot make a regulation that says you will not fall asleep. That's just not realistic, you have to understand the frailties of the human being, and do what you can with technology in order to back them up," he said.

So far, the Federal Railroad Administration has resisted mandating that railroads install the systems, which it has estimated would cost the industry about \$1 billion. It has instead recommended an informal time frame for installing PTS on selected corridors by the year 2000.

With the potential to save an estimated seven lives a year and \$30 million in damages annually, "it's not justified," said Dettmann of the American Association of Railroads.

"There's no way on earth to recoup that investment when you could easily spend money in other ways to improve safety," he said.

Several industry-sponsored pilot projects are under way, including a joint Union Pacific-Burlington Northern effort in the Pacific Northwest that makes use of a Global Positioning Satellite system.

These programs won't be completed until late this year or next. Dettmann said it is far too early to mandate the technology because it has not yet been proven in railroad operating conditions.

However, Lauby criticized the industry for insisting that PTS be evaluated strictly on the basis of safety. He said railroads have been unwilling to fully explore the vast business benefits they could enjoy from such a system. For example, PTS would allow carriers to operate equipment and crews more efficiently, run trains safely closer together and save a substantial amount on fuel, he said. These savings shouldn't be overlooked, he said.

"Just look at the situation you have with UP," Lauby said. "UP has their lines in Texas clogged with trains. With PTS, when you know exactly where every one of the trains are, and you know their locations and speeds and everything, it's possible to get more efficiency out of the existing lines."

"We're not talking just about saving a certain amount of lives or an amount of pollution from hazardous materials (spills). We're looking at a concept that may potentially be of great benefit to the railroads."

### **A mother's concern**

The accident outside Marathon serves as a lesson that even though railroads may abide by the federal law and rules governing union contracts, the system still can result in crews not getting enough rest.

According to NTSB accident records, a scheduler told the crew on the eastbound train they could expect to start work early the next morning, July 25, 1994.

Instead, they were called that night at 8:13 p.m. for 10:50 p.m. duty - before they had gotten a night's sleep, even though they had been off duty 16 1/2 hours. The accident occurred at 9:06 a.m. the next day.

Jimmy Davis and his engineer - despite being well-rested that morning - were the unlucky ones on the westbound train.

As it is, the scheduling problems have not improved since the fatal accident - and may have gotten worse, said J.C. Davis.

"It can happen to any of us out here," said J.C., who - along with his brother, Marvin, a Union Pacific conductor - regularly runs trains over the same track where his father was killed. A 6-foot monument dedicated to the dead workers stands atop a hill overlooking the site; employees chipped in to pay for the marker.

The brothers' mother, Shirley, recalled that on the morning of the accident, she and Marvin rushed to the scene, uncertain if her husband was in the wreck. Able to see the black smoke from 10 miles away, they drove down a ranch road to get as close as possible to what Shirley described as an inferno.

With emergency personnel on hand, Marvin ran to inspect the carnage, while Shirley looked down from a hill that was burned and still smoldering from the diesel fire. She said she cried and tried to tell herself it wasn't happening - hoping her husband of 40 years somehow wasn't in the mangled machinery below. All the bodies were burned beyond recognition.

"My husband requested to be cremated, ironically," she said.

Shirley, 61, today lives alone in Bracketville. She worries about the safety of her two sons.

"I talk to myself, having two boys on the railroad," she said. "I just keep my fingers crossed and keep on praying. That's all I can do.

"It's just horrible," she said. "It's not going to get any better, I don't think.

"It hasn't yet."

## Hours of service

Here is a comparison of hours of service laws/regulations in various U.S. transportation industries:

- Railroad: Train crews - limited to working 12 consecutive hours, followed by a rest period of a minimum of eight to 10 hours.
- Dispatchers - Limited to working nine hours per day.
- Unlike other transportation modes, in which federal agencies set the hours of service limits, Congress sets the limits for railroads.
  
- Airlines: Pilots - No daily limit on hours, but various other limits including 30 hours flying time in any seven-day period, 100 hours in a month and 1,000 hours in a year. Required to have a minimum of nine hours rest between flights. The minimum rest can be reduced to eight hours, but if so the pilot must receive 11 hours off during the subsequent rest period.
- Flight attendants - Maximum of 14 hours on duty per day, with a minimum of eight hours rest between shifts.
- Commercial drivers: (truck and interstate bus drivers): Drivers can drive a maximum of 70 hours in an eight-day period. In a single 24-hour period, drivers are limited to a maximum of 10 hours driving time and 15 hours on duty, following eight consecutive hours off duty.
- The staff of the Office of Motor Carriers is expected to propose changes in the coming months to the hours of service rules, incorporating recent research findings in an effort to reduce driver fatigue. It would be the first big change in these rules since they were introduced 60 years ago.
- Maritime: Watch standers (such as a mate, helmsman and engineers who help maintain the watch on a vessel) on inland and U.S. coast-wise voyages are limited to 12 hours work in a 24-hour period. By international treaty, watch standers on ocean-going ships are restricted to a total of eight hours on duty in a 24-hour period. Captains are excluded from the duty requirements and are on call 24 hours a day. There are no hours of service regulations governing nonwatch-standing employees, such as deck hands.

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