

**DEPARTMENT OF TRANSPORTATION****Federal Motor Carrier Safety Administration****49 CFR Part 393**

[Docket No. FMCSA-2006-21259]

RIN 2126-AA88

**Parts and Accessories Necessary for Safe Operation: Protection Against Shifting and Falling Cargo****AGENCY:** Federal Motor Carrier Safety Administration (FMCSA), DOT.**ACTION:** Final rule.

**SUMMARY:** FMCSA amends its September 27, 2002, final rule concerning protection against shifting and falling cargo for commercial motor vehicles (CMVs) operated in interstate commerce in response to petitions for rulemaking from the American Trucking Association (ATA), Forest Products Association of Canada (FPAC), Georgia-Pacific Corporation (Georgia-Pacific) and Weyerhaeuser, and in response to issues raised by the Canadian Council of Motor Transport Administrators (CCMTA), the Forest Resources Association, Inc. (FRA), the Washington Contract Loggers Association and the Washington Log Truckers Conference (WCLA/WLTC), and the Timber Producers Association of Michigan and Wisconsin (TPA). The amendments make the final rule more consistent with the December 18, 2000, notice of proposed rulemaking (NPRM) to adopt the North American Cargo Securement Standard Model Regulations. This final rule also includes several editorial revisions to the 2002 final rule.

*Docket:* For access to the docket to read background documents or comments received, go to <http://dms.dot.gov> at any time or to Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal Holidays.

*Privacy Act:* Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may review DOT's complete Privacy Act Statement in the **Federal Register** published on April 11, 2000 (65 FR 19477) or you may visit <http://dms.dot.gov>.

**DATES:** The rule is effective July 24, 2006. The publication incorporated by reference in this final rule is approved

by the Director of the Office of the Federal Register as of July 24, 2006.

**FOR FURTHER INFORMATION CONTACT:** Mr. Michael Huntley, Chief of the Vehicle and Roadside Operations Division, Federal Motor Carrier Safety Administration, 202-366-4009.

**SUPPLEMENTARY INFORMATION:** This notice is organized as follows:

- I. Legal Basis for the Rulemaking
- II. Background
- III. Discussion of Comments to the NPRM
- IV. Regulatory Analyses and Notices

**I. Legal Basis for the Rulemaking**

This rulemaking is based on the authority of the Motor Carrier Act of 1935 and the Motor Carrier Safety Act of 1984.

The Motor Carrier Act of 1935, as amended, provides that “[t]he Secretary of Transportation may prescribe requirements for: (1) Qualifications and maximum hours-of-service of employees of, and safety of operation and equipment of, a motor carrier; and (2) qualifications and maximum hours-of-service of employees of, and standards of equipment of, a motor private carrier, when needed to promote safety of operation” (49 U.S.C. 31502(b)).

This final rule amends regulations concerning protection against shifting and falling cargo (cargo securement), applicable to motor carriers of property, which were promulgated by FMCSA on September 27, 2002 (67 FR 61212). The cargo securement regulations deal directly with the “safety of operation and equipment of \* \* \* a motor carrier” (sec. 31502(b)(1)) and the “standards of equipment of, a motor private carrier when needed to promote safety of operation” (sec. 31502(b)(2)). The adoption and enforcement of such rules is specifically authorized by the Motor Carrier Act of 1935. This final rule rests squarely on that authority.

The Motor Carrier Safety Act of 1984 provides concurrent authority to regulate drivers, motor carriers, and vehicle equipment. It requires the Secretary of Transportation to “prescribe regulations on commercial motor vehicle safety. The regulations shall prescribe minimum safety standards for commercial motor vehicles. At a minimum, the regulations shall ensure that: (1) Commercial motor vehicles are maintained, equipped, loaded, and operated safely; (2) the responsibilities imposed on operators of commercial motor vehicles do not impair their ability to operate the vehicles safely; (3) the physical condition of operators of commercial motor vehicles is adequate to enable them to operate vehicles safely; and (4)

the operation of commercial motor vehicles does not have a deleterious effect on the physical condition of the operators” (49 U.S.C. 31136(a)).

This final rule deals with cargo securement. It is based primarily on sec. 31136(a)(1) and (2), and secondarily on sec. 31136(a)(4). This rulemaking would ensure CMVs are maintained, equipped, loaded, and operated safely by requiring that cargo be secured in a manner that prevents it from shifting upon a CMV to such an extent that the vehicle's stability or maneuverability is adversely affected, or falling from the commercial motor vehicle and striking another vehicle. Compliance with the cargo securement regulations is necessary to ensure vehicles are equipped with appropriate cargo securement devices, loads are properly positioned on the vehicle, and vehicles are operated safely without the risk of shifting or falling cargo.

Finally, the rulemaking would ensure the operation of CMVs does not have a deleterious effect on the physical condition of the operators of vehicles by preventing articles of cargo from shifting forward into the driver's compartment, or shifting upon the vehicle to such an extent that the vehicle's stability or maneuverability is adversely affected and likely to cause a crash.

Therefore, FMCSA considers the requirements of 49 U.S.C. 31136(a)(1), (2) and (4) to be applicable to this rulemaking action. The rulemaking would amend regulations concerning commercial vehicle equipment, loading and operations, prescribe regulations applicable to the responsibilities frequently imposed upon drivers to ensure their ability to operate safely is not impaired, and help to prevent serious injuries to CMV drivers that could result from improperly secured loads.

With regard to 49 U.S.C. 31136(a)(3), FMCSA does not believe this provision concerning the physical condition of drivers is applicable because this rulemaking does not concern the establishment of driver qualifications standards. This final rule addresses safety requirements applicable to the cargo securement methods used by drivers who are often assigned the responsibility for ensuring that freight is restrained to prevent shifting upon or falling from the CMV, but it does not include issues related to the physical qualifications or physical capabilities of drivers who must complete such tasks.

However, before prescribing any such regulations, FMCSA must consider the “costs and benefits” of any proposal (49 U.S.C. 31136(c)(2)(A) and 31502(d)).

## II. Background

On September 27, 2002 (67 FR 61212), FMCSA published a final rule revising its regulations concerning protection against shifting and falling cargo for CMVs operated in interstate commerce. The final rule is based on the North American Cargo Securement Standard Model Regulations, reflecting the results of a multi-year comprehensive research program to evaluate the then-current U.S. and Canadian cargo securement regulations; the motor carrier industry's best practices; and recommendations presented during a series of public meetings involving U.S. and Canadian industry experts, Federal, State and Provincial enforcement officials, and other interested parties. The Agency indicated that the intent of the rulemaking is to reduce the number of crashes caused by cargo shifting on or within, or falling from, CMVs operating in interstate commerce, and to harmonize to the greatest extent practicable U.S., Canadian and Mexican cargo securement regulations. Motor carriers were given until January 1, 2004, to comply with the new regulations.

FMCSA received separate petitions for reconsideration of the final rule from the FPAC, Georgia-Pacific, Weyerhaeuser, and the ATA. A copy of each petition is included in the Docket No. FMCSA-2005-21259. Although each of the Petitioners considered its request to be a petition for reconsideration of the final rule, each of the requests was submitted after the deadline provided in 49 CFR 389.35 (*i.e.*, petitions for reconsideration must be submitted no later than 30 days after publication of the final rule in the **Federal Register**). Therefore, the petitions were treated as petitions for rulemaking in accordance with 49 CFR 389.35. Additionally, FMCSA received comments from the CCMTA, FRA, WCLA/WLTC, and the TPA. Copies of these comments are also in Docket No. FMCSA-2005-21259.

On June 8, 2005, FMCSA published an NPRM which addressed each of the petitions and associated comments received in response to the September 27, 2002, final rule identified above (70 FR 33430). The proposed amendments were intended to make the final rule more consistent with the December 18, 2000, NPRM on the same subject and The North American Cargo Securement Standard Model Regulations that the new regulations are based upon. In response to inquiries and requests for guidance regarding enforcement of the cargo securement regulations, the agency also proposed amendments

regarding manufacturing standards for tiedowns, and cargo securement requirements for dressed lumber, metal coils, paper rolls, intermodal containers and flattened cars. The NPRM also included several editorial corrections to the September 2002 final rule. A full discussion of the proposed amendments is included in the NPRM.

## III. Discussion of Comments to the NPRM

The agency received 31 comments in response to the NPRM. The commenters included: The Allegheny Industrial Associates (Allegheny), American Road and Transportation Builders Association (ARTBA), ATA, Association of Equipment Manufacturers (AEM), Jerry R. Berenz, CCMTA, Canadian Trucking Alliance (CTA), Coastal Transport, Inc., Colorado Rural Electric Association (CREA), the DACAR Group (DACAR), Department of Energy (DOE), East Manufacturing Corporation (EMC), EdgeWorks, Inc. (EdgeWorks), FRA, FPAC, Georgia-Pacific, Greg G. Miller, Iowa Department of Transportation (Iowa DOT), Kinedyne Corporation (Kinedyne), New York State DOT (NY DOT), North Carolina Forestry Association, Ohio State Patrol (OSP), Onyx Environmental Services LLC, Paper & Forest Industry Transportation Committee (PFITC), Rayonier, Inc. (Rayonier), Joseph Takacs, Jr., WCLA, Washington Trucking Associations (WTA), Dana M. Willaford, Wisconsin Transportation Builders Association (WTBA), and Verizon Services Corporation (Verizon).

The majority of the commenters supported the proposed amendments. Several, however, suggested minor enhancements or modifications to the specific wording proposed by the Agency, to improve the clarity and to enhance the enforceability of the requirements. A discussion of each of the proposed amendments, including the comments received and the Agency position on each, is provided below.

1. *NPRM Proposal*: FMCSA proposed to amend § 393.5 to include definitions of "crib-type trailer," and "metal coil". (70 FR 33438)

*Comments*: CCMTA stated that it does not support the addition of the proposed definition of "crib-type log trailer" in the Canadian standard at this time, as it has concerns with the prospect of logs being transported in trailers that are not restrained by any tiedowns.

DACAR suggested that "coiled rod" be added to the definition of metal coil as this term is used in the industry and market place, and recommended that consideration should also be given to including "coated metal" in the

definition of metal coil. OSP agreed with the FMCSA decision to include a definition of "metal coil," but commented that rubber or plastic encased wire on a spool should also be included in the definition of metal coil. Iowa DOT believes the proposed definition of metal coil should be expanded, as some enforcement jurisdictions are requiring compliance with this section when the load consists of wooden or metal spools or reels of wire, cable, tubing, plastic pipe, or other materials. Iowa DOT believes that spools and reels can be adequately secured by following the general cargo securement rules, including the use of blocks, wedges, or racks to keep the round spools and reels from rolling. CCMTA does not support the proposed definition of metal coils. CCMTA believes further assessment of the implications of including coils of wire and other metal products in this definition is needed, and proposed that metal wire which is not packaged on a spool should not be included in this definition, but rather should be secured in accordance with the general cargo securement requirements. Verizon stated rolls of telephone cable do not present the same risks as metal coils that meet the proposed definition and, therefore, should fall under the general cargo securement regulations.

*FMCSA Response*: FMCSA proposed a definition of "crib-type log trailer" in response to an inquiry from the Timber Producers Association of Michigan and Wisconsin, which expressed an interest in using a crib-type system for transporting logs and pulpwood. Such systems are typically based, in whole or in part, upon a patented design "Apparatus for Constraining the Position of Logs on a Truck Trailer" (Patent No. U.S. 6,572,314 B2). These systems use stakes, bunks, a front-end structure, and a rear structure to restrain logs on trailers. The stakes prevent movement of the logs from side to side on the vehicle while the front-end and rear structures prevent movement of the logs from front to back on the vehicle. The intent of such systems is to enable motor carriers to transport logs without the use of wrapper chains or straps to secure the load, thereby expediting the loading and unloading process.

FMCSA's proposed definition of "crib-type log trailer" is based directly on the description of the trailer design provided in the patent described above. The Agency believes that the proposed definition accurately reflects the specific provisions of the patent regarding the components of the trailer design (*i.e.*, the presence of stakes, bunks, a front-end structure, and a rear

structure) necessary to ensure the safe transport of logs without the use of additional safety wrapper chains or straps.<sup>1</sup> The crib-type trailers provide adequate restraint against lateral and longitudinal movement. While no restraint against vertical movement is provided, FMCSA does not believe tiedowns are necessary, because there are no readily apparent circumstances under which the cargo would bounce or blow over the top of the bunks, or front or rear structures. The logs would be fully contained within structures of adequate strength thereby satisfying the intent of the standard. Therefore, FMCSA continues to believe it is appropriate to add the definition of "crib-type log trailer" as proposed in the NPRM. It is noted that the commodity specific rule for securing logs, § 393.116, is also being amended to allow the use of crib type trailers. This is discussed in detail later in this document.

FMCSA does not agree with DACAR's request to add the additional qualifier of "coated metal" to the definition of metal coil, as the Agency's definition covers metal in various surface conditions such as coated or oiled. However, FMCSA agrees with the suggested addition of "coiled rod" to the definition of metal coil because the term describes a different type of metal product than the drawn wire or sheet metal listed in the proposed definition. FMCSA agrees with Iowa DOT and OSP that spools or reels of wire, cable and telephone cable should fall under the general definition of metal coil. Contrary to Verizon's contention that telephone cable be explicitly exempted, the Agency believes that plastic or rubber coated wire on cable spools or reels exceeding the 2,208 Kg (5,000 lbs) threshold specified in the commodity specific requirements for metal coils in § 393.120 presents the same type of risks if not properly secured. Therefore, FMCSA adds "rod" to the definition of metal coil, and expands the definition to include "plastic or rubber coated electrical wire and communications cable."

2. *NPRM Proposal:* FMCSA proposed to amend § 393.7(b)(19) by replacing "November 15, 1999" with "April 26, 2003". (70 FR 33438)

*Comments:* FMCSA received no comments regarding this amendment, which proposed to incorporate by reference a more up-to-date version of

the National Association of Chain Manufacturers (NACM) publication titled "Welded Steel Chain Specifications." At the time the NPRM was published, the publication dated April 26, 2003, was the most up-to-date version of this publication. However, shortly after the NPRM was published, NACM issued an updated version of the subject publication that was adopted by its members on September 28, 2005. FMCSA has compared the April 2003 and the September 2005 versions of the NACM publication, and found that only minor amendments to the material composition specifications for certain chain types have been adopted. FMCSA has determined that these minor changes will not have any effect on the provisions of this final rule. Because the change from the April 2003 to the September 2005 version simply reflects a more up-to-date version of the referenced NACM publication, FMCSA incorporates by reference the 2005 NACM standards. In addition, FMCSA similarly amends Section 2 of the table to § 393.104(e) to maintain consistency.

3. *NPRM Proposal:* FMCSA proposed to amend § 393.102 by revising paragraphs (c) and (d). (70 FR 33438)

*Comments:* PFITC, FPAC, Rayonier, Georgia Pacific, Allegheny, and EdgeWorks proposed to revise § 393.102(c)(1) regarding breaking strength to replace the wording "Cargo securement devices and systems" to the more specific "Tiedowns, tiedown systems, straps, and strapping systems." These commenters contend that this change will ensure § 393.102(c)(1) applies only to tiedown and strapping systems, thereby not unintentionally ruling out the use of many effective securement devices, such as wood blocking, nails, air bags, friction mats, friction between the cargo and the floor or other cargo, and shoring bars that are all examples of cargo securement devices and components of systems that do not have or need breaking strengths assigned by manufacturers.

Similarly, and for the same reasons, these commenters also proposed that § 393.102(c)(2) regarding working load limits be amended to only apply to tiedowns and strapping systems by revising § 393.102(c)(2) by replacing the wording "Cargo securement devices and systems" to the more specific "Tiedowns, tiedown systems, straps, and strapping systems."

In addition, these commenters proposed a change in the wording of § 393.102(d)(2) from "Fills a sided vehicle" to "Transported in a sided vehicle" to clarify that this amendment will not be interpreted to mean a vehicle must be completely filled from top to

bottom, side to side, and from end to end to qualify for this alternative.

OSP commented that the term "immobilized" in § 393.102(d) and in § 393.100(c) creates confusion, and appears to contradict the remainder of § 393.100(c), which permits some shifting of cargo upon or within the vehicle, provided that the vehicle's stability or maneuverability is not adversely affected. Similarly, NY-DOT recommended amending the proposed language in § 393.102(d) to clarify that cargo that shifts or tips, but does not affect the vehicle's stability and safe operation is not in violation. NY-DOT also noted that it appears that the word "of" has been mistakenly omitted from the phrase "articles of cargo" in § 393.102(d).

OSP supported FMCSA's position concerning the need to reduce the g-force deceleration requirements to more realistically reflect the normal demands on cargo securement systems. OSP believes the enforcement community is primarily concerned that the criterion is enforceable and understandable to enforcement officers and CMV drivers. OSP states that it will be impossible for an enforcement officer inspecting a CMV to determine whether that particular vehicle would be capable of meeting the specified g-force requirements. OSP's experience with cargo securement enforcement suggests that drivers fail to use a sufficient number of tie-downs to meet the minimum requirements (aggregate working load limit (WLL) greater than or equal to ½ the weight of cargo), and the tiedowns are poorly positioned or damaged. OSP believes the WLL formula is enforceable and fair, and supports the proposed change in performance standards while keeping the current aggregate WLL formula.

PFITC, FPAC, Rayonier, Georgia Pacific, Allegheny, and EdgeWorks recommended that default breaking strength tables be added to the regulation if there is a "prohibition on exceeding breaking strength ratings," regardless of whether the prohibition is related to all securement materials or just tiedowns and strapping systems. They contend that the addition of breaking strength tables will provide users, enforcement, and legal system personnel a necessary tool to determine the breaking strength of unmarked devices. The commenters noted that they did not have the necessary expertise to recommend the specifics of these tables.

Kinedyne believes that the re-introduction of "breaking strength" into the FMCSR will reintroduce confusion that was eliminated in 1994, when 49

<sup>1</sup> FMCSA is also revising § 393.116(b)(3) to include an exception to the regulation requiring tiedowns to enable motor carriers to use crib-type trailers, without tiedowns, provided specific conditions are satisfied. This issue is discussed later in this final rule in the section addressing the specific requirements of § 393.116.

CFR Part 393 was revised to (1) remove all references to breaking strength ratings, and (2) specify that load securement devices only be rated by the WLL. Kinedyne recommended that FMCSA retain the 0.8 g deceleration in the forward direction, 0.5 g in the rearward and lateral directions, and that cargo securement devices should not exceed the WLL at these conditions. Kinedyne acknowledged that these are the extreme conditions of normal operations, but believes that cargo securement systems should be designed to restrain the cargo in exactly these extreme conditions. Mr. Joseph Takacs Jr. noted that breaking strength is a value for brand new cargo securement products used to establish the WLL, and does not take into consideration aging, cuts and wear.

CCMTA stated that it believes there was consensus among all parties who participated in the development of the North American Cargo Securement Standard that "Cargo being transported on the highway must remain secured on or within the transporting vehicle under all conditions expected to occur in normal driving situations and when a driver is responding to emergency situations, short of a crash." CCMTA believes these debates concluded successfully with consensus among representatives from governments and industry on performance criteria of 0.8 g deceleration in the forward direction and 0.5 g in the lateral and rearwards directions. These criteria are similar to those adopted in Great Britain, Europe, Australia and New Zealand. CCMTA acknowledges that heavy braking applications which generate 0.8 g deceleration are relatively rare occurrences, however, CCMTA notes that there appears to be little dispute that this performance is within the capability of most vehicles. It is CCMTA's view that ensuring the cargo securement system is robust enough to match the capabilities of the transport vehicle is not only critical to highway safety, but is entirely consistent with the fundamental statement of public policy interest outlined previously.

CCMTA notes that in the preamble to the NPRM, FMCSA suggests that there should be a distinction between normal driving conditions and emergency situations, short of a crash from the perspective of the strength requirements of cargo securement systems. CCMTA does not support this view, and firmly believes the WLL of cargo securement systems should never be exceeded when subjected to forces resulting from both normal driving situations and when a driver is responding to emergency situations, short of a crash.

CCMTA states that most manufacturers of cargo securement equipment advise users that the WLL of their equipment should never be exceeded. CCMTA refers to Section 10 of the "Welded Steel Chain Specifications" of the National Association of Chain Manufacturers, which includes the warning, "Manufacturers do not accept any liability for injury or damage which may result from dynamic or static loads in excess of the working load limit or used in a manner contrary to the manufacturer's instructions or recommendations."

CCMTA does not support the approach proposed by FMCSA which acknowledges that the WLL of securement equipment would likely be exceeded whenever a driver encounters "emergency situations short of a crash." CCMTA states that under those conditions, FMCSA is prepared to assume that the additional capacity required to restrain the cargo in emergency situations can be found in safety factors, and consequently the breaking strength of the equipment would not likely be exceeded. CCMTA disagrees with this approach, and notes that safety factors present for new equipment erode over time due to minor damage through normal usage, exposure to the environment, and aging.

CCMTA strongly urged the FMCSA to retain the approach and wording contained in its current regulation, and stated that it is not prepared to adopt the proposed change in Canada's National Safety Code.

WTBA and ARTBA request that FMCSA continue to clarify and emphasize that the performance criteria contained in § 393.102(a) are not applicable if the provisions of the rule referenced in § 393.102(d) are followed. WTBA notes that there is confusion regarding the specified performance criteria in § 393.102(a) which are not measurable in the field, and that there are alternative means to meet the rule by the requirements in §§ 393.104 through 393.136.

*FMCSA Response:* FMCSA agrees with PFITC, FPAC, Rayonier, Georgia Pacific, Allegheny, and EdgeWorks that § 393.102(c) should be reworded so as not to discount the use of devices such as wood blocking, nails, air bags, friction mats, friction between the cargo and the floor or other cargo, and shoring bars simply because these examples of cargo securement devices and components of cargo securement systems typically do not have a WLL or breaking strength assigned by manufacturers. FMCSA notes that § 393.104(d) requires that material used

as dunnage or dunnage bags, chocks, cradles, shoring bars, or used for blocking or bracing, must not have damage or defects which would compromise the effectiveness of the securement system. However, while commenters suggested replacing the wording "Cargo securement devices and systems" with the more specific "Tiedowns, tiedown systems, straps, and strapping systems," the Agency amends the language to be consistent with language currently specified in § 393.104(e) regarding manufacturing standards for tiedown assemblies. Specifically, the term "cargo securement devices and systems" in § 393.102(a)(i)-(ii) will be replaced with "Tiedown assemblies (including chains, wire rope, steel strapping, synthetic webbing, and cordage) and other attachment or fastening devices used to secure articles of cargo to, or in, commercial motor vehicles."

While FMCSA does not believe that the proposed amendment to § 393.102(c)(2) would have resulted in confusion to enforcement personnel as to whether the vehicle needs to be completely filled to meet the criteria, the Agency amends the wording as suggested to "Is transported in" to ensure clarity of the requirement.

FMCSA agrees with OSP and NY-DOT that use of the term "immobilized" as proposed in § 393.102(d)(1) could be misinterpreted to mean that shifting of cargo is not permitted under any circumstances, which (1) the Agency acknowledges is impracticable under real-world operating conditions, and (2) conflicts with the current language in § 393.100(c) which states that "cargo must be contained, immobilized or secured \* \* \* to prevent shifting upon or within the vehicle *to such an extent that the vehicle's stability or maneuverability is adversely affected.*" (Emphasis added) To avoid interpretation of the term "immobilized" as an absolute, and to maintain consistency with other sections of the regulatory text, FMCSA has added the qualifying language currently in § 393.100(c), as stated above, to §§ 393.102(c)(1) and (2).

FMCSA agrees with the comment by NY-DOT that the Agency should revise § 393.102(d) to replace the NPRM's "articles cargo" with "articles of cargo." This is an editorial correction and the final rule includes this change.

FMCSA does not agree with Kinedyne that the introduction of breaking strength into § 393.102(a) will create confusion. Breaking strength is readily available information included in product literature from tiedown manufacturers and in the publications

incorporated by reference under § 393.104. The Agency notes that Kinedyne provides both working load limit and breaking strength for their tiedown products on its website. In most instances, the breaking strength would only be used by technical personnel responsible for designing a securement system. These individuals would not have difficulty looking up the information and applying it in an appropriate manner. However, from a practical standpoint, it is unlikely that drivers and roadside enforcement personnel would attempt to assess compliance with the performance criteria under § 393.102. Generally, motor carriers are not required to conduct testing of cargo securement systems to determine compliance with the performance requirements of § 393.102(a) and/or § 393.102(c), and § 393.102 explicitly states that cargo that is immobilized or secured in accordance with general rules regarding cargo securement systems, or the commodity-specific rules, is considered to meet the performance criteria.

FMCSA agrees with the comment by Mr. Takacs that the working load limit is based on the breaking strength of a cargo securement device. Mr. Takacs expressed concern that references to a cargo securement product's breaking strength will be confusing or misinterpreted because persons may not be aware that the breaking strength is a value for new products, and does not take into consideration the effects of aging, cuts, and wear. As noted above, FMCSA does not believe that this language will be confusing, and the Agency notes that § 393.104(c) states that "vehicle structures, floors, walls, decks, tiedown anchor points, headerboards, bulkheads, stakes, posts, and associated mounting pockets used to contain or secure articles of cargo must be strong enough to meet the performance criteria of § 393.102, with no damaged or weakened components such as, but not limited to, cracks or cuts that will adversely affect their performance for cargo securement purposes, including reducing the working load limit." As such, any components of a cargo securement system exhibiting these defects must be removed from service.

While numerous commenters opposed FMCSA's proposed amendments to § 393.102 to distinguish between the performance requirements for cargo securement systems using both working load limit (under "normal" operating conditions) and breaking strength (under the most extreme operating conditions short of a crash), the Agency continues to believe that

these amendments (1) are needed to resolve an existing internal inconsistency in the regulatory language, and (2) do not result in a reduced level of safety with respect to cargo securement systems. Working load limit is defined in § 393.5 as the maximum load that may be applied to a component of a cargo securement system *during normal service* (emphasis added). However, § 393.102(c) currently requires that cargo securement devices and systems be designed, installed, and maintained to ensure that the maximum forces acting on the devices or systems do not exceed the working load limit for the devices under a (1) 0.8 g deceleration in the forward direction, (2) 0.5 acceleration in the rearward direction, and (3) 0.5 acceleration in the lateral direction, all applied separately. FMCSA continues to believe that 0.8 g deceleration in the forward direction and 0.5 g acceleration in the lateral direction do not represent "normal" operating conditions. The conditions described above more closely align with the most extreme operating conditions a vehicle may experience short of a crash, and real-world studies have shown these conditions occur infrequently. The discussion that follows presents the Agency's rationale for determining that the conditions listed above do not represent "normal" operating conditions.

The North American Cargo Securement Standard Model Regulation is based on work conducted under the North American Load Security Research Project, initiated in the early 1990s to develop an understanding of the mechanics of cargo securement on heavy trucks. The research was intended to provide a sound technical basis for development of the Model Regulations. Tests were conducted to examine the fundamental issues of anchor points, tiedowns, blocking and friction, and issues related to securement of dressed lumber, large metal coils, concrete pipe, intermodal containers, and other commodities.

In an effort to address the concerns raised by commenters regarding the distinction between "normal" operating conditions and the most extreme operating conditions short of a crash, FMCSA revisited the findings presented in a Summary Report that was prepared at the conclusion of the Load Security Research Project described above. Section 2 of the Summary Report, Definition of Terms, defines "Normal Driving" as "the maximum acceleration that a driver might expect *from hard braking* or a turning maneuver (emphasis added)." The Summary Report also noted that an understanding

of the performance of vehicles within the highway system was necessary to be able to place the research findings in context, and provided the following discussion:

About 85% of all brake applications for heavy vehicles occur *during normal driving*, and result in decelerations under 0.19 g. *A deceleration above 0.3 g is quite a hard stop*. Only about 0.11% of all brake applications exceed 0.4 g. (Emphasis added)

The discussion above, as presented in the Load Security Summary Report, comes from the National Highway Traffic Safety Administration's (NHTSA) report "An In-Service Evaluation of the Reliability, Maintainability, and Durability of Antilock Braking Systems (ABS) for Heavy Truck Tractors," DOT HS 807 846, March 1992, which provides data concerning routine brake application pressures and the resulting forces. NHTSA used on-board electronic data monitors/recorders installed on 216 vehicles (200 ABS equipped truck tractors, and 16 control vehicles). The data were accumulated over nearly 600,000 hours and 18 million miles of tractor operation. More than 13 million brake applications occurred during that time period, at all times of the year and during all types of weather. Brake pressures of 15 pounds per square inch (psi) or less (light braking) accounted for approximately 84 percent of the total braking time recorded. An additional 10 percent of brake applications were between 15 and 20 psi and almost all the remaining brake applications were below 45 psi (moderate to hard braking). Only 0.02 percent of the total braking time was at pressures of 75 psi or greater. Eighty-five percent of the braking resulted in 0.19 g, or less, decelerations indicating light braking, and another 14.7 percent resulted in moderate-to-hard braking from 0.19 to 0.40 g. Importantly, (1) deceleration levels above 0.40 g were only encountered in 0.11 percent of brake applications, and (2) Figure 4.2 of the NHTSA report (Histogram of Braking Deceleration Levels for the 200 ABS-Equipped Tractors Over the Two-Year Period of the Test) indicates that *no* deceleration levels above 0.47 g were measured in the more than 13 million brake applications recorded.

For the purposes of the NHTSA study, a "major" ABS braking event was considered to have occurred if at least one wheel speed decreased to 80 percent or less of vehicle speed (*i.e.*, 20 percent wheel slip occurred) during a brake application and then increased speed coincident with solenoid operation at that wheel, and this

occurred for more than 4 cycles. This situation was considered indicative of conditions in which the ABS was cycling often enough to indicate the presence of either very slippery road surface conditions or very high brake pressures (consistent with maximum braking effort stops); conditions potentially conducive to a crash. Using this definition, the test ABSs were found to actuate approximately 10 times a year per truck tractor.

Concerns have been raised that while only 0.11 percent of the more than 13 million brake applications recorded in the NHTSA study exceeded 0.4 g, this still translates into more than 14,000 brake applications that would have exceeded the 0.4 g threshold proposed by FMCSA for normal operating conditions. As noted above, however, Figure 4.2 of the NHTSA report clearly demonstrates that the brake applications exceeding 0.4 g did not approach the 0.8 g threshold, but rather were measured to be between 0.4 g to a maximum of 0.47 g. Further, only approximately 4000 "major" ABS braking events (200 ABS-equipped truck tractors  $\times$  10 ABS actuations/year  $\times$  2 year study), indicating conditions potentially conducive to a crash, were recorded over the course of the study. Even if all of these 4,000 "major" ABS braking events were attributable to very high brake pressure (consistent with maximum braking effort stops, as opposed to very slippery road surface conditions), this represents only 0.03 percent of the more than 13 million brake applications measured over the course of the 2-year study. In other words, approximately 99.97 percent of the brake applications measured in the NHTSA study can be considered to have been made under "normal" operating conditions—and not under emergency conditions that would actuate the ABS. From the above, it is clear that the current performance criteria of § 393.102(a) do not represent normal service or operating conditions. Specifically, a deceleration in the range of 0.8–0.85 g in the forward direction is *not* a routine force that commercial vehicles are subjected to on a regular basis, but rather (1) "the highest deceleration likely for an empty or lightly loaded vehicle with an anti-lock brake system, with all brakes properly adjusted, and warmed to provide optimal braking," as noted in the September 2002 final rule, and (2) one that did not occur in the over 13 million brake applications as noted in the Summary Report. The same may be said of a 0.5 g acceleration in a lateral direction, as the Summary Report states

that "the typical lateral acceleration while driving a curve or ramp at the posted advisory speed is in the range of 0.05–0.17 g."

Given the above, and considering that the Load Security Summary Report defined "normal driving" as "the maximum acceleration that a driver might expect from a hard braking or a turning maneuver, FMCSA does not consider the performance criteria of § 393.102(a) to represent "normal" service. It follows that the current reference in § 393.102(c) that cargo securement devices and systems must be designed, installed, and maintained to ensure that the working load limit of these devices are not exceeded under the conditions listed in § 393.102(a) is inconsistent with actual operational demands and needs. Instead, because the Summary Report indicates (1) a deceleration above 0.3 g is quite a hard stop, (2) deceleration levels above 0.4 g were only encountered in 0.11 percent of brake applications, and (3) that normal driving conditions are characterized as being those where the maximum acceleration that a driver might expect from hard braking or a turning maneuver, FMCSA amends § 393.102 to resolve this internal inconsistency in the regulatory language.

However, instead of requiring that the forces acting on tiedown assemblies not exceed the working load limit for those devices under a 0.4 g deceleration in the forward direction as proposed in the NPRM, FMCSA believes that given the discussion above, it is more appropriate to adopt a 0.435 g threshold. To address the small percentage of brake applications recorded in the NHTSA study that exceeded 0.4 g, but were not considered a "major" ABS event that resulted in the actuation of the ABS, adoption of a 0.435 g threshold will provide an added margin of safety over that which would be achieved through the 0.4 g threshold proposed in the NPRM. At the same time, adoption of a 0.435 g threshold will maintain consistency with the minimum requirements for braking force currently specified in § 393.52(d) for motor vehicles or combinations of motor vehicles.

Specifically, this final rule requires that cargo securement devices and systems be designed, installed, and maintained to ensure that the (1) maximum forces acting on the devices or systems do not exceed the manufacturer's breaking strength rating under the conditions currently listed in § 393.102(a), and (2) forces acting on the devices or systems under normal operating conditions do not exceed the

working load limit for the devices under (1) 0.435 g deceleration in the forward direction, (2) 0.5 g acceleration in the rearward direction, and (3) 0.25 g acceleration in the lateral direction, all applied separately. It is important to note that FMCSA has not eliminated the requirement that cargo securement systems and devices not fail under the maximum performance capabilities of the vehicle; rather, the Agency does not believe that it is necessary that these cargo securement systems or devices be prohibited from exceeding their stated working load limits under these extreme conditions.

FMCSA certainly agrees with CCMTA's concerns regarding the safe transport of cargo on the nation's highways. At the same time, we continue to believe that the use of working load limits of securement devices to determine whether the cargo securement system can withstand 0.8 g deceleration in the forward direction under all conditions, including emergency braking short of a crash, would result in a potentially burdensome requirement on the industry. Any safety benefits that would result from such a requirement, if benefits exist at all, would likely be grossly disproportionate to the costs of the requirement. If FMCSA retains the requirement that the working load limit must not be exceeded under 0.8 g, the Agency would need to revise § 393.106(d) to require that the aggregate WLL be equal to the weight of the load. This change would be required because § 393.106(d) indicates that cargo secured in accordance with §§ 393.104–393.136 is considered as meeting the performance criteria. This is clearly not the case with the current rule. The change to § 393.106(d) would essentially double the number of tiedowns required. The aggregate WLL needed to withstand 0.8 g is far in excess of the value needed to fulfill the requirement for the aggregate WLL to be equivalent to one half the weight of the articles of cargo being secured. In this regard, FMCSA's 2005 NPRM presented a solution to the inconsistency that retains performance requirements consistent with the original research on this subject and the Model Regulation. The performance requirements are intended to both (1) prevent the securement system from failing under 0.8 g deceleration and (2) to ensure that the WLL for securement devices is rarely exceeded under routine, day-to-day operations. FMCSA notes that none of the commenters provide an alternative that would enable the Agency to resolve the internal

inconsistency while achieving the goals of the Model Regulation.

The calculation of the aggregate WLL is the most readily enforceable portion of the performance requirements because motor carrier managers, drivers and enforcement personnel typically cannot test the performance capability of the cargo securement systems or devices in use on a vehicle during the loading process, or during a roadside inspection. A change in the aggregate WLL value necessary to meet the more stringent performance requirements of 0.8 g in the forward direction and 0.5 g in the lateral and rearward direction would result in motor carriers needing more tiedowns to secure the cargo. CCMTA did not address or provide comment regarding this issue.

Given the discussion provided above, and in an effort to make the performance criteria section of the regulation more easily understood, FMCSA amends § 393.102, consistent with the June 2005 NPRM, with the minor change to the 0.435 g deceleration performance requirement in the forward direction as opposed to the 0.4 g threshold proposed in the NPRM.

FMCSA agrees with WTBA and ARTBA that compliance with the specified performance requirements of 393.102(a) and 393.102(c) cannot be determined in the field, however when cargo securement techniques are evaluated, whether the commodity specific cargo securement requirements are followed, or the general requirements for cargo are used as a baseline, consideration must be given to the performance requirements of 393.102(a) and 393.102(c). The Agency stresses that the cargo securement requirements as identified in 393.106, and 393.110 through 393.136 are the minimum requirements. Nothing in the rule prohibits motor carriers from using additional devices.

4. *NPRM Proposal*: FMCSA proposed to amend § 393.104 by removing paragraph (f)(4) and redesignating paragraph (f)(5) as (f)(4), replacing "November 15, 1999" with "April 26, 2003" after the publication title "National Association of Chain Manufacturers' Welded Steel Chain Specifications," and by revising paragraphs (b) and (c). (70 FR 33438)

*Comments*: PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny requested that § 393.104(a) and § 393.104(c) be reworded for clarification because of the differences in the performance requirements listed between § 393.102(a) and § 393.102(c)(2). These commenters contend that failure to make this change may lead to (1) significantly reduced

load securement requirements for all cargo, possibly resulting in danger to carrier personnel and the general public, and (2) possible confusion to personnel who plan load securement systems, load cargo, transport cargo, and enforcement personnel as to which performance criteria (g-forces) of § 393.102 must be met. These commenters suggested that the reference to § 393.102 in both § 393.104(a) and § 393.104(c) be changed to specifically reference the requirements of § 393.102(a).

DOE agreed that the FMCSA proposal to rescind § 393.104(f)(4) would not have an adverse impact on safety, but DOE noted that the inference that it is acceptable to attach tiedowns to rub rails appears to be in conflict with requirements for anchor point and the "North American Cargo Securement Standard Model Regulation." DOE and Mr. Takacs noted that the model regulation defines a rub rail as a rail along the side of a vehicle that protects the sides of the vehicle from impacts, and rub rails are not normally rated by manufacturers. They suggested that given the abuse rub rails are subject to, it would appear they would not be adequate as an anchor point, especially for aluminum bed trailers whose aluminum rub rails may bend and crack easily. They argued that, because the stake pockets located on the sides of flatbed trailers are the only points rated by manufacturers for load securement purposes, using rub rails as anchor points is not in the best interest of cargo securement safety.

EMC stated that they and other leading trailer manufacturers have redesigned their platform trailers and related accessories to include features designed to allow consistent compliance with the current rule. EMC identified these features as (i) use of winch tracks and sliding winches on either side of the trailer; (ii) the provision of hook-retainer clips/brackets designed to be slidably mounted on the winch track (on the opposite side of the trailer relative to the winch) and designed to receive and positively capture the flat-hook or other hook located at the distal end of the cargo retaining strap; (iii) the development of low-profile sliding winches that can be positioned in a forward location on the winch track without interfering with the tires of the tractor; and (iv) the inclusion of tracks in the trailer deck intended to provide for adjustable positioning of chain tie-down plates. EMC stated that these features allow cargo tie-down straps to be positioned inside the rub rails as required by the current rule § 393.104(f)(4). EMC believes that FMCSA's finding that it is not possible

to achieve uniform and consistent enforcement of § 393.104(f)(4) is due to the fact that some carriers have not upgraded their fleets to include modern trailers with these state-of-the-art securement features, and that many trailer manufacturers have not made efforts to provide equipment that aids in compliance with the final rule. EMC stated that they and other trailer manufacturers have demonstrated that compliance with the requirements of § 393.104(f)(4) is practicable, and have expended significant resources to comply with the current rule. EMC states that revising the rule as proposed favors manufacturers and carriers who have not sought to comply with the current rule and, as a result, have unfairly avoided significant time and expense burdens. EMC proposed maintaining the current rule, but asked FMCSA to consider a grandfather provision to exempt older trailers from the requirements of 393.104(f)(4).

Kinedyne also recommended retaining the existing § 393.104(f)(4). However, Kinedyne recommended that if this section is eliminated, then the rub rail should be re-identified as a "securement rail" and needs to have an established WLL rating by the trailer manufacturer per § 393.108.

CCMTA acknowledges the compliance and enforcement difficulties of § 393.104(f)(4) which have arisen with the inclusion of the term "whenever practicable" with respect to placement of tiedowns inboard of rub rails. CCMTA continues to believe that tiedowns should be routed behind rub rails whenever possible. CCMTA proposes that this requirement be phased in over a longer period to allow industry to make adjustments in both the training programs and equipment. CCMTA believes the CVSA Out-of-Service criteria, which provides detailed explanations of unacceptable conditions, provides more practical guidance with respect to damaged or weakened components than is specified in § 393.104.

*FMCSA Response*: FMCSA agrees with the PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny comment that there are two performance requirements for load securement devices, specifically § 393.102(c)(2) which ensures the adequate performance of these devices during normal operating conditions, and § 393.102(a), which ensures adequate performance of these devices during all conditions. However, the agency does not believe that this will impact cargo securement safety because most motor carriers are using the calculation of the required aggregate working load limit to

determine the minimum number of tiedowns required to secure their load.

With respect to the comments from DOE, Kinedyne, and Mr. Takacs recommending that rub rails have specified WLLs in order to be used as cargo securement anchorages, FMCSA notes that the 2002 final rule did not include a requirement that anchor points be rated and marked. The 2002 final rule noted that while the Agency agreed with the basic principle of rating and marking of anchor points, there was insufficient data to support establishing manufacturing standards at that time. Any such amendments to the regulatory language to adopt provisions requiring the rating and/or marking of anchor points are beyond the scope of this rulemaking.

FMCSA appreciates the comments provided by EMC, and agrees that vehicle manufacturers can incorporate features that assist the vehicle operators in complying with the cargo securement regulations. The Agency believes that in many instances, the nature of the cargo dictates the ability of the cargo securement devices to meet the existing requirements of § 393.104(f)(4). As discussed in the NPRM, however, State enforcement personnel and motor carriers expressed difficulties in achieving uniform and consistent enforcement of the regulation. Therefore, the Agency rescinds § 393.104(f)(4) as proposed.

5. *NPRM Proposal*: FMCSA proposed to amend § 393.106 to revise paragraphs (a) and (d). (70 FR 33438–33439)

*Comments*: PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny provided comments recommending a change to add friction mats to the list of securement materials, identified in 393.106(b) to remove potential for misinterpretation by the enforcement, carrier, shipping and legal communities.

OSP concurred with FMCSA's proposed revision of § 393.106(d), but asked the Agency to clarify the term "attachment point." OSP requested clarification as to whether the tiedown must be attached to a designated point of attachment on the cargo, or simply anywhere (i.e., on the tracks of a bulldozer) as long as the attachment is secure.

Iowa DOT commented that additional language is necessary in § 393.106(d) to ensure that load securement devices are somewhat evenly matched, and that securement capability be evenly distributed to the cargo being secured. Iowa DOT suggested that adoption of language that would ensure that there is adequate securement in each of the forward, rearward, and lateral directions.

CCMTA is opposed to the proposed change regarding the determination of the aggregate WLL. CCMTA contends that the proposal will reduce the contribution of direct tiedowns to the determination of aggregate WLL by 50%. CCMTA believes that this represents a fundamental change from the Model Regulation completed in May 1999, and will conflict with Canada's National Safety Code which states:

- The "aggregate working load limit" is the sum of one-half of the working load limit for each end section of a tiedown that is attached to an anchor point

- The National Safety Code defines anchor points as "part of the structure, fitting or attachment on a vehicle or cargo to which a tiedown is attached" CCMTA believes that direct tiedowns that attach to cargo provide a much more reliable and predictable level of securement than indirect tiedowns.

WTBA/ARTBA requests that the rule be modified to include 100% of the WLL of direct tiedowns to be used in determining whether the requirements of the rule are met, as opposed to the 50% currently specified. WTBA/ARTBA contends that the current rule encourages the use of indirect tiedowns, and WTBA/ARTBA believes in the context of heavy equipment and wheeled and tracked equipment that this approach undermines the goal of safe transport of this equipment. WTBA believes that direct tiedowns hold the equipment in a stationary position, while indirect tiedowns allow for the equipment to move.

*FMCSA Response*: In response to the comments regarding the definition of "attachment point" presented by Iowa DOT, the Agency notes that § 393.5 defines "anchor point" as "part of the structure, fitting, or attachment on a vehicle or article of cargo to which a tiedown is attached." Based on this definition, an anchor point can be part of the structure, and does not need to be a designated attachment point. With respect to the concerns from Iowa DOT about loads being unevenly secured, FMCSA notes that § 393.100(c) requires that cargo must be contained, immobilized, or secured to prevent shifting upon or within the vehicle to such an extent that the vehicle's stability or maneuverability is adversely affected. Although mismatching of tiedowns could potentially result in real-world securement issues, the Agency believes § 393.106(d) concerning aggregate WLL deters such practices for what is commonly referred to as direct tiedowns. The rule effectively requires that tiedowns on

opposite sides of the load have similar ratings in order to meet the minimum aggregate WLL.

In addressing the comment from OSP regarding attachment points, and the related comments from CCMTA and WTBA/ARTBA regarding the calculation of the aggregate WLL, FMCSA revisited the research reports that serve as the basis for the Model Regulation. First, the Summary Report defines "anchor point" as "part of the structure of a vehicle, or a device firmly attached to that structure, that is designed or commonly used to attach a tiedown assembly." From this, it is clear that an anchor point is part of the vehicle, and not on the article of cargo. Second, Section 5.7.1 of the CCMTA Load Security Research Project Summary Report notes that tiedowns serve one of two purposes; they either (1) provide direct resistance to an external acceleration, or (2) increase somewhat the coefficient of friction between the cargo and the deck of the vehicle. The definition of anchor point, along with an understanding of direct and indirect tiedowns—and their contribution to the calculation of aggregate WLL—are discussed in greater detail below.

While the definition of anchor point in the Load Security Research Project Summary Report clearly refers to a point on the vehicle structure, the definition of anchor point in the subsequent Draft Model Regulation was revised to "part of the structure, fitting or attachment on a vehicle or cargo to which a tiedown is attached." (Emphasis added) It is not clear to FMCSA why this revision was adopted, but the revised definition of anchor point (to include a point on the vehicle or article of cargo) has been retained in each of the subsequent FMCSA rulemaking documents, revisions to the Model Regulation, and the National Safety Code. This change in terminology, in conjunction with related issues concerning tiedowns discussed below, results in significant changes in calculating the aggregate WLL of a cargo securement system that appear to depart from the original intent of the underlying research and the May 1999 version of the Draft Model Regulation.

The Summary Report states that "tiedowns placed at a shallow angle to the horizontal that are attached at one end to the vehicle and directly at the other to an article, or pass through an article and are attached on each end to the vehicle, provide an effective direct resistance to forces arising from an external acceleration." This served as the basis for the definition of "direct tiedown" in the North American Cargo

Securement Standard Draft Model Regulation, dated May 1999, which defined "direct tiedown" as "a tiedown that is intended to provide direct resistance to potential shift of an article." Importantly, for the purposes of calculating the aggregate WLL of a cargo securement system, the Draft Model Regulation stated:

For the purposes of calculation, the aggregate working load limit of all direct tiedowns used to restrain articles is based on the sum of:

One-half of the working load limit of each direct tiedown that is connected between the vehicle and the article of cargo.

The working load limit of each direct tiedown that is attached to the vehicle, passes through or around an article of cargo, or is attached to it, and then is again attached to the vehicle.

The Summary Report states that "transverse tiedowns that pass across an article and are attached to each side of the vehicle simply increase somewhat the coefficient of friction between the cargo and the deck." This served as the basis for the definition of "indirect tiedown" in the North American Cargo Securement Standard Draft Model Regulation, dated May 1999, *i.e.*, "a tiedown whose tension is intended to increase the pressure of an article or stack of articles on the deck of the vehicle." Importantly, for the purposes of calculating the aggregate WLL of a cargo securement system, the Draft Model Regulation stated:

For the purposes of calculation, the aggregate working load limit of all indirect tiedowns used to restrain articles is based on the sum of the working load limits of each indirect tiedown.

FMCSA acknowledges there has been confusion in recent years regarding the definitions of "direct" and "indirect" tiedowns, and regarding the contribution of each toward the calculation of the aggregate WLL of a cargo securement system. During the notice-and-comment rulemaking process, FMCSA proposed certain requirements in the 2000 NPRM that would have necessitated the distinction between what were referred to as "direct tiedowns" and "indirect tiedowns." After reviewing the docket comments, the Agency attempted to adopt a more straightforward approach in the 2002 final rule for calculating the aggregate WLL, while preserving the potential safety benefits of making the distinction between the two types of tiedowns. While the Agency believes that the language adopted in the 2002 final rule was easier to understand than that proposed in the 2000 NPRM, it was clear—based on numerous telephone inquiries from FMCSA field offices,

State enforcement agencies, and industry groups—that the intent of § 393.106(d) was still not easily understood. The 2005 NRPM attempted to amend the language to provide an effective approach for adding working load limits for individual tiedowns in a cargo securement system that, at the same time, yields the same answer as the regulatory language in the 2002 final rule. It is important to note that throughout each iteration of the cargo securement rulemaking, it has been the intent of the Agency to maintain consistency with the original Draft Model Regulation.

Specifically, the 2005 NPRM proposed to simplify the formula for determining the aggregate WLL for tiedowns to be the sum of (1) one-half the working load limit of each tiedown that goes from an anchor point on the vehicle to an attachment point on an article of cargo, and (2) the working load limit for each tiedown that goes from an anchor point on the vehicle, through, over or around the cargo and then attaches to another anchor point on the vehicle.

However, CCMTA contends that the above proposal would reduce the contribution of direct tiedowns to the determination of aggregate WLL by 50 percent. CCMTA contends that this represents a fundamental change from the approach proposed in the May 1999 Draft Model Regulation and would establish a serious conflict with the provisions of Canada's National Safety Code which state that the "aggregate working load limit is the sum of one-half of the working load limit for each end section of a tiedown that is attached to an anchor point." Because anchor points can be either on the vehicle or cargo, CCMTA contends that the contribution of a direct tiedown to the aggregate WLL is the full WLL of that tiedown.

FMCSA believes the CCMTA comment above is inconsistent with the provisions of the original Draft Model Regulation. Whereas CCMTA indicates a direct tiedown should be credited with the full WLL of that tiedown toward the aggregate WLL for that cargo securement system, the Draft Model Regulation states that each tiedown connected between the vehicle and the article of cargo contributed one-half of that tiedown's WLL toward the aggregate WLL for the system. This is likely a result of the revisions to the definition of anchor point, which initially referred only to a point on the vehicle, but now refers to a point on the vehicle or the article of cargo. While CCMTA contends that FMCSA has reduced the contribution of direct tiedowns to the

determination of aggregate WLL by 50 percent, in fact, CCMTA has doubled the contribution of such tiedowns. FMCSA is not aware of any research or analysis to support this departure from the provisions of the Draft Model Regulation.

The Draft Model Regulation stated that in the case of direct tiedowns that attach to the vehicle, pass through or around an article of cargo, or is attached to it, and then again attached to the vehicle, the full WLL of that tiedown would count toward the aggregate WLL for the system. Given that the Draft Model Regulation clearly addressed this scenario under the heading of direct tiedowns, and that direct tiedowns are defined as those tiedowns that provide direct resistance to forces arising from an external acceleration, it is unclear to FMCSA why the full WLL of such tiedowns were considered to contribute to the aggregate WLL for that system, provided that the tiedown attached back to the vehicle at or near the original point of attachment of the tiedown. Otherwise, if it attached to the other side of the vehicle, it would have to be considered an indirect tiedown under the definitions provided. FMCSA believes that it follows that all direct tiedowns should be considered to contribute equally to the aggregate WLL of a system. If the tiedown fails in either of these instances, the article of cargo will not be secured at that point. Given the above, FMCSA believes that for the purposes of calculation, each tiedown that is attached to the vehicle, passes through or around the article of cargo, and then is again attached to the vehicle on the same side should contribute one-half of that tiedown's WLL toward the aggregate WLL of the system.

The proposed language in the 2005 NPRM regarding "indirect tiedowns" is consistent with the language in the Draft Model Regulation, in that the full working load limit of each tiedown that goes from an anchor point on the vehicle, through, over or around the cargo and then attaches to another anchor point on the vehicle counts toward the calculation of the aggregate WLL for that system. FMCSA will add clarifying language to § 393.106(d) make sure that it is clear that in these instances, the tiedown must attach to the vehicle, go through, over, or around the cargo, and attach to another anchor point *on the other side of the vehicle*.

In summary, FMCSA believes that CCMTA's contentions that the amendments proposed by FMCSA regarding the calculation of aggregate WLL are inappropriate and do not follow the provisions of the Draft Model Regulation are without basis. Further,

FMCSA believes that changes to the definition of anchor point have been introduced into both the Draft Model Regulation and the National Safety Code that (1) significantly alter the calculation of the aggregate working load limit for some tiedowns, and (2) represent a significant departure from the provisions of the underlying research and the provisions of the initial Draft Model Regulation.

Given the above, FMCSA amends § 393.106(d) to clarify the formula for determining the aggregate working load limit for tiedowns, consistent with the intent and provisions of both The Model Regulations and previous Agency guidance.

6. *NPRM Proposal*: FMCSA proposed to revise the title of § 393.108. (70 FR 33439)

*Comments*: FMCSA received a number of comments specifically relating to the requirements for friction mats under § 393.108. However, the NPRM only proposed to amend the title of § 393.108 to more accurately reflect the role of friction mats in a cargo securement system, and did not specifically address any of its associated requirements. As such, any discussion of the comments to the NPRM in this area are outside the scope of this rulemaking, and will be addressed in the ongoing discussions in the North American Cargo Securement Harmonization Committee (NACSHC) and/or future rulemakings. The title of § 393.108 will be amended as proposed.

7. *NPRM Proposal*: FMCSA proposed to amend § 393.110 by revising paragraphs (a) and (c). (70 FR 33439)

*Comments*: DACAR contends that the proposed revision to § 393.110(a) and (c) will lead to confusion. DACAR believes that there is a perception that metal coils or coiled steel rod on pallets do not need to be secured.

*FMCSA Response*: Sections 393.110(a) and (c) are being revised as proposed to be consistent with the intent of the 2002 final rule. These revisions are editorial in nature. FMCSA is not aware of any ongoing confusion regarding these requirements, given that the regulations have been in effect for over 2 years.

8. *NPRM Proposal*: FMCSA proposed to amend § 393.114 by revising paragraph (b). (70 FR 33439)

*Comments*: FMCSA did not receive any comments opposing the proposed amendment, and incorporates the amended language as proposed in the NPRM.

9. *NPRM Proposal*: FMCSA proposed to amend § 393.116 by revising paragraph (b)(3), inserting a new paragraph (b)(4) and revising paragraph (e). (70 FR 33439)

*Comments*: PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny agree with the proposed revision of § 393.116(e)(2)(i) concerning the use of wrappers for securement of logs, but believe that the wording proposed by FMCSA might be misinterpreted to mean that only one “wrapper” is required. These commenters propose that the Agency revise the wording to ensure it is clear that a minimum of two wrappers are required.

FRA agrees with the proposed revisions to § 393.116(e)(2)(i), but recommends the deletion of the requirement in § 393.116(e)(1) calling for “vehicle end structure,” noting that neither rapid acceleration nor emergency braking will cause short logs to fall off a trailer from the rear stack of logs during transport when secured by one tiedown per stack.

CREA requests that § 393.116 be modified to clarify the requirements for the transportation of longwood or power poles on utility framed vehicles such as bucket trucks and digger derricks. These vehicles have two cradles or bunks and are secured with a tiedown at each cradle. The typical length of pole is 35 feet, and CREA states that under current regulations, several Ports of Entry have required five tiedowns for these 35 foot poles. CREA requests that 393.116 be clarified to allow power poles to be transported on vehicles with the same requirement of longwood and requiring only two tiedowns for poles cradled in two or more bunks

CCMTA noted a number of concerns with the Agency’s proposed amendments to § 393.116. CCMTA does not support the proposed change to § 393.116(b)(3)(i), and notes that it will continue to require tiedowns to be used on such trailers in Canada. CCMTA supports the proposed change to § 393.116(b)(4) for logs loaded lengthwise, but believes further discussion with industry is required on the practicality of applying this provision to logs loaded crosswise. CCMTA supports the proposed clarification to 393.116(e)(2)(ii) that tiedowns used as wrappers do not need to be attached to the vehicle. However, CCMTA believes this provision should only apply to logs transported on pole trailers.

WCLA/WTA suggested that § 393.116(e)(2) be revised to specifically apply to longwood and shortwood. WCLA/WTA contends that there is no discernible reason why the use of wrappers and standards as a means of securing loads of shortwood should be prohibited given that the use of wrappers is (1) currently allowed for the transportation of logs on pole trailers

(§ 393.116(f)), and (2) proposed for the securement of longwood in the NPRM (§ 393.116(e)(2)(ii)).

*FMCSA Response*: FMCSA understands the concern raised by the PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny, and agrees that the proposed clarification of § 393.116(e)(2)(i) that would specify that at least two wrappers must be used to secure longwood will make § 393.116(e)(2)(ii) consistent with the proposed language of § 393.116(e)(2)(i) which requires at least 2 tiedowns for effective securement of longwood. FMCSA includes the revised wording in the final rule.

With regard to FRA’s suggestion to delete the requirement for a “vehicle end structure” in § 393.116(e)(1), the Agency notes that the use of only one tiedown or wrapper is predicated on the requirement that the logs in any stack are blocked in the front by a front-end structure strong enough to restrain the load, or another stack of logs, and blocked in the rear by another stack of logs or vehicle end structure. However, because the definition of shortwood includes logs up to 16 feet in length, hauling shortwood under the general cargo securement rule would require a minimum of 3 tiedowns per stack, if the aggregate working load limit requirement could be achieved with only 3 tiedown assemblies. While adherence to the general cargo securement rule would require 3 tiedowns as above, adoption of the proposed revision to delete the requirement for a “vehicle end structure” in § 393.116(e)(1) would permit the same load to be secured with only 1 tiedown. FMCSA does not believe that shortwood, up to 16 feet in length, can be adequately secured with only 1 tiedown without a vehicle end structure, and therefore does not believe that it is appropriate to eliminate the requirement for the vehicle end structure as suggested by FRA.

FMCSA understands the concern of the CREA, and does not believe that the existing requirements specified for longwood in § 393.116 prohibit their application to the transportation of power poles on bucket trucks and digger derricks provided that all the applicable requirements of § 393.116 are met. However, to eliminate any future uncertainties regarding the applicability of § 393.116 with respect to utility poles, FMCSA is revising the definition of longwood in § 393.5 as follows:

*Longwood*. All logs, including utility poles, that are not shortwood, *i.e.*, are over 4.9 m (16 feet) long. Such logs are usually described as long logs or treelength.

FMCSA acknowledges CCMTA's concern with regard to crib-type log trailers. However, the agency explained in a clarification dated December 30, 2003, that generally, the use of a crib-type log securement system, without wrappers or tiedowns, would satisfy the commodity-specific requirements of § 393.116 provided:

(1) All vehicle components in the crib-type system are designed and built to withstand all anticipated operational forces without failure, accidental release or permanent deformation. Stakes or standards that are not permanently attached to the vehicle must be secured in a manner that prevents unintentional separation from the vehicle in transit [49 CFR 393.116(b)(2)];

(2) Logs are solidly packed, with the outer bottom logs in contact with and resting solidly against the bunks, bolsters, stakes or standards [49 CFR 393.116(c)(1)];

(3) Each outside log on the side of a stack of logs must touch at least two stakes, bunks, bolsters, or standards. If one end does not actually touch a stake, it must rest on other logs in a stable manner and must extend beyond the stake, bunk, bolster or standard [49 CFR 393.116(c)(2)];

(4) The maximum height of each stack of logs being transported is below the height of the stakes, and the front- and rear-end structures; and,

(5) The heights of the stacks are approximately equal so that logs in the top of one stack cannot shift longitudinally onto another stack on the vehicle.

The Agency further explained that § 393.116(b)(3), which requires that tiedowns be used in combination with the stabilization provided by bunks, stakes and bolsters to secure loads of logs, should not be considered applicable to the transportation of logs on crib-type vehicles under the conditions described above. However, § 393.116(c)(4), which also concerns tiedowns, remains applicable for logs that are not held in place by contact with other logs, stakes, bunks, or standards. This means the decision whether tiedowns must be used is contingent upon how the logs are loaded onto the vehicle. If the tops of the stacks of logs are relatively level, then tiedowns would not be required when the logs are transported in crib-type vehicles. Uneven loads would require tiedowns on the taller stacks, and on logs that are not held in place by other logs, bunks, or standards. FMCSA will amend § 393.116 as proposed.

FMCSA agrees with the WCLA/WTA recommendation regarding the securement of shortwood using wrappers on flatbed and frame vehicles. Specifically, while wrappers are not currently identified as a possible means of securing loads of shortwood, FMCSA believes that § 393.116(e) should be

revised to permit the use of tiedowns or wrappers for these loads. Wrappers are tiedown-type devices that encircle the entire load, which is then placed onto the flatbed or frame vehicle in conjunction with the use of standards to keep the bundled logs in place. Given that the use of wrappers is permitted (1) on loads of longwood per the revisions to § 393.116(e)(2)(ii) as discussed above, and (2) for the transportation of logs on pole trailers in § 393.116(f), there is no discernable reason the use of wrappers and standards as a means of securing loads of shortwood should be prohibited. While FMCSA agrees that wrappers should be included as possible method of securing shortwood, the Agency does not agree with the WCLA/WTA recommendation to revise § 393.116(e)(2) that refers to longwood. Instead, FMCSA amends § 393.116(e)(1) to permit the use of wrappers in security loads of shortwood, consistent with the comparable requirements for loads of longwood in § 393.116(e)(2).

10. *NPRM Proposal*: FMCSA proposed to amend § 393.118 by revising paragraph (d)(3)(iv)(B), replacing the period at the end of paragraph (d)(4) with a semicolon (;) and "or," and adding paragraph (d)(5). (70 FR 33439)

*Comments*: PFITC, FPAC, Rayonier, Georgia-Pacific, Allegheny, and EdgeWorks raised concerns that the proposed amendments in the NPRM (1) may impose a new securement requirement on stacked loads of dressed lumber and similar building products that would require tiedowns over an intermediate tier regardless of the height, and (2) will remove the requirement for a minimum of two tiedowns over each of the top bundles longer than 5 feet. The commenters believe that these changes would add securement requirements when they are not necessary to some loads, and remove a critical securement requirement for a minimum of two tiedowns over each bundle that is longer than 5 feet for all units on these loads.

These commenters state that for dressed lumber or similar building materials stacked two tiers high and that exceed 2.5 meters in height, there should be a requirement for intermediate height securement over the lower tier in accordance with the general provisions of § 393.100–§ 393.114 unless the overall height of the two tier load is 2.5 meter or less, in which case the lower tier would not require additional securement. In addition, these commenters believe that if there are three or more tiers, one of the middle tiers must be secured by tiedowns in accordance with the general provisions of § 393.100–§ 393.114 at a

height that may not exceed 1.85 meters. In all instances, these commenters believe that stacked cargo longer than 5 feet requires at least two tiedowns over the top tier.

CCMTA was supportive of the proposed change provided the requirement for a minimum of two tiedowns over bundles longer than 1.52 m on the top tier has not been removed (§ 393.118(d)(3)(iv)(A)).

*FMCSA Response*: FMCSA appreciates the comment from PFITC, FPAC, Rayonier, Georgia-Pacific, Allegheny, and EdgeWorks, but the Agency does not believe there is a significant difference between the commenters' suggested amendments and the requirements proposed in the NPRM. The proposed language does not remove the requirement for a minimum of two tiedowns over each bundle that is longer than 5 feet (§ 393.118(d)(3)(iv)(A), which references the general provisions of § 393.100–§ 393.114). The Agency also believes the tiedown requirements specified for intermediate tiers, as proposed in the NPRM, are consistent with those identified by the commenters. The Agency therefore adopts the amendments as proposed.

11. *NPRM Proposal*: FMCSA proposed to amend § 393.122 by revising paragraphs (b)(4) and (d)(4). (70 FR 33439–33440)

*Comments*: PFITC, FPAC, Rayonier, Georgia-Pacific, and Allegheny believe that the proposed amendments to § 393.122(b)(4)(iv) could allow the forwardmost roll of all split loads that are secured using a combination of methods that include friction mats to not be adequately secured against forward tipping when the roll has a width greater than 1.25 times its diameter. The commenters proposed revising this section as follows:

§ 393.122(b)(4)(iv). If a paper roll or the forwardmost roll in a group of paper rolls has a width greater than 1.25 times its diameter, and it is not prevented from tipping or falling forwards by vehicle structure or other cargo, and it is not restrained against forward movement by friction mat(s) **alone**, then it must be prevented from tipping or falling by banding it to other rolls, bracing or tiedowns.

The commenters agree with the proposed revision of § 393.122(d), but stated that a roll in a stack of rolls (two or more) raised by dunnage may be safely and effectively secured with friction mats, if the roll is not resting on the dunnage. The commenters requested the following clarification in 393.122(d)(4):

§ 393.122(d)(4) A roll that is in the rearmost of any layer may not be secured by friction mats alone when it is raised using

dunnage and is directly above and in contact with that dunnage.

Iowa DOT believes that friction mats used to secure paper rolls should be required to be sized and positioned to contact 100% of the footprint of the paper roll. In addition, Iowa DOT contends that there are many cases in which paper rolls are not adequately secured by the use of friction mats and believes that the existing regulations and policy guidance for § 393.122(b)(4) are too complex and difficult to enforce at roadside. Iowa suggested revising § 393.122(b)(4) such that when paper rolls are loaded with eyes vertical, friction mats or other blocking or dunnage devices would be required to prevent horizontal movement, regardless of roll width (vertical height) or position in the vehicle. In addition, rolls that have a width greater than 1.25 times their diameter would be required to be banded or secured to prevent tipping, regardless of position in the vehicle.

CCMTA supported the proposed change, but suggested further clarification regarding the securement of single rolls of paper, in addition to paper rolls transported in groups. Specifically CCMTA recommended that § 393.122(b)(4)(ii) and (iii) be reworded to state, "If a single paper roll or the forwardmost roll in a group of paper rolls \* \* \*." However, CCMTA did not support the proposed amendment to § 393.122(d)(4), noting that the original proposed Model Regulation and National Safety Code Standard 10 prohibits raising loads in the last row on dunnage.

*FMCSA Response:* FMCSA agrees with the commenters proposed clarification of § 393.122(b)(4)(iv). The preamble of the NPRM had included the phrase "by friction mat(s) *alone*," but that specific language was not included in the proposed regulatory text. FMCSA considers this an editorial correction to its 2005 proposal and the change has been included in the final regulatory text.

While the Model Regulation and the National Safety Code Standard 10 expressly prohibit raising a roll in the rearmost row of any layer using dunnage, neither of these publications—nor the research that was performed as the basis for developing these requirements—explains the intent of this prohibition or the hazards associated with loading paper rolls contrary to the stated prohibition. It is unclear to FMCSA why the language of the Model Regulation and the National Safety Code Standard 10 is written to prohibit such loading for situations in

which rolls in the rearmost row of the second and following layers are prevented from forward, rearward, or side-to-side movement by means other than friction mats alone, (*i.e.*, blocked, braced, banded, or tied down). In fact, the Cargo Securement Training Program developed by CCMTA and published in 2005 to assist both the enforcement community as well as carriers and drivers in applying and understanding the National Safety Code Standard 10 specifically states "that a roll in the rearmost row of any layer *must not* be raised using dunnage unless the roll is blocked or braced or banded or tied down to prevent rearward movement."

FMCSA explained in the NPRM that securing a paper roll in the rearmost row of the second and following layers using friction mats alone is difficult, if not impossible, because of the sometimes limited surface area of the risers and the coefficients of friction involved. However, based on information from the Paper and Forest Industry Transportation Committee, the Agency concluded that paper rolls on risers could be adequately secured provided they are blocked, braced, or banded to other rolls such that forward, rearward, and side-to-side movement is prevented. This guidance is consistent with the material currently in the Cargo Securement Training Program developed by CCMTA. While § 393.122 will differ from the Model Regulation and the National Safety Code Regulation 10 with respect to this issue, the Agency is confident that the securement of paper rolls in the rearmost row of any layer will not be compromised provided that any such rolls are adequately secured using blocking, bracing, or by banding the rolls together such that forward, rearward, and side-to-side movement is prevented. FMCSA does not believe that the language in § 393.122(d)(4) needs to be clarified as recommended by the commenters, and the Agency will amend the section as proposed in the NPRM.

FMCSA agrees with the concerns expressed by Iowa DOT regarding the need to specify the minimum footprint of friction mats. While the regulation is currently silent on the matter of effective footprint area, the Agency appreciates Iowa's request that § 393.122(b)(4) be simplified and made easier to understand for law enforcement personnel. The Agency is working closely with all interested parties through the NACSHC to further clarify the cargo securement regulations so that they are more easily understood and enforceable. Specifically with respect to the issue of friction mats, a separate working group has been formed

under the NACSHC to examine the feasibility of establishing specific performance parameters for friction mats and their use as part of a cargo securement system.

12. *NPRM Proposal:* The Agency proposed to amend § 393.126 by revising paragraph (b)(1). (70 FR 33440)

*Comments:* Iowa DOT concurred with the proposed amendments, but believes that additional language can be added to clearly reinforce the need to comply with the general securement requirements of §§ 393.106 and 393.110, specifically for empty intermodal containers transported on flatbed vehicles and secured by indirect tiedowns over the top of the container.

*FMCSA Response:* FMCSA acknowledges the concern expressed by the Iowa DOT with regard to the load securement requirements for the transportation of empty intermodal containers on vehicles other than container chassis vehicles. However, FMCSA believes that the general requirements for securing articles of cargo in § 393.106, coupled with the commodity specific requirements for securing intermodal containers in § 393.126(d), are sufficient to ensure the proper securement of empty intermodal containers on flatbed vehicles. Specifically, FMCSA believes that § 393.126(d)(1) provides enough clarification by requiring that the empty intermodal container be balanced and positioned on the vehicle so that the container is stable before the addition of tiedowns or other securement equipment. Given the above, FMCSA does not believe that additional clarification is necessary to ensure proper securement of intermodal containers, and the amendments to § 393.126 will be adopted as proposed in the NPRM.

13. *NPRM Proposal:* FMCSA proposed to amend § 393.132 by revising paragraphs (b) and (c)(2)(i). (70 FR 33440)

*Comments:* Iowa DOT and CCMTA support the proposed amendments to § 393.132(b) that would allow for the use of short segments of synthetic web strapping on crushed car body loads, provided there is clear language that there may be absolutely no contact between the cargo and the segment of synthetic web strap used. Iowa believes the rule could further state that the only allowed use of synthetic web strapping would be at a point of attachment or tensioning device.

Iowa DOT noted that several carriers have removed the floor from flatbed vehicles, leaving the floor cross bracing intact, creating a skeletal vehicle, which allows the debris and fluids to escape

from the bottom of the vehicle while in transit. Iowa suggested the inclusion of language in § 393.132(c) to clearly state that the transport vehicle must have a floor that is free of openings that would allow any cargo to escape from the vehicle, and further suggested that the floor requirement clearly state the floor must be pan-shaped and must be capable of capturing and retaining all liquids and debris that may leak from the car bodies.

CCMTA supported the intent of the proposed change, but expressed concern regarding some form of protection to synthetic webbing portion of tiedowns from being cut or damaged by the cargo.

**FMCSA Response:** FMCSA believes that the risk to synthetic webbing from flattened or crushed vehicles is adequately reflected in the proposed verbage in § 393.132(b) which clearly states, "However, the webbing (regardless of whether edge protection is used) must not come into contact with the flattened or crushed cars."

Iowa DOT's comment about fluid leaks while transporting flattened or crushed cars is very useful. FMCSA will close this loophole by modifying § 393.132(c)(5)(i) to read: "Vehicles used to transport flattened or crushed vehicles must be equipped with a means to prevent liquids from leaking from the bottom of the vehicle, and loose parts from falling from the bottom and all four sides of the vehicle extending to the full height of the cargo."

#### 14. *Additional Comments.*

AEM requested that a clarification be added regarding the requirement of § 393.130(b)(1) that "Accessory equipment, such as hydraulic shovels must be completely lowered and secured to the vehicle." It suggested that the following language be added to this section:

Accessory equipment is not required to be lowered and secured, if either of the following criteria is met: (a) Transport restraint device/systems are used that meet the requirements of § 393.102. (b) Drift or swing of accessory equipment will not move beyond the legal envelope of the trailer.

AEM made a presentation to FMCSA personnel in 2004 requesting clarification and on September 8, 2005, the Agency approved the following official regulatory guidance:

§ 393.130 What are the rules for securing heavy vehicles, equipment and machinery?

**Question 1:** If an item of construction equipment which weighs less than 4,536 kg (10,000 lb.) is transported on a flatbed or drop-deck trailer, must the accessory equipment be lowered to the deck of the trailer?

**Guidance:** No. However, the accessory equipment must be properly secured using

locking pins or similar devices in order to prevent either the accessory equipment or the item of construction equipment itself from shifting during transport.

**Question 2:** How should I secure the accessories for an item of construction equipment which weighs 4,536 kg (10,000 lb.) or more, if the accessory devices would extend beyond the width of the trailer if they are lowered to the deck for transport?

**Guidance:** The accessory devices (plows, trencher bars, and the like) may be transported in a raised position, provided they are designed to be transported in that manner. However, the accessory equipment must be locked in place for transport to ensure that neither the accessories nor the equipment itself shifts during transport.

**Question 3:** A tractor loader-backhoe weighing over 10,000 pounds is being transported on a trailer. The loader and backhoe accessories are each equipped with locking devices or mechanisms that prevent them from moving up and down and from side-to-side while the construction equipment is being transported on the trailer. Must these accessories also be secured to the trailer with chains?

**Guidance:** No. However, if the construction equipment does not have a means of preventing the loader bucket, backhoe, or similar accessories from moving while it is being transported on the trailer, then a chain would be required to secure those accessories to the trailer.

In view of this guidance, the Agency does not consider regulatory amendments to be necessary.

FMCSA received additional comments to the NPRM that were deemed to be outside the scope of this rulemaking. As part of the process for ensuring consistent interpretations of the harmonized cargo securement regulations, a North American Cargo Securement Harmonization Committee was formed to provide interested parties the opportunity to participate in the ongoing efforts to harmonize U.S. and Canadian cargo securement standards. FMCSA will continue to announce its public meetings with the harmonization committee so that all interested parties have the opportunity to participate in the discussions between the Agency, its Canadian counterparts, enforcement agencies, and the industry about interpretations and other implementation issues. Three public meetings have been held on this subject. The first meeting was held April 21–22, 2005, in Albuquerque, New Mexico, and the second September 29–30, 2005, in Indianapolis, Indiana, and the third April 23, 2006, in Hartford, Connecticut. Minutes from these meetings, and the presentations made by participants will be placed in the Docket No. FMCSA–2005–22056 as they are available, and can be viewed electronically at <http://dms.dot.gov>. Future public meetings

will be announced in the **Federal Register**.

## X. **Regulatory Analyses and Notices**

### *Executive Order 12866 (Regulatory Planning and Review) and DOT*

#### Regulatory Policies and Procedures

FMCSA has determined this action is not a significant regulatory action within the meaning of Executive Order 12866 or Department of Transportation regulatory policies and procedures. This document was not reviewed by the Office of Management and Budget (OMB). We expect the final rule will have minimal costs, but the Agency has prepared a regulatory analysis and regulatory flexibility analysis. A copy of the analysis document is included in the docket referenced at the beginning of this notice.

FMCSA has determined that it has good cause under 5 U.S.C. 553(b)(B) to incorporate by reference the 2005 version of the NACM's "Welded Steel Chain Specifications" because additional notice and opportunity for comment on this issue are unnecessary. The NPRM proposed to incorporate the 2003 version. The 2005 version was published shortly after the NPRM, but includes no changes that would affect this rule.

#### *Regulatory Flexibility Act*

In compliance with the Regulatory Flexibility Act (5 U.S.C. 601–612), FMCSA has considered the effects of this regulatory action on small entities and determined that this rule will not have a significant impact on a substantial number of small entities, as defined by the U.S. Small Business Administration's Office of Size Standards.

This rulemaking will make only minor amendments and editorial corrections to FMCSA's September 27, 2002, final rule establishing new regulations concerning protection against shifting and falling cargo for CMVs operated in interstate commerce. The amendments will improve the clarity of certain provisions of the cargo securement regulations to ensure that the requirements are fully understood by motor carriers and enforcement officials. This action will better enable motor carriers to meet the safety performance requirements of the final rule, while continuing to adhere to industry best-practices that have been shown to effectively prevent the shifting and falling of cargo.

Accordingly, FMCSA has considered the economic impacts of the requirements on small entities and determined that this rule will not have

a significant economic impact on a substantial number of small entities. A copy of the agency's regulatory flexibility analysis is included in the docket listed at the beginning of this notice.

*Unfunded Mandates Reform Act of 1995*

FMCSA has determined this rule will not impose an unfunded Federal mandate, as defined by the Unfunded Mandates Reform Act of 1995 (2 U.S.C. 1532, *et seq.*), that would result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$128 million or more in any 1 year.

*Executive Order 12988 (Civil Justice Reform)*

FMCSA has determined this action would meet applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

*Executive Order 13045 (Protection of Children)*

FMCSA has analyzed this action under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. The agency has determined this rulemaking is not an economically significant rule and does not concern an environmental risk to health or safety that may disproportionately affect children.

*Executive Order 12630 (Taking of Private Property)*

FMCSA has determined this rule would not effect a taking of private property or otherwise have taking implications under Executive Order 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

*Executive Order 13132 (Federalism)*

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. FMCSA has determined this rulemaking does not have a substantial direct effect on States, and does not limit the policy-making discretion of the States. Nothing in this document preempts any State law or regulation.

*Executive Order 12372 (Intergovernmental Review)*

The regulations implementing Executive Order 12372 regarding intergovernmental consultation on Federal programs and activities do not apply to this program.

*Paperwork Reduction Act*

This action does not contain a collection of information requirement for the purposes of the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 *et seq.*

*National Environmental Policy Act*

FMCSA has analyzed this action for purposes of the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*) and has determined this action does not have an effect on the quality of the environment. However, an environmental assessment (EA) has been prepared because the rulemaking is not among the type covered by a categorical exclusion. A copy of the environmental assessment is included in the docket listed at the beginning of this notice.

*Executive Order 13211 (Energy Effects)*

FMCSA has analyzed this action under Executive Order 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution or Use. We have determined that it is not a "significant energy action" under that order because it is not economically significant and will not have a significant adverse effect on the supply, distribution or use of energy. This action merely makes minor amendments and editorial corrections to FMCSA's September 27, 2002, final rule establishing new regulations concerning protection against shifting and falling cargo for CMVs operated in interstate commerce. This action has no effect on the supply or use of energy, nor do we believe it will cause a shortage of drivers qualified to distribute energy, such as gasoline, fuel oil or other fuels.

**List of Subjects for 49 CFR Part 393**

Incorporation by reference, Highway safety, Motor carriers.

■ In consideration of the foregoing, FMCSA amends title 49, Code of Federal Regulations, chapter III, as follows:

**PART 393—[AMENDED]**

■ 1. The authority citation for part 393 continues to read as follows:

**Authority:** Section 1041(b) of Pub. L. 102-240, 105 Stat. 1914; 49 U.S.C. 31136 and 31502; and 49 CFR 1.73.

■ 2. Amend § 393.5 by adding definitions of "crib-type trailer," and "metal coil" in alphabetical order to read as follows:

**§ 393.5 Definitions.**

\* \* \* \* \*

*Crib-type log trailer* means a trailer equipped with stakes, bunks, a front-

end structure, and a rear structure to restrain logs. The stakes prevent movement of the logs from side to side on the vehicle while the front-end and rear structures prevent movement of the logs from front to back on the vehicle.

\* \* \* \* \*

*Longwood* means all logs, including utility poles, that are not shortwood, i.e., that are over 4.9 m (16 feet) long. Such logs are usually described as long logs or treelength.

*Metal coil* means an article of cargo comprised of elements, mixtures, compounds, or alloys commonly known as metal, metal foil, metal leaf, forged metal, stamped metal, metal wire, metal rod, or metal chain that are packaged as a roll, coil, spool, wind, or wrap, including plastic or rubber coated electrical wire and communications cable.

\* \* \* \* \*

■ 3. Amend § 393.7 by revising paragraph (b)(19) to read as follows:

**§ 393.7 Matters Incorporated by reference.**

\* \* \* \* \*

(b) \* \* \*  
(19) Welded Steel Chain Specifications, National Association of Chain Manufacturers, September 28, 2005, incorporation by reference approved for § 393.104(e).

\* \* \* \* \*

■ 4. Revise § 393.102 to read as follows:

**§ 393.102 What are the minimum performance criteria for cargo securement devices and systems?**

(a) *Performance criteria*—(1) *Breaking Strength*. Tiedown assemblies (including chains, wire rope, steel strapping, synthetic webbing, and cordage) and other attachment or fastening devices used to secure articles of cargo to, or in, commercial motor vehicles must be designed, installed, and maintained to ensure that the maximum forces acting on the devices or systems do not exceed the manufacturer's breaking strength rating under the following conditions, applied separately:

- (i) 0.8 g deceleration in the forward direction;
- (ii) 0.5 g acceleration in the rearward direction; and
- (iii) 0.5 g acceleration in a lateral direction.

(2) *Working Load Limit*. Tiedown assemblies (including chains, wire rope, steel strapping, synthetic webbing, and cordage) and other attachment or fastening devices used to secure articles of cargo to, or in, commercial motor vehicles must be designed, installed, and maintained to ensure that the forces

acting on the devices or systems do not exceed the working load limit for the devices under the following conditions, applied separately:

- (i) 0.435 g deceleration in the forward direction;
- (ii) 0.5 g acceleration in the rearward direction; and
- (iii) 0.25 g acceleration in a lateral direction.

(b) *Performance criteria for devices to prevent vertical movement of loads that are not contained within the structure of the vehicle.* Securement systems must provide a downward force equivalent to at least 20 percent of the weight of the article of cargo if the article is not fully contained within the structure of the vehicle. If the article is fully contained within the structure of the vehicle, it may be secured in accordance with Sec. 393.106(b).

(c) *Equivalent means of securement.* The means of securing articles of cargo are considered to meet the performance requirements of this section if the cargo is “

- (1) Immobilized, such so that it cannot shift or tip to the extent that the vehicle’s stability or maneuverability is adversely affected; or
- (2) Transported in a sided vehicle that has walls of adequate strength, such that each article of cargo within the vehicle is in contact with, or sufficiently close to a wall or other articles, so that it cannot shift or tip to the extent that the vehicle’s stability or maneuverability is adversely affected; or
- (3) Secured in accordance with the applicable requirements of §§ 393.104 through 393.136.

- 5. Amend § 393.104 as follows:
  - a. By revising paragraphs (b) and (c);
  - b. By removing the words “November 15, 1999” and adding the words “dated September 28, 2005” in their place in paragraph (e) (2) table;
  - c. By removing paragraph (f)(4); and
  - d. By redesignating paragraph (f)(5) as paragraph (f)(4).

The revisions read as follows:

**§ 393.104 What standards must cargo securement devices and systems meet in order to satisfy the requirements of this subpart?**

(b) *Prohibition on the use of damaged securement devices.* All tiedowns, cargo securement systems, parts and components used to secure cargo must be in proper working order when used to perform that function with no damaged or weakened components, such as, but not limited to, cracks or cuts that will adversely affect their performance for cargo securement purposes, including reducing the working load limit.

(c) *Vehicle structures and anchor points.* Vehicle structures, floors, walls, decks, tiedown anchor points, headerboards, bulkheads, stakes, posts, and associated mounting pockets used to contain or secure articles of cargo must be strong enough to meet the performance criteria of § 393.102, with no damaged or weakened components, such as, but not limited to, cracks or cuts that will adversely affect their performance for cargo securement purposes, including reducing the working load limit.

\* \* \* \* \*

- 6. Amend § 393.106 by revising paragraphs (a) and (d) to read as follows:

**§ 393.106 What are the general requirements for securing articles of cargo?**

(a) *Applicability.* The rules in this section are applicable to the transportation of all types of articles of cargo, except commodities in bulk that lack structure or fixed shape (e.g., liquids, gases, grain, liquid concrete, sand, gravel, aggregates) and are transported in a tank, hopper, box, or similar device that forms part of the structure of a commercial motor vehicle. The rules in this section apply to the cargo types covered by the commodity-specific rules of § 393.116 through § 393.136. The commodity-specific rules take precedence over the general requirements of this section when additional requirements are given for a commodity listed in those sections.

\* \* \* \* \*

(d) *Aggregate working load limit for tiedowns.* The aggregate working load limit of tiedowns used to secure an article or group of articles against movement must be at least one-half times the weight of the article or group of articles. The aggregate working load limit is the sum of:

- (1) One-half the working load limit of each tiedown that goes from an anchor point on the vehicle to an anchor point on an article of cargo;
- (2) One-half the working load limit of each tiedown that is attached to an anchor point on the vehicle, passes through, over, or around the article of cargo, and is then attached to an anchor point on the same side of the vehicle.

(3) The working load limit for each tiedown that goes from an anchor point on the vehicle, through, over, or around the article of cargo, and then attaches to another anchor point on the other side of the vehicle.

- 7. Revise the heading of § 393.108 to read as follows:

**§ 393.108 How is the working load limit of a tiedown, or the load restraining value of a friction mat, determined?**

\* \* \* \* \*

- 8. Amend § 393.110 by revising paragraphs (a) and (c) to read as follows:

**§ 393.110 What else do I have to do to determine the minimum number of tiedowns?**

(a) When tiedowns are used as part of a cargo securement system, the minimum number of tiedowns required to secure an article or group of articles against movement depends on the length of the article(s) being secured, and the requirements of paragraphs (b) and (c) of this section. These requirements are in addition to the rules under § 393.106.

\* \* \* \* \*

(c) If an individual article is blocked, braced, or immobilized to prevent movement in the forward direction by a headerboard, bulkhead, other articles which are adequately secured or by an appropriate blocking or immobilization method, it must be secured by at least one tiedown for every 3.04 meters (10 feet) of article length, or fraction thereof.

\* \* \* \* \*

- 9. Amend § 393.114 by revising paragraph (b)(1) to read as follows:

**§ 393.114 What are the requirements for front-end structures used as part of a cargo securement system?**

\* \* \* \* \*

(b) *Height and width.* (1) The front end structure must extend either to a height of 4 feet above the floor of the vehicle or to a height at which it blocks forward movement of any item or article of cargo being carried on the vehicle, whichever is lower.

\* \* \* \* \*

- 10. Amend § 393.116 by revising paragraph (b)(3), adding a new paragraph (b)(4) and revising paragraph (e) to read as follows:

**§ 393.116 What are the rules for securing logs?**

\* \* \* \* \*

(b) *Components of a securement system.* \* \* \*

(3) Tiedowns must be used in combination with the stabilization provided by bunks, stakes, and bolsters to secure the load unless the logs:

- (i) are transported in a crib-type log trailer (as defined in 49 CFR 393.5), and
- (ii) are loaded in compliance with paragraphs (b)(2) and (c) of this section.

(4) The aggregate working load limit for tiedowns used to secure a stack of logs on a frame vehicle, or a flatbed vehicle equipped with bunks, bolsters,

or stakes must be at least one-sixth the weight of the stack of logs.

\* \* \* \* \*

(e) *Securement of logs loaded lengthwise on flatbed and frame vehicles*—(1) *Shortwood*. In addition to meeting the requirements of paragraphs (b) and (c) of this section, each stack of shortwood loaded lengthwise on a frame vehicle or on a flatbed must be cradled in a bunk unit or contained by stakes and

(i) Secured to the vehicle by at least two tiedowns, or

(ii) If all the logs in any stack are blocked in the front by a front-end structure strong enough to restrain the load, or by another stack of logs, and blocked in the rear by another stack of logs or vehicle end structure, the stack may be secured with one tiedown. If one tiedown is used, it must be positioned about midway between the stakes, or

(iii) Be bound by at least two tiedown-type devices such as wire rope, used as wrappers that encircle the entire load at locations along the load that provide effective securement. If wrappers are being used to bundle the logs together, the wrappers are not required to be attached to the vehicle.

(2) *Longwood*. Longwood must be cradled in two or more bunks and must either:

(i) Be secured to the vehicle by at least two tiedowns at locations that provide effective securement, or

(ii) Be bound by at least two tiedown-type devices, such as wire rope, used as wrappers that encircle the entire load at locations along the load that provide effective securement. If a wrapper(s) is being used to bundle the logs together, the wrapper is not required to be attached to the vehicle.

■ 11. Amend § 393.118 by revising paragraph (d)(3)(iv)(B), removing the period at the end of paragraph (d)(4) and adding “; or” in its place, and adding paragraph (d)(5) to read as follows:

**§ 393.118 What are the rules for securing dressed lumber or similar building products?**

\* \* \* \* \*

(d) Securement of bundles transported using more than one tier. \* \* \*

(3) \* \* \*  
(iv) \* \* \*

(B) Secured by tiedowns as follows:

(1) If there are 3 tiers, the middle and top bundles must be secured by tiedowns in accordance with the general provisions of §§ 393.100 through 393.114; or

(2) (i) If there are more than 3 tiers, then one of the middle bundles and the top bundle must be secured by tiedown devices in accordance with the general

provision of §§ 393.100 through 393.114, and the maximum height for the middle tier that must be secured may not exceed 6 feet about the deck of the trailer; or

(ii) Otherwise, the second tier from the bottom must be secured in accordance with the general provisions of §§ 393.100 through 393.114; or

\* \* \* \* \*

(5) When loaded in a sided vehicle or container of adequate strength, dressed lumber or similar building products may be secured in accordance with the general provisions of §§ 393.100 through 393.114.

■ 12. Amend § 393.122 by revising paragraphs (b)(4) and (d)(4) to read as follows:

**§ 393.122 What are the rules for securing paper rolls?**

\* \* \* \* \*

(b) *Securement of paper rolls transported with eyes vertical in a sided vehicle*. \* \* \*

(4)(i) If a paper roll is not prevented from tipping or falling sideways or rearwards by vehicle structure or other cargo, and its width is more than 2 times its diameter, it must be prevented from tipping or falling by banding it to other rolls, bracing, or tiedowns.

(ii) If the forwardmost roll(s) in a group of paper rolls has a width greater than 1.75 times its diameter and it is not prevented from tipping or falling forwards by vehicle structure or other cargo, then it must be prevented from tipping or falling forwards by banding it to other rolls, bracing, or tiedowns.

(iii) If the forwardmost roll(s) in a group of paper rolls has a width equal to or less than 1.75 times its diameter, and it is restrained against forward movement by friction mat(s) alone, then banding, bracing, or tiedowns are not required to prevent tipping or falling forwards.

(iv) If a paper roll or the forwardmost roll in a group of paper rolls has a width greater than 1.25 times its diameter, and it is not prevented from tipping or falling forwards by vehicle structure or other cargo, and it is not restrained against forward movement by friction mat(s) alone, then it must be prevented from tipping or falling by banding it to other rolls, bracing or tiedowns.

\* \* \* \* \*

(d) *Securement of stacked loads of paper rolls transported with eyes vertical in a sided vehicle*. \* \* \*

(4) A roll in the rearmost row of any layer raised using dunnage may not be secured by friction mats alone.

\* \* \* \* \*

■ 13. Amend § 393.126 by revising paragraph (b)(1) to read as follows:

**§ 393.126 What are the rules for securing intermodal containers?**

\* \* \* \* \*

(b) *Securement of intermodal containers transported on container chassis vehicle(s)*. (1) All lower corners of the intermodal container must be secured to the container chassis with securement devices or integral locking devices that cannot unintentionally become unfastened while the vehicle is in transit.

\* \* \* \* \*

■ 14. Amend § 393.132 by revising paragraphs (b), (c)(2)(i), and (c)(5)(i) to read as follows:

**§ 393.132 What are the rules securing flattened or crushed vehicles?**

\* \* \* \* \*

(b) *Prohibition on the use of synthetic webbing*. The use of synthetic webbing to secure flattened or crushed vehicles is prohibited except that such webbing may be used to connect wire rope or chain to anchor points on the commercial motor vehicle. However, the webbing (regardless of whether edge protection is used) must not come into contact with the flattened or crushed cars.

(c) \* \* \*

(2)(i) Containment walls or comparable means on three sides which extend to the full height of the load and which block against movement of the cargo in the direction for which there is a containment wall or comparable means, and

\* \* \* \* \*

(5)(i) Vehicles used to transport flattened or crushed vehicles must be equipped with a means to prevent liquids from leaking from the bottom of the vehicle, and loose parts from falling from the bottom and all four sides of the vehicle extending to the full height of the cargo.

\* \* \* \* \*

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