

CSA 2010

Safety Measurement System

The role of the Safety Measurement System (SMS) within the CSA 2010 operational model is to monitor and quantify the safety performance of motor carriers and drivers through data available in the Motor Carrier Management Information System (MCMIS). Under CSA 2010 these data would include violations found during roadside inspections, traffic enforcement, and the intervention process (discussed below), as well as crashes. SMS would group data into seven Behavioral Analysis Safety Improvement Categories (BASICS), each of which includes regulatory requirements for both motor carriers and drivers.

BASICS

1. **Unsafe Driving**--The operation of commercial motor vehicles in a dangerous or careless manner. Example violations include speeding, reckless driving, improper lane change, and inattention.
2. **Fatigued Driving**--The operation of commercial motor vehicles by drivers in non-compliance with the hours-of-service (HOS) regulations. This BASIC focuses on violations of the HOS regulations including violations of driving time limits, driving after reaching on-duty time limits, and failure to maintain complete and accurate log books. This BASIC is not intended to suggest that the Agency has determined that the driver was actually fatigued. Also, instances related to the Fatigued Driving BASIC are distinguished from incidents where unconsciousness or inability to react is brought about by the use of alcohol, drugs, or other controlled substances.
3. **Driver Fitness**--The operation of commercial motor vehicles (CMV) by drivers who are unfit to operate a CMV due to lack of training or medical qualifications. Example violations include failure to have a valid and appropriate commercial driver's license and being medically unqualified to operate a CMV.
4. **Controlled Substances and Alcohol**--The operation of CMVs by drivers who are in possession of alcohol or illegal drugs, or impaired due to alcohol, illegal drugs, or misuse of prescription or over-the-counter medications. Example violations include the use or possession of controlled substances or alcohol. [[Page 62297]]

5. **Vehicle Maintenance**--Commercial motor vehicle failure due to improper or inadequate maintenance. Example violations include brakes, lights, and other mechanical defects, and failure to make required repairs.
6. **Improper Loading/Cargo Securement**--CMV incidents resulting from shifting loads, spilled or dropped cargo, and unsafe handling of hazardous materials. Example violations include improper load securement, cargo retention, and hazardous material handling.
7. **Crash**--Histories or patterns of crash involvement, including frequency and severity. It is based on information from state-reported crashes.

FMCSA developed the BASICs under the premise that CMV crashes can ultimately be traced to the behavior of motor carriers and drivers. The categories are derived from the existing FMCSA regulatory structure, the Large Truck Crash Causation Study, and other analyses and studies conducted by the Agency.

Four principal steps would be used to assess entity (motor carrier or driver) performance in each BASIC.

1. First, relevant inspection, violation, and crash data from the Motor Carrier Management Information System would be attributed to an entity to create a safety event history.
2. Second, each entity's violations and crashes would be classified into a BASIC.
3. Third, these data would then be time weighted, severity weighted, normalized, and peer grouped to form a quantifiable measure for the entity in each BASIC. In addition, the Safety Measurement System would employ data sufficiency standards to ensure there are enough data to produce meaningful measures of safety performance.
4. Finally, based on a comparison of each entity's BASIC measure to those of its peers, a rank and percentile would be assigned. The motor carrier's score in each BASIC would be based on data from the past 24-months.

FMCSA anticipates using the SMS results in CSA 2010 to identify and monitor entities with safety problems with respect to its BASICs for inclusion in the intervention process (described below under Interventions). Also, in cases where the SMS results are robust enough to indicate strong crash risk to the public, FMCSA anticipates applying these results along with other factors that could lead to a proposed Unfit safety fitness determination (described below under Safety Fitness Determination). Thus, FMCSA would establish thresholds for each BASIC to trigger the intervention process and play a role in adverse safety fitness determinations.

Safety Fitness Determination

Under this methodology, there would be four major factors that could impact a motor carrier's safety fitness determination:

1. Roadside inspections results as assessed by the Safety Management System (SMS) through stand alone or non-stand alone BASICS,
2. A verifiable crash rate,
3. Where essential safety management violations are 10 percent or more of records checked during the intervention process, and
4. Fifteen violations which FMCSA believes are so fundamental to ensuring safety that no motor carrier should be allowed to operate if any of these violations are found and not immediately corrected. Factors (1), (2), and (3) would align within the seven BASICS referenced above in the Safety Measurement System. These same factors would be applied to a set of safety fitness criteria to determine a BASIC failure.

A carrier's SMS measures and verifiable crash rate in Factors (1) and (2), respectively, would be applied to a set of Unfit thresholds to determine a BASIC failure. These thresholds would be based on the carrier's absolute BASIC measures and crash rate, as opposed to the relative percentile rankings from the SMS.

Carriers that have received interventions resulting in violations in the areas of essential motor carrier safety management that equal or exceed a 10% violation rate of records check will also result in a BASIC failure.

Table 1 below illustrates how these BASIC failures would interact to determine a motor carrier's safety fitness:

Table 1.--Preliminary CSA 2010 Safety Fitness Determination Methodology

Stand Alone BASICS:	Non-Stand Alone BASICS:	Fifteen Fundamental Violations:	Safety Fitness Determinations:
Unsafe Driving	Driver Fitness		
Fatigued Driving	Drug/ Alcohol		
	Cargo Securement		
	Vehicle Maintenance		
	Verifiable Crash Rate		

Number of BASICs: (1) With SMS measure above Unfit threshold, or (2) Where essential safety management violations are 10 percent or more of records checked	Number of BASICs: (1) With SMS measure or verifiable crash rate above Unfit threshold, or. (2) Where essential safety management violations are 10 percent or more of records checked..	See Table 3 below.	Continue Operation. Marginal. Unfit.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------	--------------------------------------------

1.....	Unfit.
0.....	Greater than 1.....	Unfit.
0.....	0.....	1.....	Unfit.
0.....	1.....	0.....	Marginal.
0.....	0.....	0.....	Continue Operation.

The above methodology makes a distinction between "stand alone" and "non-stand alone" BASICs. For the "stand alone" BASICs a failure in only one of them would result in a proposed Unfit status, whereas for the "non-stand alone" BASICs a failure in more than one of them would be required for the proposed Unfit status. The rationale for this distinction is that, although each of the BASICs applies to both carriers and drivers, the "stand alone" BASICs are more directly related to driver behavior. Recent research indicates that driver behavior is a major contributing factor in causing crashes. In particular, an effectiveness study on the Safety Management System has shown that carriers with past poor performance in the Unsafe Driving or Fatigue Driving BASICs were subsequently involved in crashes at a considerably higher rate than the overall crash rate of the motor carrier population. FMCSA believes that this preliminary safety fitness determination methodology would allow the Agency to assess the safety performance of a larger segment of the motor carrier industry. In contrast to the Agency's current methodology, this approach is not tied to an on-site compliance review and it takes into account virtually all of the safety regulations. FMCSA would issue safety fitness determinations on all motor carriers for which it has sufficient data. These would be updated monthly and made available to the public.

FMCSA is designing two Safety Measurement Systems--one for carriers, Carrier Safety Measurement System (CSMS), and one for drivers, Driver Safety Measurement System (DSMS). Both systems are in the prototype stage and will be used to support the operational model test discussed below. FMCSA plans to demonstrate the Safety Measurement System during the upcoming listening session.

There are six important differences between the SMS and the Agency's current measurement system, SafeStat:

1. SMS is organized by seven specific behaviors (BASICS) while SafeStat is organized into four general Safety Evaluation Areas (SEAs).
2. SMS identifies safety problems in the same structure in which CSA 2010 addresses those problems, while SafeStat prioritizes carriers for a one-size-fits-all compliance review.
3. SMS uses all safety-based inspection violations while SafeStat uses only out-of-service violations and selected moving violations.
4. SMS uses risk-based violation weightings while SafeStat does not.
5. SMS impacts the safety fitness determination of an entity, while SafeStat has no impact on an entity's safety fitness rating.
6. SMS assesses individual drivers and carriers, while SafeStat assesses only carriers.

Interventions

Over the past year FMCSA has made considerable progress in developing the system of interventions that would be used under CSA 2010. It provides a broad array of tools that would be used in a systematic way to intervene with a carrier and its drivers, depending on the BASIC measures identified by the Safety Measurement System. The interventions are designed to be progressive, increasing in severity and interaction with motor carriers and their drivers. The goal is to use the interventions to reach a larger segment of the motor carrier industry, and to change unsafe behavior early:

Warning Letter--The warning letter would be sent to a motor carrier when its safety performance data exceeds the Safety Measurement System threshold for intervention in one or more BASICs. The letter would advise the motor carrier of the apparent safety problems, and the potential consequences of continued operation in that way. It would also refer the motor carrier to Web-based educational tools and information for self improvement, and the letter would provide the motor carrier with instructions on how to challenge the underlying safety data if the motor carrier believes the data is in error. [[Page 62298]]

Targeted Roadside Inspection--The warning letter would also trigger targeted roadside inspection. The same information on deficient BASICs described in the warning letter would be reflected in roadside information software used by roadside inspectors. This would enable them to monitor the status of those safety problems with that motor carrier, and confirm their existence or correction. This would also help improve the overall effectiveness of roadside inspections.

Off-Site Investigation--The off-site investigation would enable FMCSA and its state partners to evaluate safety problems without the cost of sending enforcement officials to a motor carrier's place of business. It would involve requests for documentation from the carrier and third-parties, and constitute a desktop review of available information to determine the nature and extent of identified safety problems. The off-site investigation would be triggered by persistent safety problems, or those severe enough to warrant investigation.

Focused On-Site Investigation--The focused on-site investigation would take place at the motor carrier's place of business, and would be employed when the carrier exhibits a persistent safety problem in one area. It would enable FMCSA and its state partners to focus on the identified safety problem without spending time and resources where no other safety problems have been identified. It would involve reviewing records, interviewing personnel, analyzing practices, and identifying corrective actions. The focused on-site investigation could be triggered by a continuing deficient or worsening BASIC, or a fatal crash or complaint.

Comprehensive On-Site Investigation--The comprehensive on-site investigation would also take place at the motor carrier's place of business. It would be employed when the carrier exhibits broad and complex safety problems through multiple deficient BASICs, and would be similar to the compliance review conducted under the Agency's current operational model. The comprehensive on-site investigation could be triggered by continuing deficient or worsening multiple BASICs, or a fatal crash or complaint.

Cooperative Safety Plan--The cooperative safety plan (CSP) could be triggered after investigation reveals safety problems for which the motor carrier expresses a willingness to remedy. It could be used to support safety improvements before the levying of fines. It would be a structured plan developed and implemented voluntarily by the motor carrier. The CSP would be the motor carrier's action plan to address safety problems. The Agency would monitor the carrier's safety performance, and increase intervention if performance does not improve.

Notice of Violation--The purpose of the notice of violation would be to increase the motor carrier's awareness of enforcement intent on the part of the Agency. It could be useful where the violation is immediately correctable. It would put the carrier on notice of specific regulatory violations. The motor carrier would then have to provide evidence of corrective action, or successfully challenge the identified safety violations. The notice of violation could provide the motor carrier with motivation to change unsafe behavior to avoid a fine.

Notice of Claim--The purpose of the notice of claim is to deter severe or persistent unsafe behavior. It is issued as a formal document and served on the violator to compel compliance. The notice of claim would be triggered by evidence of a severe regulatory violation or history of violations, sufficient to justify assessment of penalties.

Settlement Agreement--The purpose of the settlement agreement is to contractually bind the motor carrier to take actions to improve safety. The motor carrier is given the opportunity to enter into the settlement agreement to avoid fines or suspension of operations. The settlement agreement identifies the consequences to the motor carrier if it does not take the agreed upon action and return to compliance. The agreement would allow the carrier to avoid significant penalties by committing to major safety improvements, for example, with the understanding that failure to comply with the terms of the settlement agreement would result in the immediate imposition of the maximum penalty that would otherwise have been levied.

Unfit Suspension--A motor carrier is placed out of business.

While the above interventions are presented in their logical sequence of severity, it is important to note that FMCSA and its state partners would not necessarily follow this sequence for each carrier. Instead, factors such as carrier history, level of safety performance, motor carrier characteristics, and investigative discretion could influence the intervention selected to encourage change in unsafe behavior.

Tables 3 and 3 (Essential and Fundamental Violations)

Table 2.--Areas of Essential Motor Carrier Safety Management

1. Scheduling a run which would necessitate the vehicle being operated at speeds in excess of those prescribed (Sec. 392.6).
2. Operating a motor vehicle not in accordance with the laws, ordinances, and regulations of the jurisdiction in which it is being operated (Sec. 392.2)(Safety related violations only).
3. No operating authority (Sec 392.9a(a)).
4. False reports of records of duty status (Sec. 395.8(e)).
5. Requiring or permitting driver to drive more than 11 hours (Sec. 395.3(a)(1)).
6. Requiring or permitting passenger CMV driver to drive more than 10 hours (Sec. 395.5(a)(1)).
7. Requiring or permitting driver to drive after 14 hours on duty (Sec. 395.3(a)(2)).
8. Requiring or permitting passenger CMV driver to drive after 15 hours on duty (Sec. 395.5(a)(2)).
9. Requiring or permitting driver to drive after 60 hours on duty in 7 days (Sec. 395.3(b)(1)).
10. Requiring or permitting driver to drive after 70 hours on duty in 8 days (Sec. 395.3(b)(2)).
11. Requiring or permitting passenger CMV driver to drive after 60 hours on duty in 7 days (Sec. 395.5(b)(1)).
12. Requiring or permitting passenger CMV driver to drive after 70 hours on duty in 8 days (Sec. 395.5(b)(2)).
13. Requiring or permitting short-haul property CMV driver to drive after 16 hours on duty (Sec. 395.1(o)).
14. No records of duty status (Sec. 395.8(a)).
15. Failing to submit record of duty status within 13 days (Sec. 395.8(i)).
16. Failing to preserve records of duty status for 6 months (Sec. 395.8(k)).
17. Failing to preserve supporting documents (Sec. 395.8(k)).
18. Fraudulent or intentional alteration of a supporting document (Sec. 395.8(k)).
19. Requiring or permitting driver to drive after 70 hours in 7 days (Alaska)(Sec. 395.1(h)(1)(iii)).
20. Requiring or permitting driver to drive after 80 hours on duty in 8 days (Alaska)(Sec. 395.1(h)(1)(iv)).
21. Requiring or permitting driver to drive more than 15 hours (Alaska)(Sec. 395.1(h)(1)(i)).
22. Requiring or permitting driver to drive after being on duty 20 hours (Alaska)(Sec. 395.1(h)(1)(ii)).
23. Requiring or permitting passenger CMV driver to drive more than 15 hours (Alaska). (Sec. 395.1(h)(2)(i)).
24. Requiring or permitting passenger CMV driver to drive after 20 hours on duty (Alaska) (Sec. 395.1(h)(2)(ii)).
25. Requiring or permitting passenger CMV driver to drive after 80 hours on duty in 8 days (Alaska) (Sec. 395.1(h)(2)(iv)).

26. Requiring or permitting passenger CMV driver to drive after 70 hours on duty in 7 days (Alaska)(Sec 395.1(h)(2)(iii)).
27. Failing to investigate driver's background (Sec. 391.23(a)).
28. Failing to maintain driver qualification file on each driver employed (Sec. 391.51(a))(Use current guidance of no element of DQ file requirements found).
29. Operating a CMV without a valid CDL (Sec. 383.23(a))(Safety related loss only).
30. Failing to train hazardous material employees as required (Sec. 172.704(a) & Sec. 177.800(c)).
31. Using a driver not medically re-examined each 24 months (Sec. 391.45(b)(1)).
32. Using a driver not medically examined and certified (Sec. 391.45(a)).
33. Using a driver before receiving a negative pre-employment result (Sec. 382.301(a)).
34. Failing to perform random alcohol tests at the applicable rate (Sec. 382.305(b)(1)).
35. Failing to perform random controlled substance tests at the applicable rate (Sec. 382.305(b)(2)).
36. Using a driver without a return to duty test (Sec. 382.309).
37. Failing to keep minimum records of inspection and maintenance (Sec. 396.3(b)).
38. Requiring or permitting a driver to drive without the vehicle's cargo being properly distributed and adequately secured (Sec. 392.9(a)(1)).
39. Transporting a HM without preparing a shipping paper (Sec. 172.200(a) & Sec. 177.817(a))(no shipping paper at all).
40. Transporting HM in a package with an identifiable release of HM (Sec. 173.24).
41. Loading a cargo tank with an HM which exceeds the maximum weight of lading marked on the specification plate (Sec. 173.24b(d)(2)).
42. Loading HM not in accordance with the separation and segregation table (Sec. 173.30/177.848(d)).
43. Transporting HM in an unauthorized cargo tank (Sec. 173.33(a)).
44. Transporting or loading two or more materials in a cargo tank motor vehicle which resulted in an unsafe condition (Sec. 173.33(a)(2)).
45. Transporting a hazardous material in a cargo tank motor vehicle which has a dangerous reaction when in contact with the tank (Sec. 173.33(b)(1)).
46. Transporting an unacceptable HM shipment (Sec. 177.801).
47. Failing to attend a cargo tank during loading/unloading (Sec. 177.834(i)).
48. Offering a cargo tank which has not successfully completed a test or inspection which has become due (Sec. 180.407(a)).
49. Failing to test and inspect a cargo tank which has been in an accident and has been damaged (Sec. 180.407(b)(2)).
50. Failing to conduct a pressure test on a cargo tank which has been out of HM service for one year or more (Sec. 180.407(b)(3)).
51. Failing to test and inspect a cargo tank which has been modified (Sec. 180.407(b)(4)).

- 52. Failing to conduct a test or inspection on a cargo tank when required by DOT (Sec. 180.407(b)(5)).
- 53. Failing to periodically test and inspect a cargo tank (Sec. 180.407(c)).

Table 3.--Fundamental Violations

- 1. Failing to implement an alcohol and/or controlled substance testing program (Sec. 382.115(a) or (b)).
- 2. Using a driver who has refused to submit to an alcohol or controlled substances test required under part 382 (Sec. 382.211).
- 3. Using a driver known to have tested positive for a controlled substance (Sec. 382.215).
- 4. Knowingly allowing, requiring, permitting, or authorizing an employee with a commercial driver's license which is suspended, revoked, or canceled by a state or who is disqualified to operate a commercial motor vehicle as defined in Part 383. (Sec. 383.37(a)).
- 5. Knowingly allowing, requiring, permitting, or authorizing a driver who is disqualified to drive a commercial motor vehicle (Sec. 383.51(a)).
- 6. Operating a motor vehicle transporting property without having in effect the required minimum levels of financial responsibility coverage (Sec. 387.7(a)).
- 7. Using a disqualified driver (Sec. 391.15(a)).
- 8. Using a physically unqualified driver (Sec. 391.11(b)(4)).
- 9. Failing to require a driver to make a record of duty status (Sec. 395.8(a)) (Complete lack of any records of duty status).
- 10. Requiring or permitting the operation of a motor vehicle declared "out-of-service" before repairs are made (Sec. 396.9(c)(2)).
- 11. Using a commercial motor vehicle not periodically inspected (Sec. 396.17(a)). (Complete lack of any periodic inspections).
- 12. Operating a passenger carrying vehicle without having in effect the required minimum levels of financial responsibility (Sec. 387.31(a)).[[Page 62302]]
- 13. Failing to implement a random controlled substances and/or an alcohol testing program (Sec. 382.305).
- 14. Failing to correct out-of-service defects listed by a driver in a driver vehicle inspection report before the vehicle is operated again (Sec. 396.11(c)).
- 15. Transporting a forbidden material (Sec. 177.801).