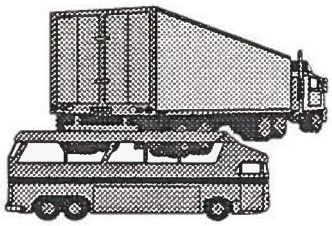
Motor Carrier Safety Fitness Determination:

An Improved Process

December 1996

SafeStat



New Entrant Program

PCAP

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PREFACE

This report was undertaken to define an improved process for motor carrier safety fitness determination. It was produced by the Research and Special Program Administration's (RSPA) John A. Volpe National Transportation Systems Center (the Volpe Center) for the Federal Highway Administration's (FHWA) Office of Motor Carriers (OMC). At the OMC, the project was managed by Dale Sienicki of the Office of Motor Carrier Information Analysis. The technical project manager at the Volpe Center was Donald Wright of the Office Research and Analysis who, with Jon Ohman and David Madsen, conducted the research and prepared this report. Assistance, advice, and support for this work has been forthcoming from within the OMC, the Provinces of Ontario and Quebec, several state agencies, as well as shippers and motor carriers.

The improved process described herein is the result of a multi-year research effort that began in April 1993. It consists of a comprehensive, integrated approach to determining motor carrier safety fitness and applying a safety improvement process. The improved process encompasses all OMC safety fitness determination requirements; it is not just a fine tuning of the current process or a new rating methodology proposal.

Although the proposed improved process was developed at the Volpe Center, it reflects the ideas, concerns, and suggestions of numerous stakeholders (individuals and organizations that are affected by and/or have an interest in the process). The principal source of this input was a series of eight stakeholder meetings held in major cities around the country between November 1993 and March 1994. These stakeholder meetings were organized and conducted by the Volpe Center with the participation of experts in the motor carrier safety fitness determination process from the OMC headquarters. The OMC regional offices located in the cities in which the meetings were held also provided assistance and participated in the meetings. Each meeting included a morning seminar presenting the OMC current process for determining safety fitness and Volpe Center proposals for an improved process followed by an afternoon workshop. The results of the meetings were documented and summarized by the Volpe Center. These results consisted of the criteria thought by the stakeholders to be most important in assessing motor carrier safety fitness, the strengths and weaknesses of the safety fitness determination process that is currently being used by the OMC, and the comments received on Volpe Center proposals for improvement of the current system, including an automated safety performance monitoring system and a new entrant program.

In addition to the stakeholder meetings, visits to and discussions with OMC field staff, state enforcement agencies, Canadian federal

and provincial officials, and the insurance and motor carrier industries provided valuable information and suggestions. Also, the American Trucking Associations (ATA) provided insightful written comments on their perspective of the major issues.

Using the input described above, a draft report was prepared in June 1994 at the Volpe Center by Messrs. Wright, Ohman, and Madsen for the Office of Motor Carriers. It documented the research undertaken related to motor carrier safety fitness determination and prescribed an improved process that best satisfies the process goals and objectives and reflects the needs and concerns of the stakeholders.

This proposed improved process was reviewed by the OMC and major stakeholders during the second half of 1994 and early 1995. The report was distributed within the OMC, while a summary of the report was sent to major stakeholders, including all individuals who attended the stakeholder meetings. During this review, comments and suggestions relating to the improved process and needs for clarification of its description were gathered and documented. The original proposal was revised, clarified, and described in greater detail to address these comments. Related research conducted concurrently at the Volpe Center also was introduced into the improved process proposal. In particular, the development of an automated motor carrier safety status assessment methodology and system (SafeStat) for the Commercial Vehicle Information System (CVIS) pilot project provided a valuable resource.

A final draft of this proposal was issued in October 1995. This report presents an updated version of that proposal to reflect more recent research and experience with partial implementations of components of the recommended improved process, particularly the knowledge gained from the SafeStat methodology developed for the CVIS pilot project.

This report also contains descriptions of continuing research and pilot tests of the individual components of the improved process. These pilot tests will test the feasibility and effectiveness of the components.

Finally, the report describes an implementation strategy for the improved process.

MOTOR CARRIER SAFETY FITNESS DETERMINATION
AN IMPROVED PROCESS

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1. BACKGROUND

1.1. SAFETY FITNESS REGULATION AND LEGISLATION

The origins of the federal criteria for determining the safety fitness ratings of interstate motor carriers date back to 1967. These initial criteria were eventually formalized and incorporated into the Federal Motor Carrier Safety Regulations (FMCSRs) in 1982 as Part 385, Motor Carrier Safety Ratings. Part 385 of the FMCSRs originally identified eight factors considered by the Federal Highway Administration (FHWA) in determining a safety rating.

In 1984, two years following the incorporation of Part 385 into the FMCSRs, the FHWA was given added responsibility with the passage of the Motor Carrier Safety Act (MCSA) of 1984. Congress believed that the regulations governing commercial motor vehicle safety needed to be comprehensively restructured to provide the Department of Transportation with broader enforcement authority, greater uniformity in motor carrier safety regulations, an improved system of penalties for violations of the safety regulations, and a meaningful system for determining the safety fitness of motor carriers operating in interstate commerce. With the eased economic entry requirements pursuant to regulatory changes embodied in the Motor Carrier Act of 1980 and the Bus Regulatory Reform Act of 1982, Congress concluded that the safety fitness of carriers applying for Interstate Commerce Commission (ICC) authority, as well as all existing interstate carriers, assumed increased importance.

Section 215 of the MCSA emphasized the need for programmatic changes within the FHWA and mandated the development of new safety fitness procedures to examine the safety fitness of motor carriers. This Section directed the Secretary of Transportation to establish a procedure to determine the safety fitness of owners and operators of commercial motor vehicles operating in interstate or foreign commerce, including persons seeking new or additional operating authority as motor carriers from the ICC. It also stated that, "rules adopted under this Section shall supersede all Federal rules regarding safety fitness and safety ratings of motor carriers in effect on the date of enactment of this Act."

In 1985, the Secretary of Transportation established a Safety Review Task Force, in response to significant changes within the transportation environment. The Task Force concluded that the motor carrier program could be improved through more staffing and improved program planning. In addition to organizational suggestions, the Task Force strongly recommended "new enforcement programs designed to evaluate the safety fitness of all interstate motor carriers, to closely monitor carriers identified as having compliance problems, and to aggressively pursue enforcement actions

and penalties against those carriers continuing to operate in noncompliance."

In response to Section 215 of the MCSA and the Task Force recommendations, the Office of Motor Carriers (OMC) established several working groups that drafted a rule revising the original safety rating in Part 385, examined the impact of the proposed rule on the operations of the OMC, developed a new safety rating methodology to assess the safety fitness of the motor carriers, and concluded their work with a review and evaluation of the methodology to ensure consistency with the revised Part 385. The results of these efforts were the Revised Safety Fitness Procedures and the safety rating methodology currently used by the OMC. The revised Part 385 regulations established procedures to determine the safety fitness of motor carriers, assign safety ratings, and take remedial action when required. This process calls for an on-site compliance review by an OMC or state safety investigator who 1) assesses a carrier's compliance with the FMCSRs and HMRs, and 2) obtains its prior year accident/exposure history. The results of this review are combined into six factors. The carrier is then rated satisfactory, conditional, or unsatisfactory on each of the six factors, which are then combined into an overall rating. The six factors include five regulatory factors, each of which derives from related parts of the FMCSRs and HMRs:

Factor 1	General (Parts 387 & 390)
Factor 2	Driver (Parts 383 & 391)
Factor 3	Operational (Parts 392 & 395)
Factor 4	Vehicle (Parts 393 & 396)
Factor 5	Hazardous Materials (Parts 397 & 177)

Factor 6, Accident Rate, is based on recordable/preventable accident and vehicle miles traveled data supplied by the carrier.

In late 1994, the safety fitness determination procedures underwent several modifications to correct certain deficiencies. In the first instance, certain violations were identified as "critical" or "acute," leading to default results of conditional or unsatisfactory on associated factors in the rating methodology. This change was made primarily to correct the apparent inconsistency that allowed for satisfactory results in the rating methodology even when serious violations leading to enforcement actions were discovered. A second change introduced since the Revised Safety Fitness Procedures were implemented was the use of vehicle out-of-service (OOS) rates from roadside inspections in Factor 4 (Vehicle). The objective of this change was to introduce roadside vehicle inspection results into the safety fitness determination.

Initially, safety ratings were established to provide the FHWA with a basis for prioritizing motor carriers for follow-up on-site safety audits. In addition to this function, safety ratings were

developed to assist the ICC in screening applicants applying for operating authority. With the evolution of the FHWA's motor carrier safety program and with the increased availability of safety related information, the assignment of safety ratings has taken on additional importance. Satisfactory, conditional, and unsatisfactory ratings are now used as a basis for the OMC's comprehensive education, compliance, and enforcement activities. In addition, shippers and insurance companies have begun using safety ratings to minimize potential liabilities involved in highway transportation.

In summary, the OMC safety fitness determination process and rating methodology have been refined over the years, but still rely entirely upon on-site compliance reviews. Although the process has remained essentially the same, advances in information technology and data availability, and increasing requirements for improved safety suggest that substantive improvements should be made.

1.2. RESEARCH TO IMPROVE THE PROCESS

In April 1993, the FHWA's Office of Motor Carrier Field Operations, Federal Programs Division entered into a Project Plan Agreement (PPA) with the Volpe National Transportation Systems Center (the Volpe Center) to perform a complete review of the Office of Motor Carriers' (OMC) motor carrier safety fitness determination procedures. The objective of the agreement was to research and define more effective and efficient means to meet the requirements of motor carrier safety legislation and safety fitness regulations (49 CFR Part 385, Safety Fitness Procedures), consistent with enhancing the ability of the Office of Motor Carrier Field Operations to continuously satisfy its customers, both within and outside the FHWA. These complex and multifaceted needs were to be identified and reflected in an improved motor carrier safety fitness determination process. Finally, the improved motor carrier safety fitness determination process needed to be consistent with and be able to support other related safety fitness determination requirements of the states and the OMC, particularly the Commercial Vehicle Information System (CVIS) and Intelligent Transportation System/Commercial Vehicle Operations (ITS/CVO) initiatives.

1.3. PROJECT APPROACH

The OMC called for a requirements-driven, "zero-based" approach to be used in performing the research and defining the improvements. These improvements would include new processes, if needed, and would not be just a fine tuning of the current process. The project approach to accomplishing these objectives included:

(1) developing a concise statement of the goals and objectives of the FHWA safety fitness determination process and identifying the characteristics of an "ideal" process,

(2) identifying affected public and private "stakeholders" in the fitness determination process and obtaining their comments and suggestions related to developing a process to determine motor carrier safety fitness,

(3) evaluating the current safety fitness procedures and safety rating methodology and identifying their strengths and weaknesses,

(4) identifying new procedures and developing new methodologies to bring additional information to bear in the safety fitness determination process,

(5) recommending and prioritizing potential improvements and new procedures and tools leading to an improved process, and

(6) recommending a means of evaluating, testing, and implementing the improved process.

1.4. GOALS AND OBJECTIVES

The first task of the project was to define the goals and objectives. The goals and objectives of the FHWA motor carrier safety fitness determination procedures are derived from the legislated regulatory authority of the DOT as described in Section 215 of the Motor Carrier Act of 1984, which directs the Secretary of Transportation to establish procedures to determine the safety fitness of owners and operators of commercial motor vehicles operating in interstate or foreign commerce. The provisions of the act are promulgated through the FHWA Federal Motor Carrier Safety Regulations (FMCSRs), 49 CFR Part 385, Safety Fitness Procedures, which are implemented by the FHWA's Office of Motor Carriers (OMC). The goals and objectives also reflect the responsibilities of the OMC to provide states with safety fitness information in support of establishing safety fitness requirements for commercial motor vehicle registration, as called for in Section 4003 of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. As described below, the goals are the end or the desired result to be attained by the program. The objectives are means leading to that end. If the objectives are accomplished, then the goals should be attained.

Goals:

The overall goal of the motor carrier safety fitness determination process is to improve commercial motor carrier safety. The specific goals are the reduction of the risk of highway fatalities, personal injuries, property loss, and hazardous materials incidents related to commercial motor vehicle operations.

Objectives:

(1) To determine accurately the safety posture of motor carriers using fair, objective, and efficient criteria in conjunction with reliable and meaningful data by:

(a) assessing the level of motor carrier knowledge of and compliance with Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs), and

(b) measuring the degree of motor carrier safety performance (e.g., accident rates).

This objective will identify unsafe and potentially unsafe motor carriers for further inspection and monitoring.

(2) To educate, assist, and encourage motor carriers to improve their safety fitness by:

(a) providing a means of identifying specific areas where individual motor carriers can improve their safety practices (including compliance with the safety regulations), and

(b) raising the overall level of safety awareness among motor carrier personnel leading to additional self-imposed safety management controls.

(3) To provide an effective and efficient means of enforcement of the FMCSRs and HMRs, in conjunction with compliance reviews of motor carriers at their places of business, that will:

(a) increase the detection and correction of vehicle safety defects, driver deficiencies, and unsafe carrier practices, and

(b) reduce the number of unsafe motor carriers through the use of sanctions and/or corrective actions against carriers that are not in compliance with the FMCSRs and HMRs.

Satisfying this objective will reduce the number of unsafe motor carriers.

(4) To provide states with safety fitness information on commercial motor carriers in order that safety fitness may become a consideration in performing registration, enforcement, and other functions related to motor carrier licensing and oversight.

(5) To have safety fitness information available to shippers and others in the public and private sectors that do business with motor carriers in order that they may make safety fitness a factor in business decisions. Satisfying this objective will promote the use of safe carriers.

1.5. INFORMATION GATHERING

The information gathering phase of the project consisted of the identification of the stakeholders in the motor carrier safety fitness determination process; the organization and conduct of meetings of the stakeholders around the country; the solicitation and receipt of written comments from stakeholders not able to attend the stakeholder meetings or wishing to supply comments in writing; visits to and collaboration with other government agencies with safety fitness determination procedures or systems, including both states and Canadian provinces; interviews with Office of Motor Carrier field office safety investigators; and observance of carrier compliance reviews and roadside inspections. Supporting reports document the results of these information gathering activities:

Stakeholder Meetings - Description and Results

Evaluation of the Initial Proposal for an Improved Process

From these meetings, written comments, interviews, and observations, the **characteristics of an ideal process were determined, the limitations of the current process were identified, and a general description of an improved process was formulated,** consisting of both improvements to the current process and additional approaches.

1.6. CHARACTERISTICS OF AN IDEAL PROCESS

The characteristics of an ideal process were derived from the goals and objectives, as well as comments received during the information gathering phase of the project described above. They are that the process should:

satisfy legislative requirements,

promote the attainment of the goals and objectives,

attain maximum coverage of the motor carrier population,

provide for continuous assessment of carrier safety fitness,

be automated and data-driven,

be flexible and expandable (i.e., be able to accommodate additional data sources and indicators as they become available),

be implementable and cost effective,

meet program needs for information, and

be objective, fair, and easy to understand.

1.7. LIMITATIONS OF THE CURRENT PROCESS

An assessment was made as to how well the current process satisfies the goals and objectives of the process and exhibits the characteristics of an ideal process as listed above. This assessment, which reflected the input received during the information gathering phase (in particular, the strengths and weaknesses of the process discussed during the stakeholder meetings), identified the following limitations of the current process:

lack of a prequalification program for new carriers,

lack of coverage of the motor carrier population,

obsolete safety ratings,

low performance data utilization,

labor intensive for safety investigators,

"one size fits all" approach for treatment of diverse carrier population and different levels of "safety risk," and

mixing of safety criteria with non-safety (exposure) criteria in ranking (prioritizing) carriers for on-site reviews.

These limitations are discussed in more detail in the sections that follow that describe the improved process.

2. OVERVIEWS OF CURRENT PROCESS AND IMPROVED PROCESS

2.1. OVERVIEW OF THE CURRENT PROCESS

Figure 2-1 illustrates a summarized description of the current federal motor carrier safety fitness determination process. As it illustrates, the main components of the process are:

the **DOT Number application (Form MCS-150)** which registers the motor carrier with the U.S. Department of Transportation and provides certain information about the carrier's size and operations,

the **Selective Compliance and Enforcement (SCE) Program**, which consists of a prioritization scheme to rank carriers to receive compliance reviews, using data obtained from a carrier during the most recent review (if available), vehicle out-of-service (OOS) rates from roadside inspections, as well as the Form MCS-150 data,

the **on-site compliance review**, which is performed by a safety investigator who interviews motor carrier personnel and samples motor carrier records to determine the motor carrier's compliance with the Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs), and

a **safety rating methodology**, which is applied to the results of the on-site review to determine a rating of satisfactory, conditional, or unsatisfactory for each of the six factors. These six factor ratings are combined to obtain an overall rating. The five regulatory factors, each of which derive from related parts of the FMCSRs and HMRs, are:

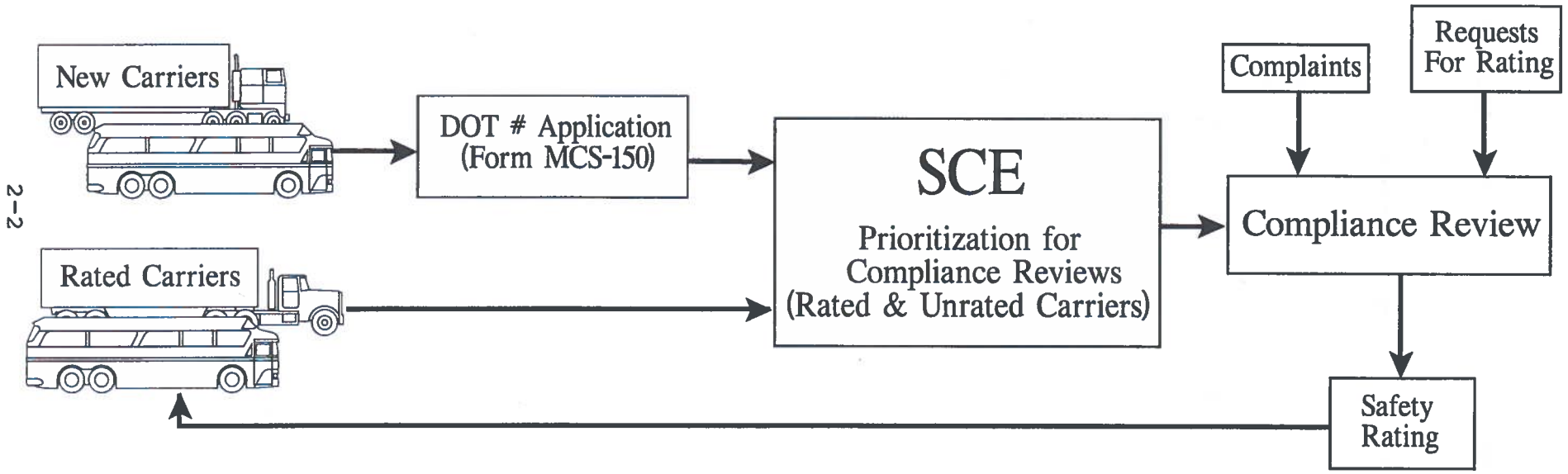
Factor 1	General (FMCSRs - Parts 387 & 390)
Factor 2	Driver (FMCSRs - Parts 383 & 391)
Factor 3	Operational (FMCSRs - Parts 392 & 395)
Factor 4	Vehicle (FMCSRs - Parts 393 & 396)
Factor 5	Hazardous Materials (FMCSRs - Part 397 & HMRs - Part 177)

Factor 6, Accident Rate, is based on accident and vehicle miles traveled data supplied by the carrier.

In addition to reviews conducted on carriers identified by the SCE Program, the current process also provides for reviews to be conducted based on written, nonfrivolous complaints, and on a carrier's request for a rating. The on-site compliance review is the heart of the process. The only way provided for safety fitness determination and rating is the on-site review. Generally, the review reflects compliance status (except for Factor 6, which is

Figure 2-1.

Overview of the Current Safety Fitness Determination Process



performance-based). The only automated safety performance data used are the vehicle out-of-service rate data, because they could potentially influence the Factor 4 result. The rating is issued by the OMC headquarters (usually within 30 days of the review), based on the on-site review data supplied by the field office. Although there is an appeals process, the rating becomes a matter of record and goes into effect when issued.

2.2. DEVELOPMENT OF THE IMPROVED PROCESS

In June 1994, the Volpe Center prepared for the OMC a draft report describing an improved safety fitness determination process.[1] The first step in the evaluation of this improved process was the review of the proposal by the OMC and major stakeholders. The report was distributed within the OMC, while a summary of the report was sent to individuals and organizations who attended the stakeholder meetings.[2] Through this review, comments and suggestions relating to the improved process and needs for clarification in its description were gathered and documented. The original proposal was revised, clarified, and described in greater detail to address these comments. This revised proposal was presented in a draft final report published in October 1995.[3] The proposal has been further revised based on subsequent research and experience and is presented in this report. The updated improved process is summarized below and described in detail in Sections 3, 4, and 5 of this report.

As shown in Figure 2-2, the improved process consists of three components:

1) the **New Entrant Program**,

2) **SafeStat**, and

3) the **Progressive Compliance Assurance Program (PCAP)**.

New Entrant Program

The New Entrant Program addresses one of the limitations of the current process that was identified: the lack of a prequalification

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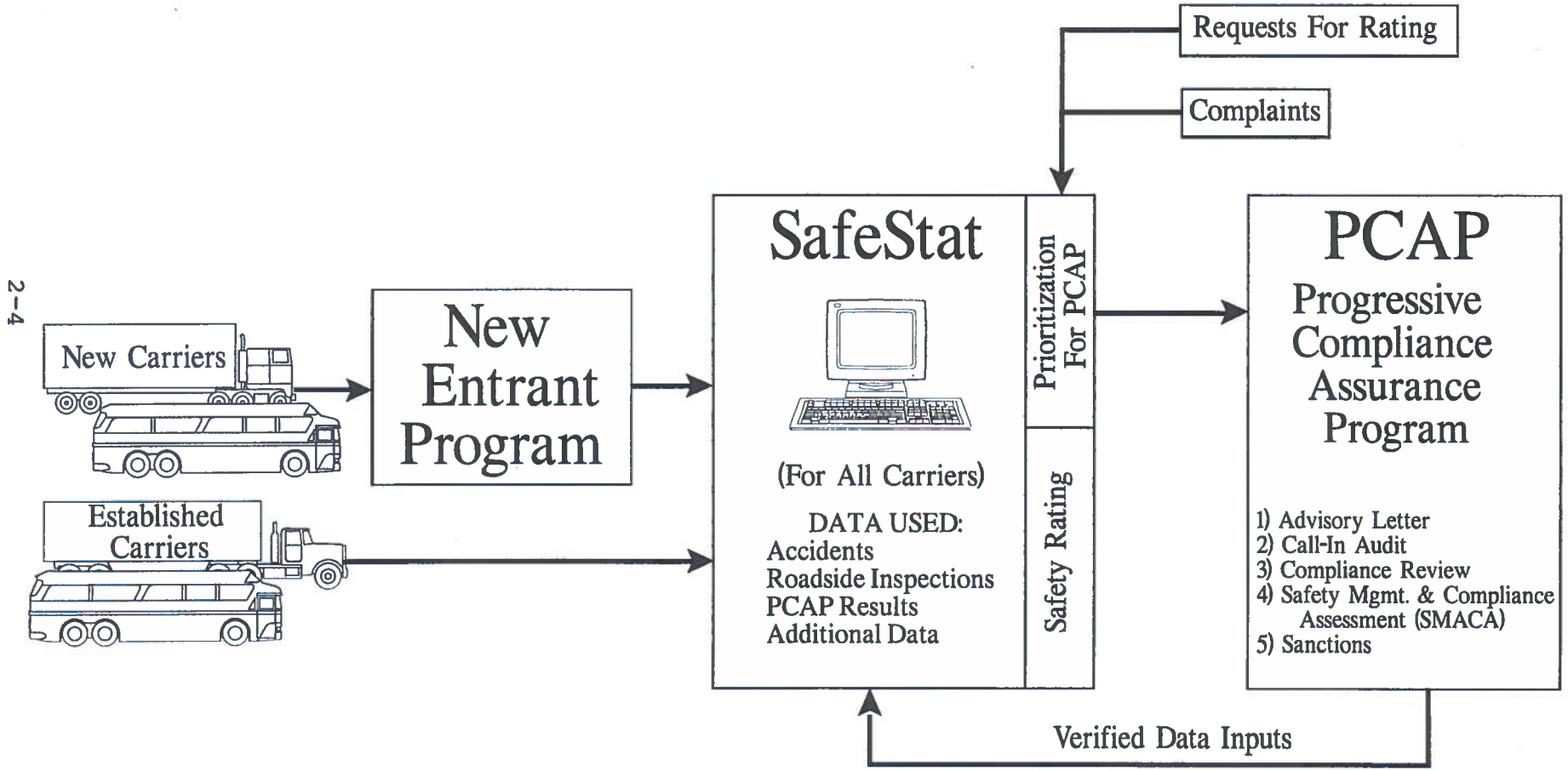
[1] "Motor Carrier Safety Fitness Determination: An Improved Process - Draft;" June 30, 1994.

[2] "Motor Carrier Safety Fitness Determination: An Improved Process - Summary;" September 27, 1994.

[3] "Motor Carrier Safety Fitness Determination: An Improved Process - Final Report - Draft;" October 27, 1995.

Figure 2-2.

Overview of the Improved Safety Fitness Determination Process



program for new motor carriers. In such a program, new carriers would be required to demonstrate knowledge of safety regulations before they begin operating. Studies that have shown that new carriers have higher accident rates and lower rates of compliance with safety regulations than established carriers. Further, the lack of more complete data on new carriers limits the OMC's 1) safety monitoring and 2) review prioritization and selection programs.

The New Entrant Program consists of two stages, prequalification and qualification.

In the prequalification stage, a new carrier will receive educational material and then apply for both a DOT Number and "prequalified" status. The application will include an examination to measure the carrier's knowledge of the FMCSRs and HMRs. Successful completion of these requirements will result in the issuance of a DOT Number and eligibility for the qualification stage.

In the qualification stage, the carrier will be monitored by SafeStat, using safety performance data from roadside inspections and accident reports. The carrier will also be subject to more intense surveillance than established carriers. After two years, a prequalified new entrant will be considered to be an established carrier. In addition, whenever sufficient safety performance data have been collected and analyzed by SafeStat, the carrier will receive an assessment of its safety status.

SafeStat

SafeStat (Safety Status Measurement System) is an automated, data-driven analysis system designed to incorporate current on-road performance information and enforcement history with the on-site review information. Such a system will provide the FHWA with the capability of continuously quantifying and monitoring the safety status of carriers.

The concept of SafeStat, a data-driven analysis system, departs significantly from the current approach of relying on the on-site review to provide the only means of assessing safety fitness. The current approach can incorporate only a limited amount of safety performance data and only those data that are available at the time of the on-site review to generate a rating. This rating does not change until another compliance review is performed, regardless of what happens after the review. Rather than limiting the use of safety performance data to selected data that are available at the time of the review, SafeStat will access all current safety performance data to continuously assess the safety status of carriers.

SafeStat will support the Progressive Compliance Assurance Program (PCAP), first by identifying poorly performing carriers for

inclusion in the program, and then by monitoring the carriers in the program. SafeStat will also monitor carriers in the New Entrant Program. In addition, SafeStat will help satisfy the needs of stakeholders and various OMC programs, by assessing the safety status of all carriers with sufficient data.

Progressive Compliance Assurance Program

The Progressive Compliance Assurance Program (PCAP) is designed to provide a process to guide unsafe motor carriers into a safe operational status through progressive "treatments." This program will perform diagnoses for "sick" (i.e., unsafe) carriers and provide treatments to nurse these "sick" carriers back to health, i.e., return them to a safe operational status.

SafeStat will **identify** carriers with poor safety performance as candidates for the PCAP and recommend the treatment that each carrier should receive. OMC staff in each state will review the SafeStat results, for the purpose of accepting or changing the recommendations from SafeStat.

Once a carrier enters the PCAP, its safety performance will be **monitored** by SafeStat. If a carrier in the PCAP shows significant improvement in its safety status, then SafeStat will recommend that the carrier exit the PCAP. If the carrier does not show significant improvement, then SafeStat will recommend that the carrier progress to a more advanced treatment. If there are insufficent data to indicate improvement, then SafeStat will recommend that the carrier's treatment not be changed and that the carrier continue to be monitored. After each SafeStat run, OMC staff will review the data to accept or change each SafeStat recommendation.

Detailed descriptions of the three components of the improved process follow in Section 3 (the New Entrant Program), Section 4 (SafeStat), and Section 5 (the Progressive Compliance Assurance Program (PCAP)).

2.3. CONTINUING RESEARCH, PILOT TESTS, AND IMPLEMENTATION STRATEGY

In conjunction with the CVIS, pilot tests of SafeStat and some of the features of the PCAP are now being conducted to test their feasibility and effectiveness. Additional research on new entrants is underway and a pilot test of that remaining component is planned. This continuing research, these pilot tests, and an overall implementation strategy are described in Section 6.

3. NEW ENTRANT PROGRAM

3.1. BASIS FOR THE PROGRAM

One of the limitations of the current process cited in Section 1 was the lack of a prequalification program for new carriers. Currently, motor carriers can begin interstate operations simply by registering with the Department of Transportation (DOT) and obtaining the required insurance. In contrast, in other industries performing commercial operations, particularly in the transportation sector, a new business must satisfy certain safety requirements before it can commence. For example, in the airline industry, a new operator must meet FAA operations and airworthiness safety standards before an operating certificate is granted. Indeed, prequalification requirements for motor carriers have been established at the state level and in Canada. However, these standards differ where they exist at all, and are the exception rather than the rule. A second and more compelling argument in favor of a new entrant safety program is that studies have shown that new motor carriers have higher accident rates and lower rates of compliance with Federal Motor Carrier Safety Regulations (FMCSRs) than carriers of record (i.e., established carriers). These findings suggest the need for some type of prequalification program for new entrants (i.e., carriers beginning interstate operations). In such a program, new entrants would be required to learn about safety regulations before they start operating. This preemptive approach is in contrast to the reactive approach of the current system in which a new entrant is often not noticed until it does something wrong.

Thirdly, the OMC and states require more complete data on carriers in order to carry out safety monitoring and review prioritization and selection programs. This is particularly true following the elimination of the oversight provided by the Interstate Commerce Commission (ICC). These data could be most effectively collected through a new entrant registration and monitoring program.

Another potential requirement for such a program would be to qualify existing carriers that wish to offer service to the public where there exist requirements for a safety fitness assessment, such as government contract carriers.

3.1.1. Prequalification Requirements in Other Jurisdictions

Some jurisdictions in the United States and Canada have instituted prequalification requirements. These requirements usually include either education or testing. Two examples are described below.

In the state of Oregon, a new motor carrier must attend a seminar conducted by the state within 180 days of beginning operations. Each seminar covers motor carrier safety regulations, as well as rules and regulations administered by other federal and state agencies, e.g., OSHA, Department of Revenue, etc. The state of Illinois offers comparable motor carrier seminars at which attendance is voluntary. Neither state requires a motor carrier to take a test on the regulations.

In the Province of Ontario, a motor carrier applying for a for-hire operating license must satisfy three requirements. The carrier must 1) complete a license application (which asks for information about the carrier's operation), and 2) pass a safety fitness test (which asks for information about the carrier's safety management systems). Third, the carrier must appoint a competency holder, i.e., a designated employee who is knowledgeable about motor carrier safety regulations. This person must pass a test on these regulations to obtain a Competency Certificate. It should be noted that these requirements are in danger of being modified or eliminated as part of a deregulation policy.

Currently, the Canadian Council of Motor Transport Administrators Safety Fitness Task Force is developing a National Safety Code Safety Fitness Compliance Standard for adoption in Canada which includes a Driver/Carrier Qualification Process. This process includes:

safety criteria for a carrier to meet to obtain a vehicle license,

carrier record keeping requirements, and

driver requirements to comply with applicable regulations.

3.1.2. Research on New Carrier Safety

Several studies have been performed about the safety performance of new entrants. A new entrant is a motor carrier registering with DOT for the first time, and could be either:

1) a new carrier, i.e., a new business, or

2) an intrastate carrier becoming an interstate carrier <u>for the first time</u>. A carrier that operated as an interstate carrier at any time in the past will not be considered a new entrant for the purposes of this program.

One such study is the Corsi and Fanara study[1], which was published in 1989. The study relied on data from compliance and safety reviews conducted by the Office of Motor Carriers between September 1, 1986 and April 30, 1988. The data were split into three groups, according to the date of ICC certification:

1) Carriers certified before July 1, 1980 (the date of passage of the Motor Carrier Act of 1980),

2) Carriers certified between July 1, 1980 and December 31, 1984, and

3) Carriers certified on or after January 1, 1985.

The safety performance and compliance of each group was analyzed. Table 3-1 shows some of the results of this analysis. The columns of the table indicate the three groups of carriers, with the newest entrants in the right-hand column. The rows indicate various safety performance and compliance measures.

The first row shows the mean reportable/preventable accident rate (accidents per 1 million vehicle miles traveled (VMT)) for each group. The second row displays the percentage of each group that had a system to effectively control hours of service. The third row indicates the percentage of each group that was complying with vehicle inspection procedures. The fourth row shows the percentage in each group that had a driver training program. In each case, the newest entrants, i.e., those certified on or after January 1, 1985, exhibited significantly poorer safety performance and compliance than the carriers that had been certified (i.e., had been operating) longer. In other words, the newest entrants were more likely to be involved in accidents and less likely to comply with (or to have systems in place to comply with) the FMCSRs than the more established carriers.

Corsi and the Volpe Center performed a follow-up study in 1995 to determine if the accident rate relationship found in the first study still held. That is, did new entrants still have higher accident rates than more experienced carriers? This study relied on data from compliance reviews conducted by the Office of Motor Carriers between January 1, 1991 and March 31, 1995. The data were broken out according to the age of the carrier at the time of the review. The age of the carrier was calculated from the date that the carrier completed Form MCS-150, Motor Carrier Identification Report, and was added to the Motor Carrier Management Information System (MCMIS), i.e., the approximate date that it began interstate operations.

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[1] Thomas M. Corsi and Philip Fanara, Jr., "Deregulation, New Entrants, and the Safety Learning Curve," *Journal of the Transportation Research Forum*, Vol. XXIX, No. 2, 1989, pp. 3-8.

TABLE 3-1.
CORSI-FANARA STUDY (1989)*

	Date of Initial ICC Certification		
	Before July 1980	July 1980 - Dec. 1984	Jan. 1985 and After
Mean Accident Rate**	.55	.62	.81
Does carrier have a system to effectively control hours of service? (%)	37.0	35.0	16.8
Is carrier complying with vehicle inspection procedures? (%)	40.7	46.8	29.3
Does carrier have a driver safety training program? (%)	33.7	32.0	17.4

* - Results from compliance and safety reviews conducted between September 1, 1986 and April 30, 1988

** - Reportable/preventable accidents per 1 million vehicle miles traveled (VMT)

The data were broken out into 11 groups, based on the age of the carrier at the time of the review:

X = Age of carrier at time of review

$0<X\leq1$	Less than or equal to 1 year
$1<X\leq2$	Greater than 1 year and less than or equal to 2 years
...	
$9<X\leq10$	Greater than 9 years and less than or equal to 10 years
$10<X$	Greater than 10 years

Weighted accident rates (recordable/preventable accidents per 1 million VMT weighted by VMT) were calculated for each age group. This calculation is equivalent to calculating the aggregate accident rate in each group, i.e, dividing the total accidents in the group by the total VMT in the group and multiplying by 1 million.

After rates were calculated for each of the eleven groups, adjacent groups with comparable rates were combined. The results are shown in Table 3-2.

TABLE 3-2.
NEW ENTRANT FOLLOW-UP STUDY (1995)*

WEIGHTED ACCIDENT RATE BY AGE OF CARRIER AT REVIEW

Age of Carrier at Review	Weighted Accident Rate**
$0<X\leq1$ Year	.505
$1<X\leq6$ Years	.469
$6<X\leq10$ Years	.438
10 Years < X	.411

* - Results from compliance reviews conducted between January 1, 1991 and March 31, 1995

** - Recordable/preventable accidents per 1 million vehicle miles traveled (VMT) weighted by vehicle miles traveled (VMT)

The results substantiate the findings from the previous study that new entrants have higher accident rates on average than established carriers, and that accident rates decrease as carrier experience increases.

3.2. DESIGN OF THE PROGRAM

As shown in Figure 3-1, the New Entrant Program is a two-stage program, consisting of six parts:

Stage 1 - Prequalification
1. Education
2. Application
3. Registration and Certification

Stage 2 - Qualification
1. Monitoring Carrier Safety Performance
2. Established Carrier
3. Safety Status Assessment

In the prequalification stage, a motor carrier will receive educational material and then complete an application (including an examination) to 1) obtain a DOT Number and 2) be certified as "prequalified."

In the qualification stage, a prequalified carrier will be monitored, using safety performance data from roadside inspections and accident reports. The carrier will be subject to spot audits (i.e., compliance reviews or alternatives) and will be at a higher priority for roadside inspections than an established carrier. After two years, the carrier will be considered to be an established carrier, and will receive the level of surveillance appropriate for an established carrier. In addition, whenever sufficient safety performance data have been collected and analyzed by SafeStat, the carrier's safety status will be determined by SafeStat.

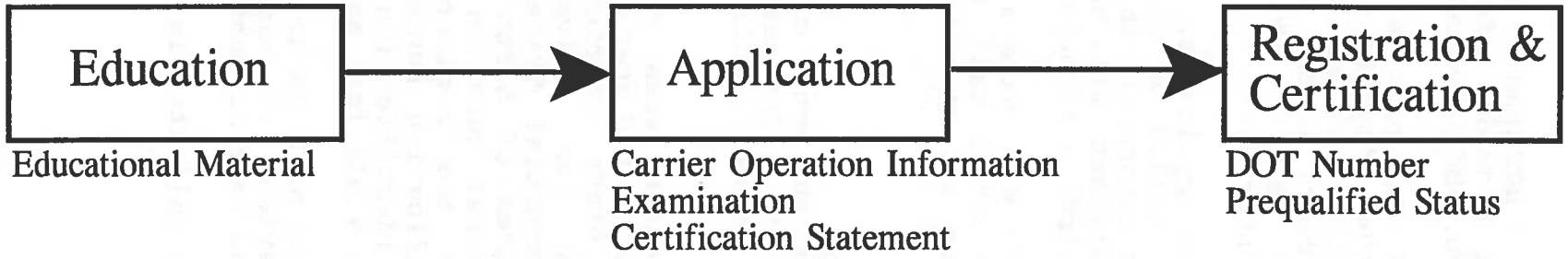
The following is a more detailed description of the two stages of the proposed program.

3.2.1. Stage 1 - Prequalification

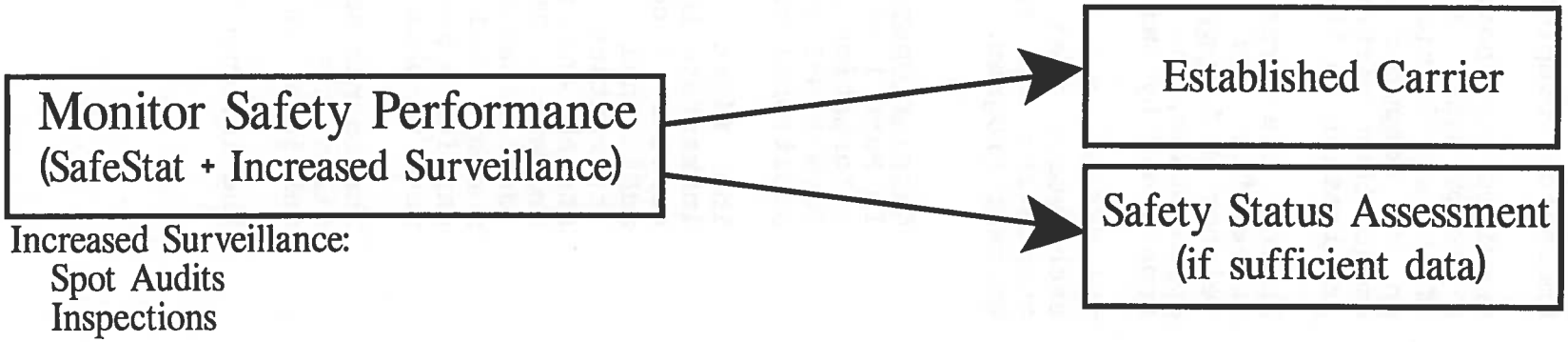
Education
When a motor carrier inquires about obtaining a DOT Number or about the New Entrant Program, the OMC will send the carrier educational material, as well as a three-part application for both a DOT Number and the New Entrant Program. This educational material will cover the Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs).

Figure 3-1.
New Entrant Program

Stage 1 - Prequalification



Stage 2 - Qualification



Application

On the three-part application for a DOT Number and the New Entrant Program, the motor carrier will provide information about its operation, complete an examination, and sign and certify the form.

Carriers that have computers will also receive the application on a floppy disk. A carrier could then complete the first two parts of the application (carrier operation information and examination) on its computer and save its answers on the disk. The carrier could then either mail the disk back to the OMC or send the information to the OMC over the Internet.

Whether the first two parts of the application (carrier operation information and examination) are mailed or filed electronically (either on floppy disk or over the Internet), the third part of the application, the certification statement, will have to be submitted separately by mail, since it requires a signature.

The Office of Motor Carriers (OMC) will have a telephone line in each state that motor carriers could call for assistance in completing the application or to ask questions about the New Entrant Program.

Carrier Operation Information

In Part 1 of the application, the motor carrier will provide information about its operation. The carrier will complete Form MCS-150, Motor Carrier Identification Report, and four additional questions.

The first additional question asks for the carrier's intrastate identification number and state (for an intrastate carrier becoming an interstate carrier). The second additional question asks for driver identification information: the names, Commercial Driver's License (CDL) states and numbers, and dates of birth of the carrier's drivers. The third additional question asks for vehicle identification information: the registration states and numbers and vehicle identification numbers (VINs) of the carrier's power units. This identification information may be used to obtain state data on violations and inspections.

The fourth additional question asks for the number of vehicle miles traveled in the previous 12 months (or, for new carriers, an estimate for the next 12 months).

The information that will be collected is as follows:

Form MCS-150

1. Name of Motor Carrier
2. DBA Name
3-7. Physical Address
8. Principal Phone Number
9. ICC Docket Number
10. US DOT Number
11. Operation Classification
12. Cargo Classifications
13. Carrier Operation (Interstate, Intrastate, Hazardous Materials)
14. Hazardous Materials Carried
15. Equipment (Vehicles by Type and Ownership)
16. Drivers Subject to FMCSRs

Additional Questions

17. Intrastate Identification Number and State (if applicable)
18. Driver Information (for each driver):
    a. Name
    b. Commercial Driver's License (CDL) State and Number
    c. Date of Birth
19. Vehicle (Power Unit) Information (for each power unit):
    a. State and Registration Number
    b. Vehicle Identification Number (VIN)
20. Vehicle Miles Traveled (VMT) during the Previous 12 Months (or Estimated for the Next 12 Months)

Examination

Part 2 of the application will consist of an examination designed to:

1) Test the motor carrier's knowledge of the Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs),

2) Determine if the carrier has safety management systems in place, and

3) Determine the carrier's level of compliance with the FMCSRs and HMRs.

This examination will be similar in nature to the safety fitness and competency tests given to new motor carriers in Ontario. The examination will not only test the carrier's knowledge of safety regulations, as the competency test does, but will also determine whether the carrier has safety management systems in place and is complying with the regulations, as the safety fitness test does.

The specific questions are to be determined, but will be similar to the sample questions listed in Attachment 1A.

Certification Statement
Part 3 of the application will consist of a written certification statement to be signed by the carrier official responsible for safety. This statement is comparable to the statement on Form MCS-150.

If the carrier receives outside assistance in completing any part of the application, including the examination, then that person(s) must be identified on the carrier's certification statement.

If Parts 1 (carrier operation information) and 2 (examination) of the application are filed electronically, either on floppy disk or over the Internet, then the signed certification statement will be submitted separately by mail.

A strawman certification statement can be found in Attachment 1B.

Registration and Certification
The Office of Motor Carriers (OMC) will review the three-part application submitted by the motor carrier to determine whether or not to certify the carrier as "prequalified" and issue the carrier a DOT Number.

Application Reviewed by OMC:

Registration
The OMC will review Form MCS-150 for completeness.

Carrier Operation Information
The OMC will enter the information supplied by the carrier about its operation into SafeStat.

Examination
The OMC will enter the answers from the examination into a database by 1) manually entering the data (for examinations completed on paper) or 2) downloading the information from the floppy disk or the Internet (for examinations filed electronically). The examination will be graded by computer.

Certification Statement
The OMC will verify that the carrier has completed the certification statement.

Actions Taken by OMC:

DOT Number and Prequalified Status

The OMC will examine the completed Form MCS-150. If the form was not completely satisfactorily, then OMC will contact the carrier to resolve the problems. If Form MCS-150 was completed correctly, then the OMC will look at the results of the examination.

If the carrier passed the examination, then the OMC will issue 1) prequalified status and 2) a DOT Number to the carrier. At the same time, the OMC will begin to monitor the carrier's safety performance through the use of SafeStat.

If the carrier did not receive a passing grade on the examination, then the OMC will not certify the carrier as prequalified or issue the carrier a DOT Number. Instead, the OMC will send the carrier a letter generated by the computer program used to grade the examination. The letter will 1) inform the carrier that it failed the examination and 2) list the subject matter (i.e., the FMCSRs and HMRs) of the questions that were answered incorrectly. The letter will instruct the carrier to review the educational material covering these subjects before taking the examination again. The carrier will be given an unlimited number of opportunities to pass the examination.

3.2.2. Stage 2 - Qualification

Monitoring Carrier Safety Performance

Prequalified carriers will be subject to the same safety performance monitoring (by SafeStat) as established carriers. Initially, however, they will receive additional surveillance (i.e., higher priority for roadside inspections) in order to collect sufficient data on their safety performance to enable SafeStat to determine their safety status. Section 4 contains a complete description of SafeStat.

Prequalified carriers will be at a higher priority to receive roadside inspections than established carriers. When a carrier's vehicle is stopped at an inspection site, inspection officials will be able to identify the carrier as being a prequalified carrier, either by the DOT Number or a vehicle number, such as the vehicle registration number or the vehicle identification number (VIN). The vehicle then will have a high probability of being inspected.

The OMC will also audit a small sample of prequalified carriers. A spot audit could be either a compliance review or an alternative "treatment" proposed for the Progressive Compliance Assurance Program, which is described in Section 5. Having one of these spot

audits will enable the carrier to receive a safety status assessment from SafeStat, assuming that sufficient performance data (e.g., roadside inspection data) for the carrier are also present.

As a result of the spot audits and the higher inspection priority, new carriers will accumulate more compliance and performance data under the improved process, on average, than under the current process. These additional data will enable the OMC to do a more thorough job of monitoring the safety fitness of new entrants.

Established Carrier

After two years, a prequalified carrier will be considered to be an established carrier, and will no longer 1) be subject to spot audits or 2) be at a higher priority for roadside inspections than established carriers. It will, however, still have its safety performance monitored by SafeStat. The only difference will be that the carrier will receive the level of surveillance appropriate for established carriers, rather than the increased level given to prequalified carriers.

Safety Status Assessment

Whenever sufficient safety performance data have been collected and analyzed by SafeStat, either during or after the qualification stage, the carrier's safety status will be assessed by SafeStat.

4. SAFESTAT

4.1. OVERVIEW

Several cited limitations of the current process are the result of determining safety fitness and carrier safety ratings based solely upon one-time on-site reviews. These limitations include:

- Lack of Coverage of the Motor Carrier Population (i.e., only reviewed carriers are rated.)
- Obsolete Safety Ratings
- Low Performance Data Utilization
- Labor Intensive for Safety Investigators

These limitations can be addressed by implementing a system that incorporates current information from other sources (such as accidents and roadside inspections) in addition to on-site review results to determine overall carrier safety fitness. Such a system will provide the FHWA with the capability of continuously monitoring the safety status of carriers and modifying their safety fitness status accordingly.

4.2. CONCEPT

SafeStat (short for Safety Status Measurement System) is a data-driven analysis system that will provide an objective, accurate, and efficient means of determining the safety status of the maximum number of motor carriers on a current and continuous basis. SafeStat will take advantage of automated safety performance and compliance information from various state and federal sources to determine the safety status of individual carriers.

The concept of SafeStat, a data-driven analysis system, departs significantly from the current approach of relying on the on-site review to provide the only means of assessing safety fitness. The current approach can incorporate only a limited amount of safety performance data, and only those data that are available at the time of the on-site review, to generate a rating. This rating does not change until another compliance review is performed, regardless of what happens after the review. Rather than limiting the use of safety performance data to selected data that are available at the time of the review, SafeStat will access all current safety performance data to continuously assess the safety status of carriers. SafeStat will treat the results from a compliance review as a piece of information (albeit a very important piece) along with results of other safety events (e.g., accidents, roadside inspections, enforcement actions, etc.) to assess a carrier's safety status.

Although initially limited to using indicators based on the primary, centralized, federal data sources, SafeStat has been designed to accommodate additional data sources and indicators as they are developed. The expansion of SafeStat to include these additional data sources will allow the coverage of more carriers and strengthen the results of the carriers covered by the initial implementation.

SafeStat is also being developed and tested in successive versions in conjunction with the five-state Commercial Vehicle Information System (CVIS) pilot. The latest version to be employed was Version 1.3, which was used for the third cycle of the CVIS pilot. Version 1.3 is described in this report (see Section 4.3 below and Section 4.6).

4.3. FUNCTIONS

SafeStat is the heart of the proposed improved process of motor carrier safety fitness determination. In addition to supporting existing functions such as compliance review prioritization, SafeStat will support additional elements of the improved process, the New Entrant Program and the Progressive Compliance Assurance Program (PCAP), as described below.

New Entrant Program
SafeStat will track the safety fitness of carriers in the New Entrant Program. SafeStat will use 1) the carrier operation information gathered in the prequalification stage and 2) the compliance and performance data collected in the qualification stage, to monitor carriers in the qualification stage of the program.

Progressive Compliance Assurance Program (PCAP)
SafeStat's assessment of safety status will provide two major functions that will support the proposed Progressive Compliance Assurance Program (PCAP) (see Section 5):

- Identifying carriers for the PCAP -
  SafeStat will prioritize carriers with poor safety performance for entrance into the PCAP. This includes prioritizing carriers for compliance reviews or other appropriate actions by the OMC. Beginning in February 1997, the OMC plans to begin using SafeStat (Version 1.4) to prioritize carriers for compliance reviews. Current plans call for SafeStat to be run every six months for this purpose and to replace the SCE list. In the near future, OMC also plans to introduce the advisory (or warning) letter treatment of the PCAP.

- Monitoring carriers in the PCAP -
  SafeStat will check for improvement in the safety status of carriers in the PCAP. Carriers that significantly improve their safety fitness will leave the PCAP, while other carriers will move to more advanced treatments within the PCAP. (If there are insufficient data to determine significant improvement in a carrier's safety fitness, then the carrier will continue with the same treatment.) Information resulting from some of the treatments of the PCAP (e.g., compliance review and SMACA) will feed back into the monitoring process of SafeStat.

In addition, SafeStat will also help satisfy safety fitness determination requirements of stakeholders and various other OMC programs including:

- The Commercial Vehicle Information System (CVIS) -
  The CVIS is placing carriers with poor safety performance into a sanctioning process. This sanctioning process can ultimately lead to unsafe carriers having their commercial vehicle registrations suspended or revoked. SafeStat was developed and implemented, and is currently being used to identify poorly performing carriers for this program and monitor their status while in the program. Since the CVIS pilot has been operational, it has acted as a pilot test of the SafeStat methodology and as a "laboratory" in which to improve the methodology through successive versions corresponding to the CVIS cycles. During FY97, SafeStat Versions 1.4 and 1.5 will be developed and implemented.

- The Inspection Selection System (ISS) -
  SafeStat will provide safety information about carriers that are being monitored for the PCAP and CVIS. The CVIS status is now being used by the ISS to prioritize and target carriers in this program for roadside inspection, which will, in turn, provide additional inspection data to the monitoring process of SafeStat. The PCAP status could be used in the same manner.

- Providing all carriers (that have sufficient safety data) with a quantified measure of their current relative safety status broken out by safety evaluation area (see Section 4.4.1) -
  This will enable carriers to assess the strengths and weaknesses of the their own safety status.

- Assisting firms that are involved with carriers (e.g., shippers, insurers, and lessors, etc.) in making certain business decisions in which the safety status of a carrier is a factor

- Passenger and Hazmat Carriers -
  One limitation of the current process is the mixing of safety criteria and exposure criteria in ranking (prioritizing) carriers for compliance reviews. The current SCE prioritization list contains carriers ranked according to their safety performance as well as carriers ranked due to the nature of their operations. Specifically, there are tighter regulations on passenger carriers and hazardous materials (hazmat) carriers than on other carriers because the consequences of accidents involving these carriers are potentially much more serious than the consequences of accidents involving other carriers. As a result of this increased "exposure," passenger and hazmat carriers are much more likely under the SCE methodology to receive compliance reviews than other carriers. Although passenger and hazmat carriers are more likely to be listed, the SCE prioritization list does not separate them from other carriers that appear on the list based on safety.

  SafeStat will not "mix" safety and non-safety criteria, but will "score" passenger and hazmat carriers on safety the same as other carriers. If a policy decision is made to focus additional attention on this class of carriers, then that policy would be implemented as a "re-ranking" of the SafeStat results to emphasize that class of carriers. Treatment of these carriers is discussed in Section 4.5.

4.4. DESIGN

SafeStat is designed to make maximum use of readily available federal motor carrier safety data, yet be expandable to integrate new data and associated algorithms to further increase its capability in the future. The design involves assessing a carrier in four analytical safety evaluation areas (SEAs). This section describes the computation process SafeStat uses to make this assessment.

4.4.1. The Four Safety Evaluation Areas (SEAs)

SafeStat evaluates carriers based on their accident history and their accident risk. Therefore, accident history is one of the most important areas in assessing a carrier's overall safety status and constitutes a separate SEA. The remaining evaluation areas measure its risk of having accidents, namely:

1) driver factors,
2) vehicle factors, and
3) safety management practices and policy.

The SafeStat score is a combination of these four separate safety evaluation areas (SEAs) and represents the overall safety fitness or safety status of the carrier. In summary, the four SEAs are:

- Accident SEA
- Driver SEA
- Vehicle SEA
- Safety Management SEA

The four-SEA framework enables SafeStat to present the SEA-specific strengths and weaknesses of individual carrier safety performance and compliance, while providing for an overall assessment through the SafeStat score. This design also provides SafeStat with the flexibility to assign a higher or lower relative emphasis (weight) to each SEA. For example, since accident history is considered to be the most important measure of safety, the Accident SEA is given more weight than the other SEAs in determining a carrier's overall safety status (see Section 4.4.3.5). In addition to producing an overall safety fitness status, SafeStat will rank carriers in each SEA. These rankings could support new OMC or state special emphasis programs such as targeting the worst ranking carriers in the Accident or Driver SEAs.

4.4.2. Relative Scoring of SEAs

For each SEA, values are determined for all carriers that have sufficient safety data related to that SEA. Each carrier's SEA value approximates the carrier's percentile rank relative to the all of the other carriers that have sufficient data to be assessed within that same SEA. By using the percentile rank for each SEA, SafeStat avoids using arbitrary predetermined levels or scoring thresholds while providing an easily understandable value for each SEA. SEA values range between 0 and 100. The higher a carrier's SEA value, the worse its safety status. Therefore, an Accident SEA value of 80 indicates that approximately 80% of the motor carrier population had better safety performance than that carrier with respect to accidents and 20% (100 - 80 = 20) had worse.

4.4.3. Computation Hierarchy

Figure 4-1 presents a summary of the computation hierarchy used for all the SEAs. Safety data, both the descriptive and safety event data, are at the foundation of the computation hierarchy. Using those data, safety measures are calculated that are used in the indicators that determine an SEA value. Finally, the SEA values are combined to produce an overall SafeStat score for the carrier.

The triangle presents the generic hierarchy. Figures that show the specific hierarchies for the four SEAs can be found in Attachment 2.

Figure 4-1. SafeStat Computation Hierarchy

SafeStat uses:

- **Carrier descriptive data** to identify and sometimes normalize (by size or activity) carrier **safety event data**
- **Safety event data** to calculate **safety measures**
- **Safety measures** to calculate **indicators** of safety within a particular SEA
- **Indicators** to calculate **SEA values**
- **SEA values** to calculate the carrier's overall **SafeStat score**

4.4.3.1. Safety Data

SafeStat uses safety event data to measure motor carrier safety compliance and performance. It also uses descriptive data, such as the number of power units or the number of roadside inspections to normalize a carrier's event data by its size and amount of exposure. SafeStat uses five sources of data. The first four sources listed below provide the carrier's actual performance and compliance data, while census data are used as normalization data.

National Governors' Association (NGA) Accident Data - States provide the FHWA with accident data about reportable accidents involving commercial motor vehicles. The source of these data is the accident reports filled out by state and local police officials.

Compliance Reviews - OMC safety investigators and their state counterparts perform on-site compliance reviews (CRs) on interstate motor carriers. The CR determines the carrier's performance and compliance regarding Federal Motor Carrier Safety Regulators (FMCSRs) and, for hazmat carriers, Hazardous Material Regulations (HMRs). These reviews provide an on-site assessment of safety fitness, using a safety rating methodology that consists of the six factors listed in Table 4-1.

The individual factor ratings are either satisfactory, conditional, or unsatisfactory. SafeStat always uses these individual factor ratings (rather than the overall safety rating) in its computations. SafeStat also uses the underlying Factor 6 data (number of recordable/preventable accidents and number of vehicle miles traveled) in addition to the factor rating based on those data. SafeStat considers the results of the most recent review to be a more accurate and relevant assessment of motor carrier safety operations than older reviews.

Table 4-1. Compliance Review Factors

Factor	Name	Addresses
1	General	FMCSRs - Parts 387 & 390
2	Driver	FMCSRs - Parts 383 & 391
3	Operational	FMCSRs - Parts 392 & 395
4	Vehicle	FMCSRs - Parts 393 & 396
5	Hazardous Materials	FMCSRs - Part 397 & HMRs - Part 177
6	Accident	Recordable/Preventable Accident Rate

Closed Enforcement Case Data - An enforcement case is the result of one or more major violations discovered by a safety investigator during a compliance review. OMC brings the enforcement case against the carrier and tracks it from initiation through settlement. A carrier's closed enforcement case history may contain a pattern of violations that could

indicate a serious lack of commitment to safety on the part of the carrier's management.

Roadside Inspections - Motor Carrier Safety Assistance Program (MCSAP) inspectors perform roadside inspections on individual interstate and intrastate commercial motor vehicles. Serious violations result in driver or vehicle out-of-service (OOS) orders. When a MCSAP inspector finds the driver ignoring an OOS order by driving the vehicle without taking the proper corrective action, whether it pertains to a driver or vehicle OOS order, the inspector issues a violation of the OOS order.

Census Data - Carriers that provide interstate service or carry hazardous material are required to fill out Form MCS-150 in order to obtain a DOT Number. This form requests descriptive information from a motor carrier about its identification, size, and operations. The OMC initially enters this information (including the number of power units, number of drivers, and types of cargo carried) into the MCMIS. These data are updated during on-site reviews using Form MCS-151, and during registration for the carriers in the CVIS pilot states.

Figure 4-2 presents a diagram showing how the four SEAs are combined to arrive at an overall SafeStat score. It also contains a list of candidate data that can be used to assess each SEA. All safety data, both safety performance and compliance, are grouped by their logical SEA. Note that the candidate data that are tagged with an asterisk (*) support the initial implementation of SafeStat. These data are kept at the federal level and can be attributed to individual motor carriers. Because of these qualities, these data are currently being used in the initial implementation of the version of SafeStat developed for the CVIS pilot. The other candidate data have the potential to be incorporated into future versions of SafeStat, but most of the data currently lack the critical links between the safety events and the carriers responsible for safety. When these linkages are established, these data may be used to develop additional indicators that will further strengthen their respective SEA value computations.

4.4.3.2. Safety Measures

SafeStat will use safety event data to measure motor carrier safety compliance and performance. It will also use descriptive data, such as the number of power units or the number of roadside inspections, to normalize a carrier's event data by its size and amount of exposure. For example, when using accident data, the accident rate takes into account differences in exposure, making it possible to compare the safety of carriers relative to each other, rather than just comparing the number of events.

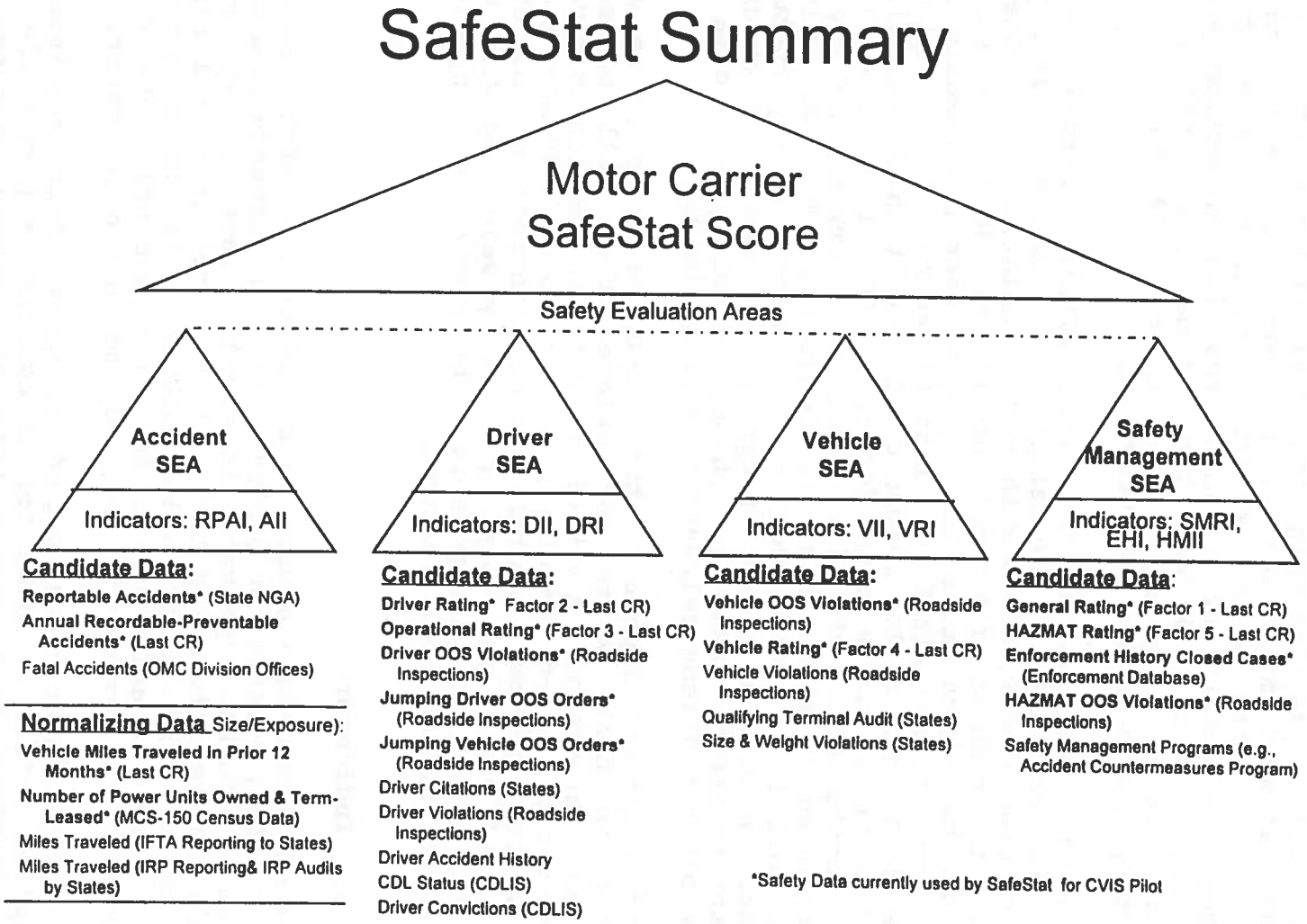


Figure 4-2. Four SEAs and Associated Candidate Data

SafeStat will apply time weighting to all of the safety event data, meaning that more importance will be given to the results of recent safety events than to the results of older safety events. For instance, the results of a vehicle roadside inspection performed three months ago will have three times more influence on a carrier's safety status in the Vehicle SEA than a vehicle inspection that was done two years ago.

Many of the safety events must occur within a certain period of time to be considered in the SafeStat calculation. This period of time, or time window, moves with each calculation of SafeStat. For example, the results of a compliance review (CR) have a time window of 18 months, which means that SafeStat uses the results only if the review occurred within the last 18 months. If a carrier has a CR that is 17 months old, SafeStat will use it in its calculations. When SafeStat is run 6 months later, the CR will then be 23 months old, 5 months beyond the time window of 18 months, and therefore, will be bypassed by SafeStat due to its age. Time weighting is a useful tool in the assessment of a carrier's safety status. It stresses the outcome of more recent safety events, which are more relevant to safety status, and phases out safety event data as they become older and less relevant to safety status.

Another important aspect of the safety measures to be used in SafeStat is that, where appropriate, they will be severity weighted. For example, a vehicle roadside inspection that resulted in five vehicle out-of-service (OOS) violations will have a greater negative impact than a vehicle roadside inspection with only one vehicle OOS violation. Similar severity weighting will be done with accidents by incorporating the number of injuries and fatalities into accident measures.

4.4.3.3. Indicators

The safety measures are used to calculate the safety indicators. Whereas safety measures only quantify the performance of a carrier, such as a recordable/preventable accident rate of .343 accidents per million vehicle miles traveled, the indicator will rank that performance. Whenever possible, SafeStat will rank each carrier's safety measure relative to its peers on a percentile (0-100) scale. This percentile number will be assigned to the indicator.

Additional decision rules that address data sufficiency issues will be applied before an indicator is assigned a percentile number. This procedure will ensure that the safety measures become statistically valid indicators. For example, an OOS rate based on one roadside inspection is not as good a statistical measurement as an OOS rate based on many roadside inspections. Certain criteria will have to be met before a particular measurement can be considered a meaningful indicator of a carrier's safety status. The amount of data on a carrier for a particular indicator will

often also affect the relative importance of that indicator, when combined with other indicators making up a SEA. In this way, the relative statistical confidence in the indicators will be reflected.

4.4.3.4. SEA Values

Indicators within the same SEA are combined to generate a SEA value. SafeStat will be able to weigh the relative importance of each indicator. In doing so, SafeStat will take into account the quantity and quality of the data that went into determining each indicator. These factors will affect the relative weight of the indicators in determining the SEA value. For example, an indicator based on vehicle roadside inspections will be given more weight if it is derived from many inspections as opposed to a few inspections.

Detailed descriptions of the calculations of the individual SEA values can be found in Attachment 2.

4.4.3.5. SafeStat Score

SafeStat provides an overall SafeStat score only to carriers with a poor safety status, so that these carriers can be identified and monitored in the PCAP. To obtain a SafeStat score, a carrier must be unacceptable in at least two of the four SEAs. An unacceptable SEA is defined as a SEA with a value from 75 to 100. This range approximates the worst 25% of the carriers assessed within a particular SEA. Carriers that meet the criterion of two unacceptable SEAs are given a SafeStat score that is equal to the sum of the unacceptable SEA values for the Driver, Vehicle, and Safety Management SEAs plus 2 times the unacceptable Accident SEA value. SEA values that are less than 75 are not used by SafeStat in calculating the SafeStat score. An unacceptable Accident SEA is given twice the weight of the other unacceptable SEAs. This places more emphasis on the Accident SEA relative to the other SEAs in determining the SafeStat score.

SafeStat ranks SafeStat-scored carriers in descending order by their SafeStat score starting with the carrier with the worst safety status (i.e., the highest SafeStat score). SafeStat also assigns each scored carrier into one of Categories A, B, or C, as defined below in Table 4-2.

Based on these results, SafeStat will recommend that certain carriers enter the PCAP and receive particular treatments. As part of its function of monitoring carriers that are already in the PCAP, SafeStat will also recommend actions for these carriers, e.g., move to another treatment of the PCAP, exit the PCAP, etc.

Table 4-2. SafeStat Categories

Categories	Number of SEA Values 75 or Greater	SafeStat Score Range
A	All 4 SEAs or 3 SEAs with Accident SEA	300-500
B	3 SEAs without Accident SEA or 2 SEAS with Accident SEA	225-300
C	2 SEAs without Accident SEA	150-200

4.4.4. A Second Level of Analysis - Verification by Safety Experts

The CVIS implementation of SafeStat provides for a two-level analysis of carrier safety status. Level I analysis is the automated process that produces the SEA values, the SafeStat scores, and SafeStat's recommendations based on these results. In Level II Analysis, OMC and state safety experts review SafeStat's recommendations and reports along with other information and knowledge about the carrier. They may, based on their total review of all available information: (1) change the carrier's MCSIP category, (2) decide that the carrier should not enter the MCSIP, (3) change the MCSIP category of a carrier already in the MCSIP, or (4) decide that the carrier should exit the MCSIP. MCSIP categories are analogous to PCAP treatments for the CVIS.

4.5. TREATMENT OF PASSENGER AND HAZMAT CARRIERS

If desired, passenger and hazmat carriers may be handled separately from other carriers by SafeStat. SafeStat will still assess the safety fitness of these carriers, using all available safety performance and compliance data. It will still recommend passenger and hazmat carriers for the PCAP based on safety. In addition, however, SafeStat will be able to prioritize passenger and hazmat carriers for compliance reviews in accordance with special requirements for these carriers. In other words, SafeStat may be used to implement targeted prioritization schemes for passenger and hazmat carriers, if desired, or include these carriers in the general pool. In either event, the prioritization of passenger and hazmat carriers will still be based on safety.

4.6. DEVELOPMENT AND TESTING

SafeStat is currently under development. Initial versions of SafeStat are currently being tested as part of the Commercial Vehicle Information System (CVIS) pilot program. The CVIS is a feasibility demonstration authorized by Congress in Section 4003 of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The FHWA, though the OMC, is the federal agency responsible for the implementation and evaluation of the CVIS. Iowa is the lead state on the CVIS project, under a cooperative agreement with the OMC. Iowa is managing the project through a Steering Committee developed jointly with the OMC. The Steering Committee consists of representatives from:

1) the OMC,

2) Iowa,

3) four other states (Colorado, Indiana, Minnesota, and Oregon) that volunteered to help develop and pilot the system,

4) national associations involved in registration and safety, and

5) other organizations that support the development of the CVIS.

The purpose of the CVIS is to determine the feasibility of improving motor carrier safety by denying registration to unsafe carriers. Before any unsafe carriers are denied registration, they need to be first identified for the program and then given adequate time to improve their safety status. To fulfill these requirements, the initial implementation of SafeStat is first identifying candidates for the CVIS program (carriers with unacceptable safety status), and then monitoring selected carriers for improvement as they move through the CVIS sanctioning process. The methodology for the identification function of the initial implementation of SafeStat as developed for the CVIS is evolving with the CVIS pilot project.[1]

While the CVIS implementation of SafeStat is limited to targeting carriers with poor safety performance in the five pilot states, it nevertheless tests the safety fitness determination methodology of SafeStat.

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[1] This methodology is documented in "SafeStat - Safety Status Measurement System, Methodology: Version 1.3 for the Commercial Vehicle Information System (CVIS);" November 1996.

The framework of SafeStat has been designed to easily incorporate new data, new safety indicators, and improved indicator methodology. This design will allow SafeStat to grow as more new safety data from the federal and state governments become available. By incorporating these new safety data and improving the existing data and indicator methodology, SafeStat will be able to determine the safety status of more carriers with improved accuracy. This enhanced capability will lead to SafeStat evolving to meet the needs of more stakeholders and providing safety information that is critical to additional OMC programs. In the CVIS application, SafeStat has evolved through several versions corresponding to the CVIS cycles -- each one representing an improvement over the last. These improvements include refinements of the existing algorithm, weighting of indicators and SEA values, and improvements such as the addition of data sources, measures, and indicators. Currently, additional enhancements (such as the incorporation of moving violations and the use of critical and acute violations from the CR) are being researched and planned for future versions of SafeStat.

4.7. REVIEW AND IMPROVEMENT OF SAFESTAT METHODOLOGY

As part of the SafeStat methodology development process, the Volpe Center has had each version of the SafeStat algorithm and its subsequent results reviewed by the CVIS Federal/State Working Group. This Working Group is comprised mostly of federal and state enforcement personnel from each of the five pilot states. These enforcement personnel have applied their expertise in evaluating the algorithm and its results, and have often provided suggestions for improving the algorithm. Once the Federal/State Working Group is satisfied with the latest version of the SafeStat methodology, the algorithm is presented to the CVIS Steering Committee for formal approval.

5. PROGRESSIVE COMPLIANCE ASSURANCE PROGRAM (PCAP)

5.1. OVERVIEW

The Progressive Compliance Assurance Program (PCAP) is designed to provide a process to guide unsafe motor carriers into a safe operational status through appropriate progressive treatments. This program will identify and perform diagnoses for "sick," i.e., unsafe, carriers and prescribe "treatments" to nurse these "sick" carriers back to health, i.e., return them to a safe operational status.

The PCAP is based in part on 1) proven processes used in Canada and 2) a process (Motor Carrier Safety Improvement Process - MCSIP) being tested as part of the CVIS pilot. It encompasses, and may replace, existing OMC processes such as the SCE prioritization for compliance reviews.

5.2. DESIGN

SafeStat will be run periodically, using all available performance and compliance data, to identify (i.e., diagnose) carriers with poor safety performance as candidates for the PCAP and recommend a treatment for each carrier entering the program. The treatment assigned to a carrier will depend on the diagnosis of the carrier's:

1) Degree of Risk (the carrier's SafeStat score)
   The higher a carrier's SafeStat score, the more advanced (i.e., intense) the treatment it will be assigned.

2) Problem Areas (the SEAs in which the carrier's performance is deficient)
   The treatment assigned to a carrier can be focused on the deficient SEAs, e.g., Accident, Vehicle, Driver, or Safety Management.

3) Size and Type of Operation
   The treatment assigned to a carrier will depend on its size and type of operation, e.g., whether or not the carrier is a passenger or hazardous materials (hazmat) carrier.

OMC staff in each state will review the SafeStat results and verify the data for carriers recommended for the PCAP. In reviewing the SafeStat results, the staff will bring to bear additional federal data such as complaints, state data such as state enforcement proceedings, and their own knowledge of the carriers' operations,

for the purpose of accepting or changing the recommendations from SafeStat. The staff will also take into account its safety investigator workload as well as any pre-set targets for each treatment.

Once a carrier enters the PCAP, its safety performance will be monitored by SafeStat, i.e., SafeStat will be run periodically to determine the safety status of the carriers in the PCAP. The results of these monitoring runs will reflect any additional performance and compliance data on these carriers collected during this period.

If insufficient data are collected during a specified time frame to determine whether or not a carrier in the PCAP has shown significant improvement in its safety status, then SafeStat will recommend that the carrier continue with its current PCAP treatment and continue to have its safety performance monitored.

If there are sufficient data to determine whether or not a carrier in the PCAP has shown significant improvement in its safety status during the specified time frame, then there are two possibilities:

1) If the carrier PCAP has shown significant improvement in its safety status, then SafeStat will recommend that the carrier exit the PCAP.

2) If the carrier has not shown significant improvement in its safety status, then SafeStat will recommend that the carrier progress to a more advanced PCAP treatment.

After each SafeStat run, OMC staff will review the data to accept or change each SafeStat recommendation. NOI (Notice of Investigation) and operational out-of-service orders will continue to be used for the worst carriers as they are currently.

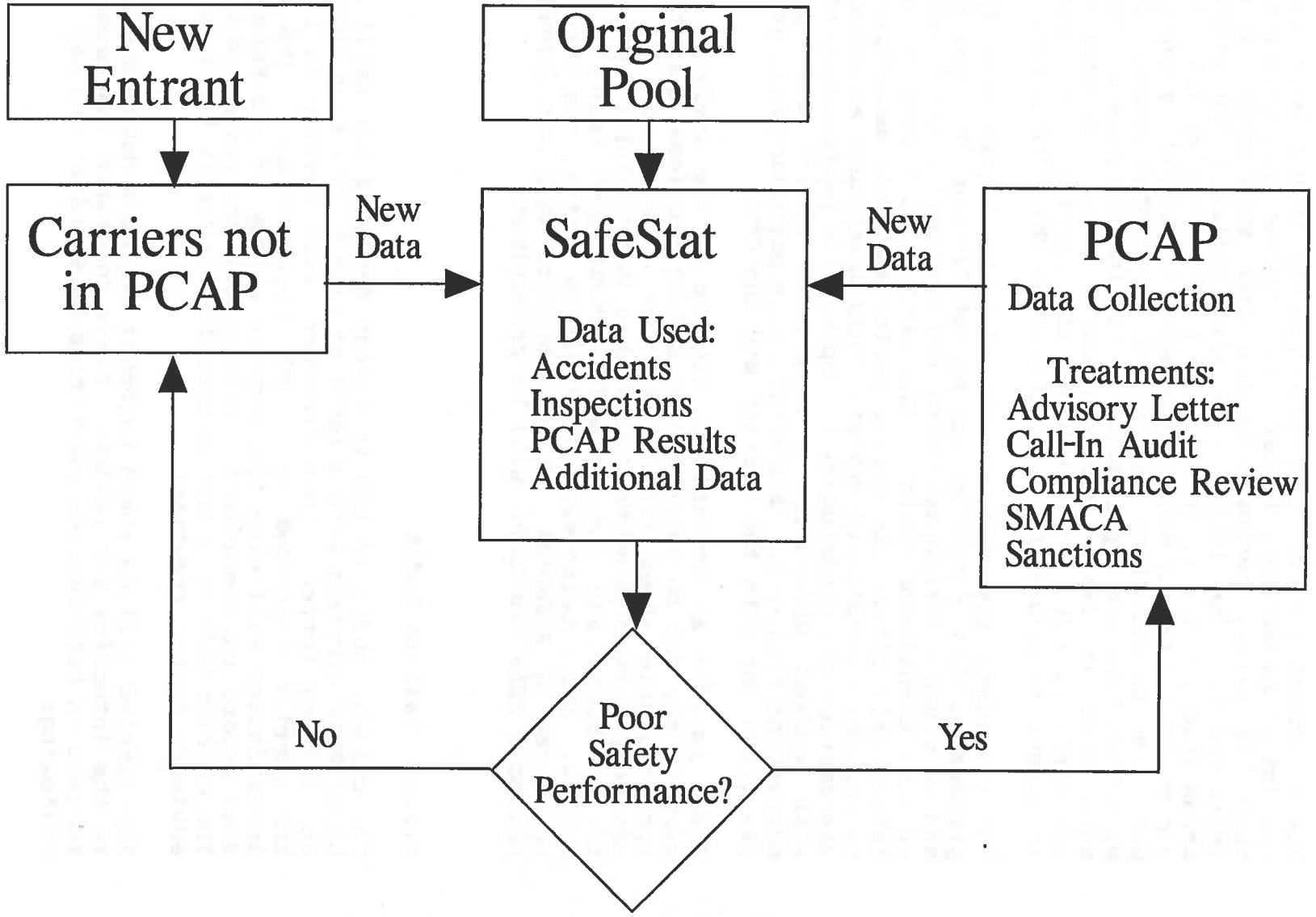
This process is illustrated in Figure 5-1.

The Progressive Compliance Assurance Program (PCAP) will consist of four potential treatments:

1. Advisory Letter
2. Call-In Audit
3. Compliance Review
4. Safety Management and Compliance Review (SMACA)

Treatments 3 and 4 are for "at-risk" carriers with accident histories. In addition, carrier out-of-service orders and limited out-of-service orders may be added as treatments for carriers deemed to be at greatest risk. The treatments are described in the following four sections.

Figure 5-1.
Progressive Compliance Assurance Program (PCAP)



5.2.1. Advisory Letter

The treatment for PCAP carriers with the lowest level of risk will consist of an advisory letter. This letter will inform the carrier that its safety performance has been substandard and requires improvement. The letter will also indicate the safety problem areas (e.g., vehicle, driver, etc.). The carrier will also receive a copy of its safety data record showing the safety event data that were used to calculate the carrier's SafeStat score. The carrier will then have the opportunity to examine the data and question any data that it feels are erroneous, e.g., inspections and/or accidents wrongly attributed to the carrier. A similar letter treatment is currently being tested in the CVIS pilot.

The principal advantage of the advisory letter over the current process is that a carrier can be notified of its poor performance and be given a chance to remedy the problems without undergoing an on-site compliance review. The carrier will receive an advisory letter well before its safety performance has deteriorated enough to require a compliance review. This preemptive approach will give the carrier the opportunity to improve its performance and exit the PCAP without undergoing a compliance review and, possibly, a subsequent follow-up. Therefore, this procedure will save time and resources for both the carrier and the OMC.

There is also an educational element of the advisory letter. A carrier may not be aware of its safety problems and/or may not be knowledgeable about the regulations in question, if any. The advisory letter provides OMC with a way to inform the carrier of the problems and regulations without performing a compliance review. After being sent the advisory letter, the carrier will be monitored by SafeStat. If performance does not improve, a more advanced PCAP treatment will be prescribed.

5.2.2. Call-In Audit

The call-in audit is the treatment designed for small and medium sized PCAP carriers with a level of risk higher than that requiring an advisory letter. This treatment will involve an interview of the carrier conducted at an OMC field office. The OMC safety investigator will give the carrier a copy of its SafeStat safety data record and describe the safety problems indicated by the data. The carrier will have the opportunity to verify the data, as in the advisory letter treatment.

The carrier will be asked to bring selected documents and records to the interview for review. These documents and records will be focused on deficiencies identified by SafeStat and may include the following:

Accident SEA
- Accident history

Driver SEA
- Roadside OOS inspections
- Compliance review results

Vehicle SEA
- Roadside OOS inspections
- Compliance review results

Safety Management SEA
- Enforcement action follow-up
- Compliance review results
- Hazmat violations

The OMC safety investigator will examine the documents and records and note actions taken and planned to correct deficiencies. If, in the safety investigator's opinion, the carrier represents an imminent hazard on the road, then an on-site compliance review will be scheduled immediately. If not, then the safety investigator will explain to the carrier the fines and sanctions that could result if violations are discovered during a compliance review. Finally, the safety investigator will discuss with the carrier the steps that it must take to improve its safety performance.

The call-in audit has the same advantage over the current process that the advisory letter has, i.e., the fact that a carrier can be notified of its poor performance without undergoing a compliance review (and subsequent follow-up). The call-in audit is much more time and labor efficient than a compliance review. There is no travel for the OMC safety investigator, because the call-in audit is conducted at the OMC office. Furthermore, since a call-in audit is more focused on known deficiencies, several audits can be conducted in a single day, as opposed to a compliance review, which often requires several days to conduct. There is even the potential to conduct audits with several carriers simultaneously, particularly if the carriers have similar types of operations.

The call-in audit has an advantage over the advisory letter. That is the face-to-face nature of the call-in audit, which makes it possible to have a much more thorough discussion of the issues involved. The carrier is able to ask questions, while the OMC safety investigator is able to prescribe a specific course of action for the carrier to follow to improve its performance.

5.2.3. Compliance Review

The compliance review is the treatment designed for at-risk PCAP carriers, most of which have high accident rate histories. This

treatment will be similar to a current on-site compliance review with some exceptions.

First, the carrier will be given the opportunity to verify that the information in its safety data record are correct. Second, the PCAP compliance review will focus entirely on compliance, i.e., critical and acute violations. It will not attempt to measure safety performance, leaving that task to SafeStat.

Finally, the results of the compliance review will be entered into SafeStat, which will use the data in combination with performance data to determine the carrier's overall safety status. SafeStat will treat the results from the compliance review as one piece of information to assess the carrier's safety status, in contrast to the current approach of relying on the compliance review as the only means of assessing safety fitness.

Every carrier that undergoes a compliance review will provide updated information about its operation (e.g., vehicles, drivers, vehicle miles traveled (VMT)), as in the current on-site compliance review. The carrier will also provide additional identification information, as follows:

1. Intrastate Identification State and Number (if applicable)
2. Driver Information
    a. Names
    b. Commercial Driver's License (CDL) States and Numbers
    c. Driver Dates of Birth
3. Vehicle Information
    a. Power Unit Registration States and Numbers
    b. Power Unit Vehicle Identification Numbers (VINs)

This information may be used to obtain state data on violations and inspections, which, with the review results, will support a more complete safety fitness determination by SafeStat.

5.2.4. Safety Management and Compliance Assessment (SMACA)

The safety management and compliance assessment (SMACA) is designed for large at-risk carriers with high accident rate histories and systemic deficiencies in safety compliance and performance. A SMACA will consist of a full compliance review plus a more complete assessment of the carrier's safety management practices and policies. It is both more extensive and intensive than the compliance review.

The safety management assessment component of the SMACA goes beyond measuring the compliance of motor carriers against the minimum standards contained in the FMCSRs and HMRs. The safety management assessment is intended to assess carrier safety management

practices and policy that may be the underlying cause of a carrier's poor safety status. It will assess the carrier's current safety programs and practices and suggest specific practices and policies (such as accident countermeasures) that will elevate the importance of safety and compliance within the company.

To a large extent, the input from the stakeholder meetings on important safety fitness criteria formed the basis for the safety management assessment. The safety management assessment has been defined to include four relevant areas: **management structure, driver programs, accident reduction programs,** and **hazardous materials programs.** Attachment 3 contains a strawman questionnaire for the safety management assessment.

As part of the safety management evaluation, the **management structure** of the motor carrier will be examined. At the stakeholder meetings, this area was cited most frequently as being a criterion of a motor carrier safety fitness. Some of the questions that may be used to assess the carrier's management structure are:

1) Does the carrier have one individual ultimately charged with the responsibility for ensuring overall compliance with the FMCSRs and HMRs?

2) Is this individual in charge on an equal or higher level than the Director of Operations?

3) Does this individual in charge have the authority to make changes in the dispatching of vehicles and drivers to avoid compromising the safety of the company's operations?

4) Have carrier employees attended any outside safety meetings, courses, or seminars in the past two years?

Another area to be included in the safety management assessment is **driver programs.** Again, this area was cited frequently in the stakeholder meetings. The development of skilled, compliant, and safety-conscious drivers is critical to the overall safety status of a motor carrier. Since the most prevalent cause of preventable accidents is driver error, it is essential that the carrier view the driver as the key to safety performance. Some of the questions that may be used to assess the carrier's driver program are:

1) Does the carrier have and employ standards for selecting drivers for employment?

2) Does the carrier have a driver safety orientation program that ensures that drivers understand the procedures and policies of the company as well as the safety standards demanded by the FMCSRs and HMRs?

3) Does the carrier have an ongoing driver training and development process?

4) Does the carrier's driver compensation system provide incentives for safe operation?

The third area of the safety management assessment will be **accident reduction programs.** These are special programs that directly affect the carrier's accident risk. A prime example is an accident countermeasures program. Putting such a program in place and tracking its effectiveness can significantly lower a carrier's accident rate. The establishment of such a system can provide evidence to the safety investigator that a carrier has directly addressed accident prevention and has a serious commitment to safety. Some of the questions that may be used to assess the carrier's accident reduction programs are:

1) Does the carrier maintain detailed accident information for purposes of analysis and accident prevention?

2) Does the carrier have an accident countermeasures program?

3) Does the carrier conduct a comprehensive review of each accident with the driver involved?

4) Does the carrier have post-accident remedial driver training requirements?

Finally, the fourth area of the safety management assessment will be **hazardous materials programs.** There are tighter regulations on hazardous materials (hazmat) carriers than on other carriers because the consequences of accidents involving these carriers are potentially much more serious than the consequences of accidents involving other carriers. Hazmat carriers must have procedures in place to comply with these additional regulations and safely transport hazardous materials. Some of the questions that may be used to assess the carrier's hazardous materials program are:

1) Does the carrier provide hazmat training for its employees?

2) Can the carrier explain their system to ensure shipping papers accompanying hazmat loads are properly prepared?

3) Can the carrier explain what constitutes a placarded load?

4) Does the carrier have a system to ensure that all drivers transporting Class A and B explosives have written route plans?

The safety investigator will grade the carrier in each of the four relevant areas, based on the answers to the questions in each area, according to the following table:

Grade	Answers
"Top Performer"	Yes to all questions (in the relevant area) that apply.
"Better than Average Performer"	Qualified yes to all questions that apply.
"Average"	Some questions answered yes, some questions answered no.
"Below Average Performer"	More no responses than yes responses. Insufficient attention to safety.
"Poor Performer"	All or mostly no responses.

Based on the results in each of the four relevant areas, the OMC safety investigator will make recommendations for a customized safety improvement program for the carrier in each problem area:

Relevant Area	SEA
Management Structure	Safety Management
Driver Programs	Driver
Accident Reduction Programs	Accident
Hazardous Materials Programs	Safety Management

The results of the SMACA (i.e., the results of both the compliance review and safety management assessment) will be entered into SafeStat, which will use the data in combination with other performance and compliance data to determine the carrier's overall safety status.

5.2.5. Other Potential Treatments

In addition to the four potential treatments described in the previous four sections, three other potential treatments are being considered for inclusion in the PCAP.

Targeted roadside inspections are designed for carriers with specific deficiencies in the Vehicle or Driver SEAs. These deficiencies may have been detected in previous inspections or in compliance reviews. A carrier with deficiencies in the Vehicle SEA would be targeted for additional vehicle inspections, while a

carrier with deficiencies in the Driver SEA would be targeted for additional driver inspections.

The **accident countermeasures program** is designed for large carriers with high accident rates. As described in the previous section, instituting such a program and tracking its effectiveness can significantly lower a carrier's accident rate.

Sanctions such as **out-of-service orders** and **vehicle registration sanctions** are being studied for use as treatments for carriers unable to improve their performance after receiving the most intense PCAP treatments. The use of vehicle registration sanctions is being tested in the CVIS pilot. The redefinition of "imminent hazard" and establishment of specific objective criteria for limited and full carrier out-of-service (COOS) orders are being studied at the Volpe Center under a project plan agreement with the OMC. It is envisioned that a more completely defined and tested version of the PCAP will emerge from the CVIS experience and these studies, with implementation phased in by the OMC as the components are reviewed, tested, and proven.

6. CONTINUING RESEARCH, PILOT TESTS, AND IMPLEMENTATION STRATEGY

Prior to implementation of the three components of the improved process, pilot tests and other research will be conducted to confirm the feasibility and effectiveness of each component, both separately and as part of an integrated process. Implementation may be phased in as components are tested and fully developed. The SafeStat methodology and some parts of the PCAP (advisory letter and treatment process) are currently being tested as part of the CVIS pilot. An evaluation is being conducted in conjunction with the CVIS pilot, after which these processes will be adapted to the OMC safety fitness determination process. Pilot tests and additional research for the remaining components (in particular, the New Entrant Program) need to be conducted and evaluated.

6.1. NEW ENTRANT PROGRAM

6.1.1. Continuing Research

Additional research into the safety performance of new entrants is continuing at the Volpe Center with support from the University of Maryland. The objectives of this research are to confirm and further analyze the safety status of new entrants in order to better define the new entrant safety improvement component, i.e., the New Entrant Program.

The first study will be conducted to verify and expand the results of previous studies concerning the relationship between carrier age and accident rate. These studies found that new entrants had higher accident rates and lower levels of compliance than established carriers. These findings suggest the existence of a "safety learning curve." The concern to be examined is that the date of issuance of a DOT Number may not be equivalent to the date of entry into interstate motor carrier operation, as was assumed in the studies. Therefore, carrier age may have been calculated incorrectly in some cases, particularly for exempt and private carriers. Information submitted on Form MCS-150 by selected new entrants will be verified and analyzed to assess the impact on the results of previous studies.

In the second study, the safety management performance of new entrants and established carriers will be analyzed using data on acute and critical violations found during compliance reviews conducted since October 1994. The number of acute violations and the number of patterns of critical violations will be examined by carrier age to determine if there is an improvement as carriers become more experienced, i.e., if there is a "safety learning curve." The analysis will be performed assessing overall results,

and more specifically for the three SafeStat Safety Evaluation Areas (Vehicle, Driver, and Safety Management) and for hazardous materials carriers.

In another study, state education programs for new entrants will be inventoried and assessed for effectiveness. Carrier safety performance in states that have these programs will be analyzed to determine not only the effectiveness of the programs as a whole, but also which elements of the programs are the most effective.

Finally, the feasibility of collecting information on the costs of carrier safety management programs will be investigated. The investigation will examine 1) the procedures required to collect such information and 2) how to relate the costs of these programs to carrier safety performance.

6.1.2. Pilot Test

The New Entrant Program could be pilot tested either nationally or in an OMC region. The pilot test will cover all of the new entrants in either the nation or the region within a 12-month period. Half of the new entrants will be in the test, while the remaining new entrants will serve as a control group.

The first step in the pilot test will be to develop the educational material and the DOT Number/New Entrant Program application (including the examination) called for in the program. The results of the study of existing state education programs for new entrants discussed in the previous section will be used to develop the educational material for the New Entrant Program.

During the first 12 months of the pilot test, the new entrants in the pilot group applying for DOT Numbers will receive the educational material as well as the DOT Number/New Entrant Program application. New entrants in the control group will receive only Form MCS-150 plus the additional identification questions listed in Section 5.2.3.

Each new entrant in the pilot group that passes the examination will be designated as "prequalified" and issued a DOT Number. A carrier that does not pass the examination will be instructed to review the educational material before taking the examination again.

New entrants in the control group will be issued DOT Numbers and begin operations under current procedures.

All new entrants in both the pilot and control groups that apply for DOT Numbers during the first 12 months of the pilot test will be placed under increased surveillance for the next two years.

This surveillance will consist of spot audits, in addition to the safety performance monitoring by SafeStat.

This surveillance may include some version of spot audit short of a full compliance review. An alternative method is the call-in audit, which consists of an interview conducted at a state OMC office (as described in Section 5.2.2). This audit covers the carriers' knowledge of the FMCSRs and HMRs as well as the systems that the carrier has in place to comply with them. The call-in audit can also include the review of certain documents and records. If the OMC determines that serious problems exist with the carrier, a full compliance review will be ordered.

A small sample of the new entrants in the pilot and control groups will receive full compliance reviews, while a larger sample will receive call-in audits. In addition, the new entrants will be at a higher priority for roadside inspections than other carriers.

At the conclusion of the pilot test, the safety performance data for each subgroup of new entrants will be analyzed using SafeStat. There will be three subgroups of carriers within the pilot and control groups:

Pilot Group

1) New entrants that passed the examination the first time

2) New entrants that failed the examination one or more times, reviewed the educational material, and then passed the examination

Control Group

3) All new entrants

The SafeStat data, in particular, accident rates, will be examined to see if there are any differences between subgroups 1 and 2 in the pilot group. That is, do new entrants that pass the examination the first time perform better than those that do not? The data will also be examined to determine if there are any differences between the pilot group and the control group. In other words, do carriers in the New Entrant Program perform better than carriers not in the program?

6.2. SAFESTAT

SafeStat is being developed in successive versions, each version representing refinements and improvements over the last one. The initial versions of SafeStat are being tested as part of the Commercial Vehicle Information System (CVIS) pilot. Version 1.3

was implemented with the third cycle of the CVIS pilot in September 1996. Version 1.4 is scheduled for the fourth cycle of the CVIS pilot in February 1997. This SafeStat implementation is designed to identify and monitor poorly performing carriers for the CVIS. The CVIS pilot began in January 1995 and is scheduled to continue through 1997.

SafeStat as described in this document is designed for the OMC safety fitness determination process. It contains the same methodology that is being tested in the CVIS pilot, but will have broader capabilities. SafeStat as described in this document will perform the additional tasks listed in Section 4.3., including:

1) Identifying carriers for the PCAP,

2) Monitoring carriers in the PCAP,

3) Enhancing the Inspection Selection System (ISS),

4) Assessing the safety status of all carriers with sufficient data,

5) Monitoring carriers in the New Entrant Program, and

6) Assisting firms involved with carriers in making business decisions in which the safety status of a carrier is a factor.

As more data and safety measures become available, future versions of SafeStat will be able to assess the safety status of more carriers across the safety spectrum. The framework of SafeStat has been designed to incorporate new safety indicators. This design will allow SafeStat to grow as more new safety data from the federal and state governments become available. By incorporating these new safety data and improving the existing data, SafeStat will be able to both 1) determine the safety status of more carriers, and 2) determine the safety status of currently scored carriers with improved accuracy.

Despite the limited scope of the CVIS implementation of SafeStat, the CVIS pilot serves as an excellent test of the SafeStat methodology. The feasibility and effectiveness of the basic concept of a data-driven decision aid using current safety performance data to continually assess the safety status of carriers is being fully tested by the CVIS pilot. The SafeStat functions of identifying and monitoring unsafe carriers for the PCAP are also being tested in the CVIS pilot by using the corresponding procedures for the CVIS Motor Carrier Safety Improvement Process (MCSIP), as described below in Section 6.3.

6.3. PROGRESSIVE COMPLIANCE ASSURANCE PROGRAM (PCAP)

The Commercial Vehicle Information System (CVIS) pilot began with the development of pilot CVIS business processes and computer systems. One of the business processes is the Motor Carrier Safety Improvement Process (MCSIP). Like the Progressive Compliance Assurance Program (PCAP), the MCSIP is designed to identify operationally unsafe motor carriers, and, through progressive treatments, guide them into a safe operational status. MCSIP stages and treatments are fewer and more limited than those in the PCAP. However, since the MCSIP is a progressive process similar to the PCAP, the MCSIP component of the CVIS pilot serves as a partial pilot test of the PCAP.

The CVIS MCSIP has three stages or steps where a motor carrier can first enter the process:

1. Warning Letter (WL)
2. First CVIS Compliance Review (CR1)
3. Notice of Investigation (NOI)

A final MCSIP sanction stage is vehicle registration suspension or revocation by the state in which the carrier is domiciled. The OMC counterpart to this stage is the operations out-of-service order. These sanctions may be tested concurrently in the CVIS pilot. The warning (advisory) letter and compliance review steps are found in both the MCSIP and PCAP. The notice of investigation is usually based on enforcement actions. That is, a carrier receiving a notice of investigation is informed of its due process rights and ordered to develop an action plan to improve its safety performance.

Thus, the MCSIP component of the CVIS pilot is testing the feasibility and effectiveness of a progressive treatment process. In particular, the CVIS pilot includes two MCSIP stages that are similar to two of the four PCAP stages: the warning (advisory) letter and the compliance review.

Two additional PCAP stages, the call-in audit and the Safety Management and Compliance Assessment (SMACA), may be developed, tested, and evaluated in conjunction with or following the CVIS and New Entrant Program pilots. As described in Section 5.2.5, entry and exit criteria for carrier limited and full carrier out-of-service orders are also being developed for inclusion in the PCAP.

6.4. IMPLEMENTATION STRATEGY

The improved process represents an integrated comprehensive approach to motor carrier safety fitness determination and assurance by the OMC. It can be implemented either in whole or in

part, because each component is a separate program or system. However, for the New Entrant Program and the PCAP to be efficiently executed, an automated system to evaluate and monitor carrier safety performance must be implemented. Therefore, SafeStat is the first component being implemented, because it is designed to provide support to each of the other two components. Eventually, SafeStat will monitor the carriers in the New Entrant Program, identify carriers for the PCAP, and monitor the carriers in the PCAP. SafeStat will eventually facilitate the implementation of the New Entrant Program and the PCAP as well as support current OMC functions and processes (such as prioritization for compliance reviews) in the interim.

The components of the new process are being implemented following the completion of pilot tests and the evaluation of the results. The final design of the new process will be more completely defined and further refined by the pilot tests.

Although the components of the new process may be tested and even implemented separately, they represent a package and support other motor carrier safety programs. Therefore, the plan and schedule for the development, testing, and implementation of the improved process should reflect the evolution of the entire OMC motor carrier safety program, and take full advantage of developmental work undertaken in ongoing demonstrations and pilots such as the CVIS.

ATTACHMENT 1 - NEW ENTRANT PROGRAM

ATTACHMENT 1A

SAMPLE EXAMINATION QUESTIONS

Part 2 of the application for a DOT Number and the New Entrant Program will consist of an examination designed to:

1) Test the motor carrier's knowledge of Federal Motor Carrier Safety Regulations (FMCSRs) and Hazardous Materials Regulations (HMRs),

2) Determine whether the carrier has safety management systems in place, and

3) Determine the carrier's level of compliance with FMCSRs and HMRs.

The number of questions is to be determined. Questions would be similar to the following sample questions:

1. If a driver applicant has a valid certificate showing successful completion of a driver's road test:

   a. the carrier must accept it.
   b. the carrier may still require the applicant to take a road test.
   c. the carrier cannot accept it.
   d. the carrier may request a road test waiver from the Office of Motor Carriers.

2. Except for the name and main address of the carrier, all entries relating to the driver's record of duty status:

   a. must be printed in ink or typed.
   b. must be made by the carrier dispatcher.
   c. must be made in front of a witness.
   d. must be in the driver's handwriting.

3. Do you have a copy of the Federal Motor Carrier Safety regulations (FMCSRs)?

   a. Yes
   b. No

4. How much financial responsibility (public liability insurance) do you carry?

   a. Less than $300,000
   b. $300,000 - $750,000
   c. $750,000 - $1,000,000
   d. More than $1,000,000

5. Do your drivers have the applicable Commercial Driver's License (CDL) endorsements for the vehicles they operate?

   a. Yes
   b. No

6. Are your drivers' records of duty status being compared with other independent records for accuracy?

   a. Yes
   b. No

   If yes, what records?:

ATTACHMENT 1B

STRAWMAN CERTIFICATION STATEMENT

(to be completed by official responsible for safety)

Identification of the individual responsible for safety:

_____	_____
Name	Title or Position

I certify that I have obtained, have knowledge of, and will comply with the Federal Motor Carrier Safety Regulations and Hazardous Materials Regulations. Under penalties of perjury, I declare that the information entered on this application is, to the best of my knowledge and belief, true, correct, and complete.

_____	_____
Signature	Date

If the motor carrier received outside assistance in completing any part of this application, including the examination, then those persons must complete the following:

_____	_____
Name of Person Providing Assistance	Title or Position
_____	
Name of Organization (if affiliated)	
_____	_____
Street	City, State, Zip Code
_____	_____
Signature	Date

ATTACHMENT 2

SAFETY EVALUATION AREA (SEA) VALUE CALCULATIONS

1. ACCIDENT SEA

Within the Accident SEA, SafeStat evaluates the performance of a carrier. The Accident SEA Value approximates the carrier's accident behavior standing relative to the accident behavior of the carrier population for which there are data available. The Accident SEA Value is based on two indicators, the Accident Involvement Indicator (AII) and the Recordable/Preventable Accident Indicator (RPAI).

1.1. ACCIDENT INVOLVEMENT INDICATOR (AII)

SafeStat uses the NGA data and Census data to calculate the AII for each carrier. The following data elements from the NGA accident data are used:

- Date of the Accident
- Number of Injuries
- Number of Fatalities
- Release of Hazardous Material (hazmat)

SafeStat time weights the NGA data to give more relevance to recent accidents than older accidents. It also incorporates consequence appropriate weights, with fatalities and hazmat releases receiving more weight than accidents and injuries. An accident involvement score is computed for each carrier by summing the time and consequence weighted number of accidents, injuries, fatalities, and hazmat releases. The score is normalized for the number of owned and term-leased power units (determined from census data), and is then compared with those of other carriers to produce a percentile ranking. The highest AII percentile ranking indicates the worst accident involvement.

1.2. RECORDABLE/PREVENTABLE ACCIDENT INDICATOR (RPAI)

The RPAI uses measures from the most recent compliance review (CR). The data items used in assessing recordable/preventable accidents are the following:

- Date of the Review
- Number of recordable/preventable accidents within 12 months prior to the review

- Total number of vehicle miles traveled by a carrier within 12 months prior to the review
- Factor 6 (Accident) Rating

A carrier can receive a RPAI value only if it has 2 or more recordable/preventable accidents and a Factor 6 (Accident) rating of either conditional or unsatisfactory. For each such carrier, a recordable/preventable accident rate, the number of accidents per million vehicle miles traveled, is calculated. This rate is then compared with those of other carriers to produce a percentile ranking. The highest RPAI percentile ranking indicates the worst recordable/preventable accident involvement.

1.3. ACCIDENT SEA VALUE CALCULATION

Based on the age of the CR, SafeStat determines the weight of the RPAI. The Accident SEA value is calculated by summing the AII and the weighted RPAI, then dividing the total by the sum of 1 (the AII weight) and the RPAI weight. If only the RPAI exists, then a default value of 75 is used for the AII in the calculation of the SEA value. If only the AII exists, then the Accident SEA value is set equal to the AII. If a carrier has a satisfactory rating in Factor 6 (Accident) from a CR within the last 6 months, then no value is assigned to the Accident SEA.

Figure A2-1 shows the computational hierarchy used to calculate the Accident SEA Value.

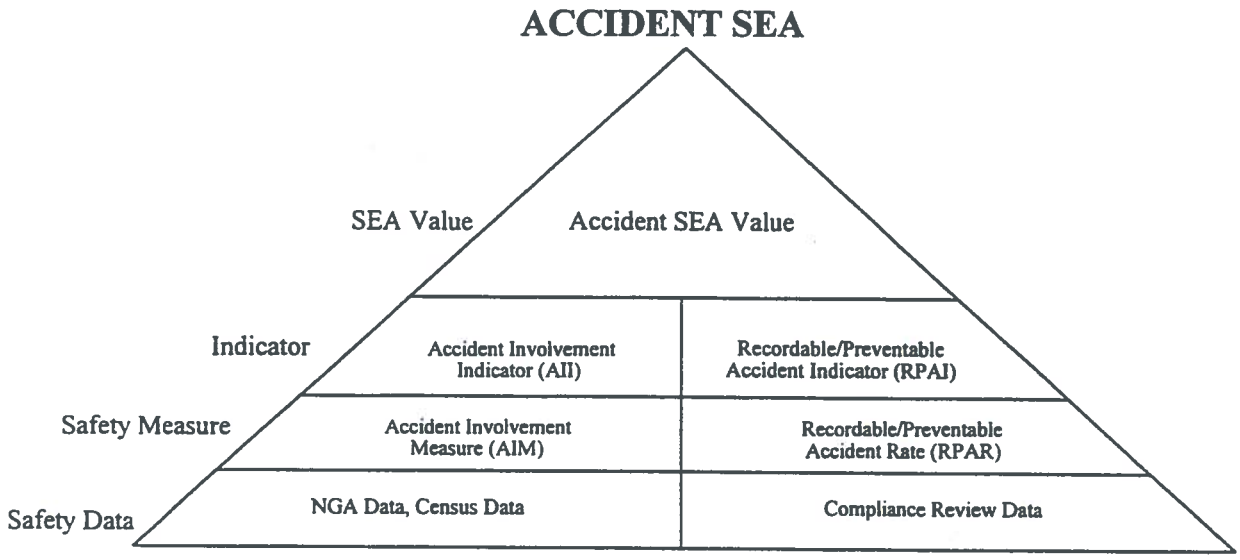


Figure A2-1. Accident SEA Value Computation Hierarchy

2. DRIVER SEA

Within the Driver SEA, SafeStat evaluates the performance and compliance of a carrier's drivers. The Driver SEA Value approximates the carrier's driver safety standing relative to the driver safety experienced by the carrier population for which there are data available. SafeStat calculates the Driver SEA Value based on two indicators, the Driver Inspections Indicator (DII) and the Driver Review Indicator (DRI).

2.1. DRIVER INSPECTIONS INDICATOR (DII)

The DII is based on data from roadside inspections that pertain to drivers, i.e., inspection levels 1, 2, and 3. SafeStat places a confidence weight associated with the DII based on the number of driver roadside inspections that a carrier has had, and requires a minimum number of inspections per carrier to consider the data sufficient. The following data elements are used in calculating the DII:

- Number of Driver OOS Violations
- Number of Drivers Placed OOS
- Number of Driver Inspections
- Number of Violations of OOS Orders
  - Jumping Vehicle OOS Orders
    (This is done by drivers.)
  - Jumping Driver OOS Orders

SafeStat uses only driver roadside inspection data that fall within the time window of the last 30 months. It time weights inspection data to give more relevance to recent inspections. A driver inspection score is calculated by summing the time-weighted number of driver OOS violations and the time-weighted number of drivers placed OOS, and dividing the total by the time-weighted number of driver inspections. The score is weighted to give more influence to high numbers of violations of OOS orders. The DII is computed by comparing this score with those of other carriers to produce a percentile ranking. The highest DII percentile ranking indicates the worst record of OOS violations. SafeStat determines a confidence weight for the DII based on the number of inspections.

2.2. DRIVER REVIEW INDICATOR (DRI)

SafeStat calculates the DRI based on the Factor 2 (Driver) and Factor 3 (Operational) ratings from the most recent CR (when they fall within time window of the last 18 months). SafeStat calculates the DRI by assigning numeric values to the Factor 2 and

3 ratings and averaging them. Based on the age of the CR, SafeStat then determines the confidence weight of the DRI.

2.3. DRIVER SEA VALUE CALCULATION

The Driver SEA value is calculated by summing the confidence weighted DII and DRI, and then dividing that total by the sum of the two confidence weights. If only one of the two indicators exists, the Driver SEA value is set equal to that indicator.

Figure A2-2 shows the computational hierarchy used to calculate the Driver SEA Value.

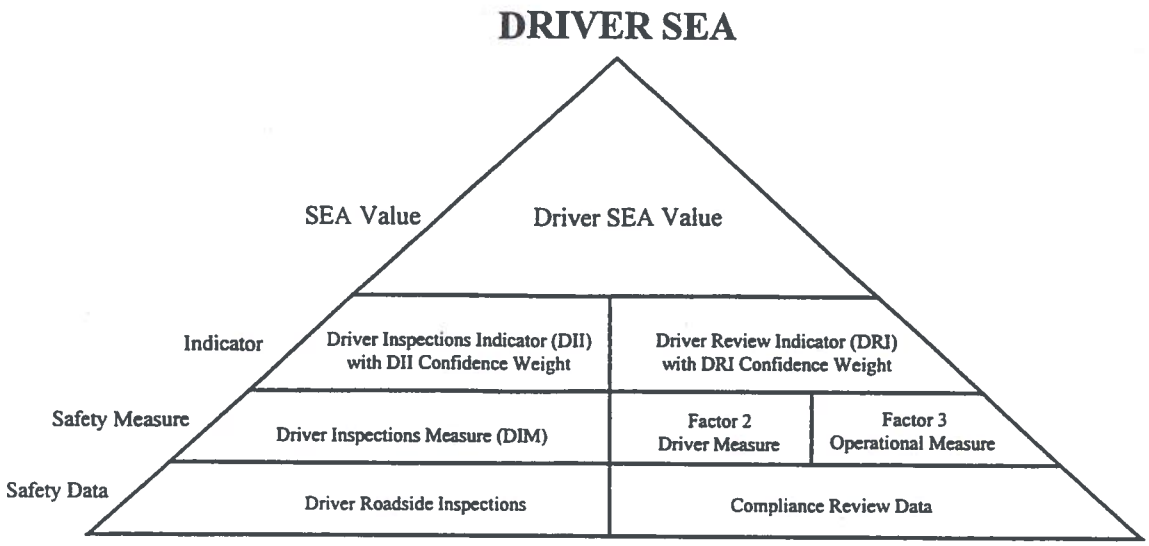


Figure A2-2. Driver SEA Value Computation Hierarchy

3. VEHICLE SEA

Within the Vehicle SEA, SafeStat evaluates the performance and compliance of a carrier's vehicles. The Vehicle SEA Value approximates the carrier's vehicle safety standing relative to the vehicle safety experienced by the carrier population for which there are data available. It is based on two indicators, the Vehicle Inspections Indicator (VII) and the Vehicle Review Indicator (VRI).

3.1. VEHICLE INSPECTIONS INDICATOR (VII)

The VII is calculated using data from roadside inspections that pertain to vehicles, inspection levels 1, 2, and 5. To consider the data sufficient, SafeStat requires a minimum number of inspections per carrier. SafeStat places a confidence weight on the VII based on the number of vehicle roadside inspections a carrier has had. The VII uses the following data elements:

- Number of Vehicle OOS Violations
- Number of Vehicles Placed OOS
- Number of Vehicle Inspections

SafeStat uses only vehicle roadside inspection data that fall within the time window of the last 30 months. It time weights inspection data to give more relevance to recent inspections. A vehicle inspection score is calculated for each carrier by adding the time-weighted number of vehicles placed OOS to the time-weighted number of Vehicle OOS violations and then dividing by the total time-weighted number of vehicle inspections. The VII is determined by dividing this score by the number of vehicle inspections within the last 30 months. SafeStat determines the confidence weight of the VII based on the number of inspections.

3.2. VEHICLE REVIEW INDICATOR (VRI)

SafeStat uses the Factor 4 (Vehicle) rating from the carrier's last CR to calculate the VRI. SafeStat uses the latest ratings assigned by the investigators when the review falls within the time window of the last 18 months. SafeStat calculates the VRI by assigning numeric values to the three possible ratings (satisfactory, conditional, or unsatisfactory). SafeStat determines the confidence weight of the VRI based on the age of the CR.

3.3. VEHICLE SEA VALUE CALCULATION

The Vehicle SEA value is calculated by summing the confidence weighted VII and VRI, and then dividing that total by the sum of the two confidence weights. If only one of the two indicators exists, the Vehicle SEA value is set equal to that indicator.

Figure A2-3 shows the computational hierarchy used to calculate the Vehicle SEA Value.

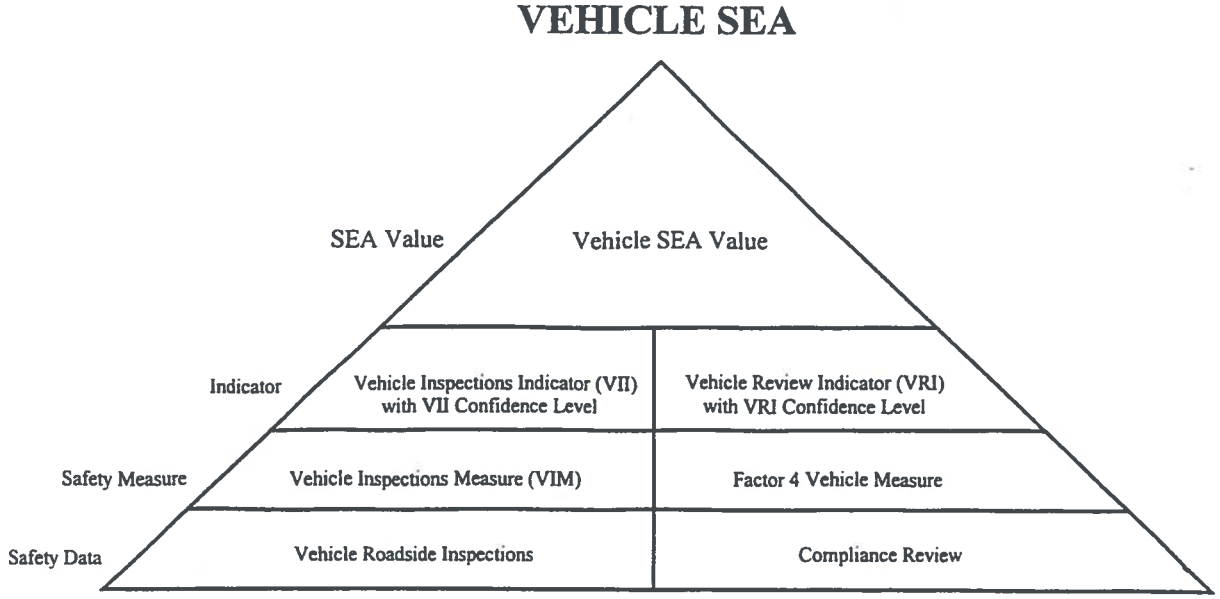


Figure A2-3. Vehicle SEA Value Computation Hierarchy

4. SAFETY MANAGEMENT SEA

Within the Safety Management SEA, SafeStat evaluates the safety performance and compliance of the management of a carrier. The Safety Management SEA Value approximates the carrier's safety management standing relative to the safety management experienced by the carrier population for which there are data available. It is based on three indicators; the Enforcement History Indicator (EHI), the Hazmat Inspections Indicator (HMII), and the Safety Management Review Indicator (SMRI).

4.1. ENFORCEMENT HISTORY INDICATOR (EHI)

The EHI is based on the results of violations cited in closed enforcement cases. SafeStat considers both the number of enforcement cases that a carrier has had and the results of the most recent CR following the last enforcement case. At least one recent enforcement case (within the last 30 months) is required to calculate the EHI. For carriers that meet this requirement, the EHI is based on the age and severity of each closed enforcement case. Each closed enforcement case is assigned a time weight and a severity weight, which are multiplied together to obtain an enforcement score for the case. The enforcement scores for each carrier are then summed, and the sum is compared with the scores of other carriers to produce a percentile ranking. The highest EHI percentile ranking indicates the worst safety posture.

4.2. HAZMAT INSPECTIONS INDICATOR (HMII)

The HMII is based on the roadside inspections and the resulting Hazardous Material Out-Of-Service (HMOOS) violations. It uses the following data elements:

- Number of HMOOS Violations
- Number of HMOOS Inspections
- Number of Inspections

To consider the data sufficient, SafeStat requires a minimum number of inspections that resulted in HMOOS inspections and violations. It uses only roadside inspections that fall within the time window of the last 30 months, and time weights inspection data to give more relevance to recent inspections. For each carrier, the time-weighted number HMOOS inspections are added to the time-weighted number of HMOOS violations and then divided by the total time-weighted number of inspections. The resulting scores for each carrier are then compared to produce a percentile ranking. The highest HMII percentile ranking indicates the worst record on hazmat violations.

4.3. SAFETY MANAGEMENT REVIEW INDICATOR (SMRI)

SafeStat uses the most recent CR results within the time window of the last 18 months to produce an SMRI score. For non-hazardous material carriers, the SMRI uses the CR's Factor 1 (General) rating. For hazardous material carriers, it uses both the Factor 1 (General) rating and Factor 5 (HAZMAT) rating. The ratings assigned by the investigators (i.e., satisfactory, conditional, or unsatisfactory) are converted to numeric scores, with the highest numbers indicating the worst performance.

4.4. SAFETY MANAGEMENT SEA VALUE CALCULATION

The value of the Safety Management SEA is determined by assigning it the highest value of EHI, HMII, or SMRI.

Figure A2-4 shows the computational hierarchy used to calculate the Safety Management SEA Value.

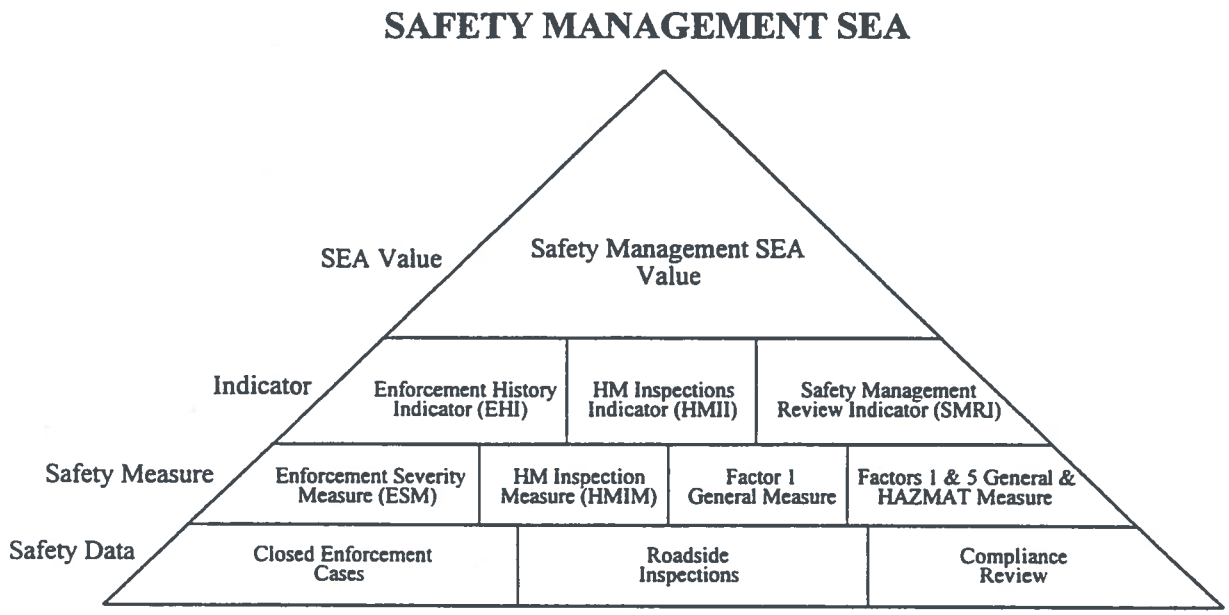


Figure A2-4. Safety Management SEA Value Computation Hierarchy

ATTACHMENT 3

SMACA SAFETY MANAGEMENT ASSESSMENT - STRAWMAN QUESTIONNAIRE

	Violation found? Yes	No	N/A
Can the carrier produce a copy of the Federal Motor Carrier Safety Regulations (FMCSRs)?			
Can the carrier produce a copy of the Hazardous Materials Regulations (HMRs)?			
Is at least one responsible carrier official familiar with the FMCSRs and HMRs?			
Does the carrier have a means of finding new changes in the FMCSRs and HMRs (e.g., trade paper subscription, periodic insurance newsletter, membership at a motor carrier association, etc.)?			
Does the carrier have one individual ultimately charged with the responsibility for ensuring overall compliance with the FMCSRs and HMRs on an equal or higher level than the Director of Operations position?			
Does the individual in charge of safety have sole authority to hire drivers?			
Does the individual in charge of safety have the authority to discipline and/or terminate employees who have acted to compromise the safety standing of the company?			
Does the individual in charge of safety have the authority to make dispatching changes of vehicles and drivers to avoid compromising the safety of the company's operations?			
Does the carrier have a driver safety orientation program that ensures that drivers understand the procedures and policies of the company as well as the safety standards demanded by the FMCSRs and HMRs?			
Does the carrier have an ongoing driver training and development process?			
Does the carrier have a safety incentive/award program?			

	Violation found? Yes	No	N/A
Is the carrier familiar with the fines and penalties that can be imposed for violations of the FMCSRs and HMRs?			
Does the carrier conduct a periodic review of drivers' records from the standpoint of compliance (as required by law) and safety performance?			
Does the carrier meet with the drivers individually to discuss the results of these reviews?			
Does the carrier have a driver compensation system organized such that the it does not compromise the safety or compliance or its operations?			
Have any carrier employees attended any outside safety meetings, courses, or seminars in the past two years?			
Does the carrier take any action against drivers involved in preventable accidents or safety violations?			
Does the carrier have any special programs that would improve its safety standing, such as an accident countermeasures program?			
Are oral interviews conducted with the drivers to verify information submitted on their applications?			
Are the hiring policies more stringent than the requirements of Part 391?			
Does the carrier verify that physicians completing medical certifications are knowledgeable of the instructions for performing and recording physical examinations?			
Does the carrier review the results of the health history and physical examination (long form)?			
Does the carrier have a system established that will ensure that drivers' annual reviews and annual records of violations remain current?			
Can the written test examiner explain the test certification process?			

	Violation found? Yes	No	N/A
Does the carrier comply with the road test provisions of Section 391.31?			
Are other sources used to check driver's background other than those required by Part 391?			
Are drivers instructed on load securement procedures?			
Does the carrier have a policy for monitoring speed?			
Can the carrier produce written procedures explaining a systematic, periodic maintenance program?			
Can the carrier list the maintenance records required for vehicles controlled for 30 consecutive days or more?			
Does the carrier periodically review maintenance records for leased equipment?			
Are drivers trained to perform pretrip inspections?			
Are all vehicles required to be inspected at a carrier authorized location on a periodic basis?			
Can the carrier explain the hours of service limitations? i.e., 10, 15, 60 in 7, and 70 in 8.			
Does the carrier file records of duty status in a systematic manner?			
Are drivers required to complete recaps of their records of duty status?			
Does the carrier have a procedure for monitoring trip lease drivers' hours of service?			
Are dispatchers aware of drivers' hours of service prior to and during a trip?			
Are drivers required to telephone the carrier each day?			
When reaching a home terminal, are previous records of duty status that are required to be submitted actually submitted?			

	Violation found? Yes	No	N/A
Does the carrier provide hazardous materials (hazmat) training for its employees?			
Can the carrier produce a cargo tank certificate or manufacturer's data report for a cargo tank selected at random?			
Can the carrier produce a cargo tank inspection report for a cargo tank selected at random?			
Can the carrier explain the system used to ensure that shipping papers accompanying hazmat loads are properly prepared and/or produce a properly prepared shipping paper for a shipment selected at random?			
Can the carrier explain the accessibility requirements for shipping papers?			
Can the carrier produce a label for each class of hazmat transported?			
Can the carrier explain what constitutes a placarded load?			
Can the carrier explain the attendance requirements for a vehicle containing hazmat?			
Can the carrier explain the parking requirements for a vehicle containing hazmat?			
Have all drivers been informed of the smoking prohibitions?			
Does the carrier have a system to ensure that all drivers transporting Class A and B explosives have written route plans?			
Is consideration given to avoidance of heavily populated area when hauling hazmat?			