United States Government Accountability Office

Report to Congressional Committees

December 2015

DEFENSE TRANSPORTATION

DOD Needs to Improve the Evaluation of Safety and Performance Information for Carriers Transporting Security-Sensitive Materials

GAO-16-82

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GAO Highlights

Highlights of GAO-16-82, a report to congressional committees

Why GAO Did This Study

In fiscal year 2014, DOD facilitated the transport by commercial motor carriers (private-sector trucking companies) of nearly 50,000 separate shipments of security-sensitive material (e.g., ammunition and explosives) in the continental United States. DOD uses DOT safety performance information to determine whether these carriers can transport security-sensitive material under the TPS program.

The House Report 113-446 included a provision for GAO to assess matters related to the safety performance, standards, and other aspects of TPS carriers. This report examines the extent to which (1) DOD's use of DOT's safety performance information results in sufficient and reliable information for DOD to evaluate the safety performance of individual TPS carriers, and (2) DOD evaluates TPS carrier incident data and investigates incidents to identify safety-related risks. GAO analyzed DOT and DOD safety performance data on the 55 carriers participating in the TPS program in fiscal years 2011-14.

What GAO Recommends

GAO recommendations include that DOD establish an approach for reviewing available safety violation data, and develop guidance on analyzing incident trends and fully investigating incidents. DOD concurred with the recommendations on analyzing and investigating incidents but did not concur with the violations data recommendation because DOD stated that it does not own the data, the data do not distinguish TPS from non-TPS shipments, and research is needed on other data. GAO believes the recommendation remains valid.

View GAO-16-82. For more information, contact Cary B. Russell at (202) 512-5431 or russellc@gao.gov or Susan A. Fleming at (202) 512-2834 or flemings@gao.gov.

What GAO Found

The Department of Defense's (DOD) use of the Department of Transportation's (DOT) safety performance information does not fully result in sufficient and reliable information to evaluate the safety performance of individual commercial motor carriers that transport security-sensitive materials under the Transportation Protective Service (TPS) program. DOT uses data from roadside inspections, crash investigations, and other sources to assign carriers overall Safety Ratings and relative Safety Measurement System (SMS) scores. The SMS scores track safety performance in several areas such as hazardous materials compliance and vehicle maintenance, and range from 0 to 100, where 100 indicates the worst relative safety performance. From November 2012 through October 2014, DOD maintained TPS carriers with absent or dated DOT Safety Ratings. However, DOD conducts its own inspections of TPS carriers, which partially compensates for this issue. DOD officials told GAO that all inspected carriers passed. In February 2014, GAO reported that SMS scores for many commercial carriers may not be reliable indicators of safety performance because they were based on insufficient information, such as infrequent inspections. Consequently, GAO recommended that DOT revise the methodology for determining these scores. DOT did not concur, but stated that it would continue to improve the effectiveness of the SMS methodology. In this review, GAO found that many TPS carriers' SMS scores were subject to similar limitations. However, DOD is not using a rich source of publicly available violation data to evaluate TPS carriers—data that include, for example, violations related to a driver's use of controlled substances while transporting hazardous materials. Absent an approach to review available violation data, DOD is not well-positioned to effectively evaluate the carriers it entrusts to transport security-sensitive material.

DOD collects incident data involving TPS carriers of security-sensitive materials but does not evaluate the data to determine whether systemic trends and patterns are linked to safety risks and does not fully investigate incidents to determine root causes. For example, mechanical breakdown incidents have resulted in delays and increased the exposure of security-sensitive material to the general public. DOD has not analyzed TPS carrier incident information to identify any trends because there is no guidance requiring it to do so. GAO's analysis of 749 mechanical breakdown incidents from fiscal years 2011 to 2014 found that 98 percent of the TPS carriers that had mechanical breakdowns while transporting the highest risk materials such as stinger missiles and grenades stopped for more than 2 hours. Further, in some cases such as when a fire occurs, DOD may conduct an investigation, but DOD does not generally conduct full investigations of security-sensitive shipments because there is no department-wide guidance that requires comprehensive investigations of incidents involving commercial carriers with security-sensitive materials. Also, for 3 of the 4 incidents DOD investigated since fiscal year 2012, DOD did not identify the root causes to prevent recurrences due to the lack of department-wide guidance. Without department-wide guidance requiring the evaluation of TPS incident data to identify trends and the investigation of incidents including determination of the root causes, it will be difficult for DOD to consistently and effectively identify safety risks that could help reduce future incidents.

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Abbreviations

BASIC	Behavior Analysis and Safety Improvement Categories
CSA	Compliance, Safety, Accountability
DOD	Department of Defense
DOT	Department of Transportation
DTTS	Defense Transportation Tracking System
FCRP	Freight Carrier Registration Program
FMCSA	Federal Motor Carrier Safety Administration
HAZMAT	Hazardous Materials
MFTURP-1	Military Freight Traffic Unified Rules Publication-1
TRANSCOM	U.S. Transportation Command
SRC	Security Risk Category
SDDC	Surface Deployment and Distribution Command
TPS	Transportation Protective Service
VIN	Vehicle Identification Numbers

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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December 10, 2015

The Honorable John McCain
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Mac Thornberry
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

In fiscal year 2014, the Department of Defense (DOD) facilitated the transportation of nearly 50,000 separate shipments of security-sensitive materials—missiles, ammunition, explosives, weapons, and other sensitive materials—throughout the continental United States by commercial motor carriers ("carriers"). These carriers are private-sector trucking companies that are hired to ship materials for DOD. Trucks carrying these shipments travel millions of miles on U.S. interstates, highways, and local thoroughfares across the continental United States and Alaska.[1] Some of these shipments (e.g., explosives and weapons) can be high risk and, if unsafely transported, could pose a significant threat to transportation workers, emergency responders, and the general public. The Department of Transportation's (DOT) Federal Motor Carrier Safety Administration (FMCSA) is to ensure safe motor carrier operations by enforcing safety regulations and targeting high-risk carriers, in part by using data obtained from federal and state roadside inspections and crash investigations. FMCSA's Compliance, Safety, Accountability (CSA) program uses these data to assign safety performance scores to identify high-risk carriers for subsequent enforcement activities, such as warning

[1] In Hawaii security-sensitive material arrive on military planes or on ships and are transported by the Department of Defense's military vehicles.

letters or investigations. FMCSA also uses these data, along with other information, to assign carriers overall Safety Ratings.

Nearly 90 percent of DOD's security-sensitive shipments are transported using commercial motor carriers. Within DOD, the U.S. Transportation Command is a unified and functional combatant command charged with providing transportation support to the other combatant commands, military services, and defense organizations. The U.S. Transportation Command manages the use of commercial motor carriers through the Army's Surface Deployment and Distribution Command (SDDC) and that command oversees the Transportation Protective Service (TPS) program, which provides the ground transport of security-sensitive materials. SDDC uses safety performance information from DOT as part of the command's determination of whether a carrier is qualified to join or remain in the TPS program. According to SDDC officials, from fiscal year 2011 through fiscal year 2014, SDDC contracted with 55 commercial motor carriers to participate in the TPS program. TPS carriers follow additional procedures and meet more stringent safety and security standards than other commercial motor carriers. For example, Chapter 205 of the Defense Transportation Regulation requires that TPS carriers handling certain security-sensitive shipments are to have two drivers with security clearances, and one of the drivers must stay with the shipment at all times. [2] DOD is able to track the movement of TPS carriers transporting security-sensitive materials in the U.S. Transportation Command's Defense Transportation Tracking System. Drivers involved in incidents (mechanical breakdowns, accidents, or suspicious activities) are to contact the Defense Transportation Tracking System staff to trigger an emergency response. The Army's SDDC leads DOD efforts in responding to incidents involving DOD's security-sensitive materials.

In February 2014, we examined the effectiveness of DOT's CSA program in assessing the safety risk of commercial motor carriers, and recommended that DOT revise the methodology for determining the CSA's Safety Measurement System scores (calculated using CSA's safety performance data) to account for limitations in comparing safety

[2] *See* Department of Defense, Defense Transportation Regulation 4500.9-R, pt. II, ch. 205, *Transportation Protective Service (TPS),* para. O.2 (July 27, 2015).

performance data across commercial motor carriers.[3] DOT did not concur with our recommendation, but stated that it would analyze our recommendations as DOT continued to improve the effectiveness of the Safety Measurement System. In addition, in May 2014, we recommended that DOD take actions to improve the documentation of hazardous materials, eliminate the secure-hold denial[4] of hazardous materials shipments, and examine the limitations on CSA data used to select TPS carriers of hazardous materials. DOD concurred with these recommendations and, in November 2014, established a secure-hold denial category in the Defense Transportation Tracking System for tracking unauthorized parking of security-sensitive shipments in response.

The House Armed Services Committee Report 113-446 included a provision for GAO to assess matters related to the safety performance, standards, and other aspects of commercial motor carriers under the TPS program.[5] Thus, we examined the extent to which (1) DOD's use of DOT's safety performance information results in sufficient and reliable information for DOD to evaluate the safety performance of individual TPS carriers, and (2) DOD has evaluated TPS carrier incident data and investigated TPS carrier incidents to identify safety-related trends. For the purposes of our review, we use the term "incident" to refer to a crash, mechanical breakdown, or suspicious activity.

To address our first objective, we reviewed DOD guidance regarding DOD's procedures for evaluating the safety of TPS carriers (i.e., for them

[3] FMCSA refers to Safety Measurement System scores as SMS "percentiles," but for the purposes of this report we refer to them as SMS "scores." GAO, *Federal Motor Carrier Safety: Modifying the Compliance, Safety, Accountability Program Would Improve the Ability to Identify High Risk Carriers*, GAO-14-114 (Washington, D.C.: Feb. 3, 2014).

[4] GAO, *DOD Needs to Take Actions to Improve the Transportation of Hazardous Material Shipments*, GAO-14-375 (Washington, D.C.: May 1, 2014). A "secure-hold" area is a location designated for the temporary parking of commercial motor carrier vehicles transporting Department of Defense (DOD)-owned ammunition and explosives, and other security-sensitive material. According to the Defense Transportation Regulation, DOD installations are to assist commercial motor carriers transporting DOD shipments of arms, ammunition, and explosives by providing secure-hold areas in the interest of public safety and national security or by routing the shipments to the nearest location that has a secure-hold area. A denial is when carriers transporting DOD security-sensitive materials are not provided access to secure hold areas within DOD installations.

[5] *See* H.R. Rep. No. 113-446, at 116-17 (2014).

to enter and remain in the TPS program) and findings from our February 2014 report.[6] We assessed DOD guidance against *Standards for Internal Control in the Federal Government*.[7] We also reviewed DOT safety performance information, including Safety Measurement System scores and Safety Ratings. We reviewed DOT safety performance information available for the 55 commercial motor carriers who participated in the TPS program from fiscal year 2011 through fiscal year 2014, which were the most recent data available. To determine the extent to which the limitations we had reported on in February 2014 regarding Safety Measurement System scores applied specifically to individual TPS carriers, we obtained and analyzed the most recently available 2-year "snapshot" of CSA safety performance data (November 2012 through October 2014). The 2-year snapshots are the basis for DOT's score calculations. During this period, 2 of the 55 TPS carriers ceased activity; therefore, we excluded those carriers from any analyses that required observations over the entire 2-year period. In addition, we compared TPS carriers' Safety Measurement System scores in this 2-year snapshot with those DOD requires carriers to maintain to remain in the TPS program. We were unable to compare TPS carriers' Safety Measurement System scores at entry into the TPS program with those DOD requires of carriers to enter the TPS program because the CSA program—including Safety Measurement System scores—was not implemented until 2010, and most TPS carriers had entered the program before then. To evaluate DOD's use of Safety Ratings, which are comprehensive assessments of a carrier's compliance with safety fitness standards established in DOT regulations that FMCSA conducts periodically, we first examined the most recent Safety Rating data available for all 55 TPS carriers. We compared DOD's use of DOT safety performance information with GAO's standards for data reliability[8] and with *Standards for Internal Controls in the Federal Government*. In addition, we met with officials from DOD's U.S. Transportation Command to identify key components of the TPS program and with officials from the Department of Energy's Environmental

[6] GAO-14-114.

[7] GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (November 1999). These state that management should use relevant, reliable, and timely information and that policies and procedures help ensure that management's directives are carried out.

[8] GAO, *Assessing the Reliability of Computer-Processed Data*, GAO-09-365G (February 2009).

Management Program to compare their program that uses commercial motor carriers to transport some hazardous materials with the TPS program. We met with officials from the American Trucking Associations, to identify information on safety data or standards recommended or used by other agencies and organizations knowledgeable about the transport of security-sensitive materials. We determined that the DOT safety performance information was sufficiently reliable for the purpose of our data analysis by reviewing relevant DOT documentation on Safety Measurement System methodology; performing standard electronic data reliability testing, such as looking for outliers or missing data in the 2012-14 data for TPS carriers; and interviewing FMCSA officials about any differences in Safety Measurement System methodology or additional data for hazardous materials carriers. Specifically, the purpose of our analysis was to determine the extent to which limitations in Safety Measurement System methodology we identified in February 2014 applied to all 55 TPS carriers. Determining that the data are reliable for the purposes of this report does not mean that the data are reliable in general, or for other uses, such as comparing safety performance across carriers.

To address our second objective, we compared safety procedures from DOD Instruction 6055.16, *Explosives Safety Management Program*, with our analysis of 1,039 incident reports from the Defense Transportation Tracking System from fiscal year 2011 through fiscal year 2014, which were the most recent available data, to determine what information DOD collects, reports, and tracks when there is an incident (i.e., an accident, mechanical breakdown, or suspicious activity) reported through the Defense Transportation Tracking System involving TPS carriers. In addition, we compared DOD's procedures for analyzing TPS carrier incident data and investigating TPS carrier incidents with DOD Instruction 6055.16, which emphasizes the importance of conducting appropriate analyses of incidents involving DOD ammunitions and explosives in preventing future incidents. We interviewed officials from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the DOD Explosives Safety Board; the U.S. Transportation Command; the Army Headquarters Safety Office; and SDDC, which responds to incidents involving DOD's security-sensitive materials. We assessed the reliability of the Defense Transportation Tracking System data and determined the data we examined were sufficiently reliable for identifying challenges and the extent to which they impact the transport of security-sensitive materials. We sent a questionnaire to the Defense Transportation Tracking System officials who maintain and provide oversight over the system about the reliability of the data as well as other

internal and quality controls in place. We followed up with interviews as needed to clarify any responses. We also requested and reviewed documentation about how the system is structured, the data dictionary, and written procedures in place to ensure that the appropriate information in the Defense Transportation Tracking System is collected. Based on our assessment of the reliability of the Defense Transportation Tracking System data, we determined that the data we examined were sufficiently reliable for identifying challenges and the extent to which they impact the transport of security-sensitive materials.

We conducted this performance audit from July 2014 to December 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. See appendix I for a more detailed explanation of our scope and methodology.

Background

DOT Safety Performance Information

The primary mission of DOT's FMCSA is to reduce crashes, injuries, and fatalities involving large trucks and buses. FMCSA is responsible for overseeing matters related to the safety performance of the commercial motor carrier industry. As part of this role, FMCSA partners with state agencies to perform roadside inspections of commercial motor carriers' vehicles and provide information from these inspections and crashes that involve commercial motor carriers to FMCSA.

FMCSA uses information from on-site reviews known as "compliance reviews" (i.e., assessments of carrier compliance with DOT safety fitness standards) to assign carriers Safety Ratings, which are assessments of the overall safety of a carrier. FMCSA also uses information from roadside inspections and crashes to assign carriers "Safety Measurement System" scores, assessments of carriers' relative safety performance. Both measures capture information across a carrier's entire operations.

During compliance reviews FMCSA determines the extent to which carriers comply with safety fitness standards established in DOT regulations.[9] DOT officials noted that Safety Ratings do not expire. Compliance reviews include interviews with carrier officials and reviews of carrier records that pertain, as applicable, to the alcohol and drug testing of drivers; insurance coverage; crashes; driver qualifications; the number of hours a driver may work; vehicle maintenance and inspections; and the transportation of hazardous materials, among other things. Carriers are assigned a Safety Rating of "Satisfactory" (i.e., adequate safety management controls to meet safety fitness standard), "Conditional" (i.e., inadequate safety management controls, which could result in violations, crashes, or other occurrences, such as the use of unqualified drivers or the inadequate maintenance of vehicles), or "Unsatisfactory" (i.e., inadequate safety management controls, which has resulted in violations, crashes, or other occurrences, such as the use of unqualified drivers).

Additionally, using Safety Measurement System scores as part of the CSA program, FMCSA ranks carriers' relative safety performance in seven safety-related categories, known as Behavior Analysis and Safety Improvement Categories or BASICs, which are generally assessments of a carrier's violations in that category. According to FMCSA, the BASICs have been developed under the premise that commercial motor vehicle crashes can be traced to the behavior of motor carriers and vehicle drivers. The seven BASICs are:

- *Unsafe Driving*–related to the operation of commercial motor vehicles in a dangerous or careless manner;

[9] To meet the safety fitness standard, a carrier must demonstrate that it has adequate safety management controls in place, which function effectively to ensure acceptable compliance with applicable safety requirements. *See* 49 C.F.R. § 385.5. The Federal Motor Carrier Safety Administration (FMCSA) presently conducts compliance reviews primarily on carriers it deems high-risk, meaning that they have exceeded certain Safety Measurement System thresholds in a specific combination of at least two or more safety-related categories described below. More specifically, FMCSA categorizes a carrier as high-risk if either its Safety Measurement System score is equal to or greater than 85 in the Crash Indicator, Unsafe Driving, or Hours-of-Service Compliance Behavior Analysis and Safety Improvement Category and the carrier is at or above certain Safety Measurement System thresholds in one other category, or if its Safety Measurement System score is equal to or greater than the thresholds of four or more of any of the categories. DOT, *Compliance, Safety, Accountability (CSA) Phase I and 2 Implementation Package* (Feb. 29, 2012). DOT has been planning a rulemaking to change the way it assigns Safety Ratings to carriers for several years.

- *Hours-of-Service Compliance*–related to the operation of commercial motor vehicles by drivers who are ill, fatigued, or in violation of the hours-of-service regulations;
- *Crash Indicator*—related to histories or patterns of high crash involvement, including frequency and severity;
- *Driver Fitness*—related to the operation of commercial motor vehicles by drivers who are unfit to operate a commercial motor vehicle due to lack of training, experience, or medical qualifications;
- *Controlled Substances/Alcohol*—related to the operation of a commercial motor vehicle by drivers who are impaired due to alcohol, illegal drugs, and misuse of prescription or over-the-counter medications;
- *Vehicle Maintenance*—related to a failure to properly maintain a commercial motor vehicle and prevent shifting loads; and
- *Hazardous Materials Compliance*—related to unsafe handling of hazardous materials on a commercial motor vehicle.

To determine the Safety Measurement System score for a carrier, FMCSA (1) establishes the rate at which carriers violate regulations related to the BASICs, which involves weighting each violation and crash on the basis of their severity and on when these events occurred; (2) identifies whether carriers meet minimum data sufficiency standards (e.g., minimum number of violations or inspections required to calculate a Safety Measurement System score); and (3) compares a carrier with others with a similar number of safety-related "events" (e.g., inspections, inspections with violations, or crashes in the past 2 years). FMCSA calculates a Safety Measurement System score by ranking carriers' respective violation rates (obtained in step 1 above) and assigning each carrier a percentile score, ranging from 0 to 100, where 100 indicates the highest measure and worst safety performance relative to other carriers with a similar number of safety-related events (calculated in step 3 above). If a carrier does not meet minimum data sufficiency standards for a particular BASIC (step 2 above), FMCSA does not publish a score for that carrier in that BASIC. If a carrier exceeds FMCSA's defined thresholds for each BASIC, ranging from 60 to 80 percent for carriers

transporting hazardous materials, FMCSA may target that carrier for an intervention (e.g., a warning letter or additional investigations).[10]

In February 2014, we reported that the CSA program faces challenges in reliably assessing the relative safety risk for the majority of commercial motor carriers.[11] Specifically, we found the following:

- Safety Measurement System scores are poor indicators of the propensity of individual carriers to be involved in a future crash. For Safety Measurement System scores to be effective indicators for identifying carriers more likely to crash, the violations that FMCSA uses to calculate the scores should have a strong predictive relationship with crashes; however, we found that most regulations are not violated frequently, and those that were are not strongly associated with crash risk.

- Most carriers lack sufficient safety information to ensure that FMCSA can reliably compare them with other carriers, a key component of calculating the relative Safety Measurement System scores. This is especially true for carriers that operate fewer vehicles and are inspected infrequently.[12]

Thus, as discussed earlier in this report, we recommended that DOT revise its methodology for determining the CSA's Safety Measurement System scores to account for limitations in comparing safety performance data across commercial motor carriers. DOT did not concur with our recommendation but stated that it would analyze our recommendations as DOT continued to improve the effectiveness of the Safety Measurement System.

[10] The CSA program has three main components: SMS, interventions, and a future safety fitness determination rule. As of October 2015, DOT officials estimated DOT would issue a Notice of Proposed Rulemaking on the safety fitness determination component in October 2015.

[11] GAO-14-114.

[12] For example, in our February 2014 report, we found that about two-thirds of active carriers operated fewer than four vehicles and that these carriers' vehicles received few inspections. For instance, carriers operating three vehicles received, on average, about six inspections over a 2-year period. (See GAO-14-114).

DOD's Use of DOT Safety Performance Information

DOD uses two pieces of DOT's safety performance information—Safety Ratings and Safety Measurement System scores—to determine which carriers can enter and remain in the TPS program. DOD requires that TPS carriers have a Satisfactory Safety Rating to enter the TPS program and that they maintain this rating to remain in the TPS program.[13] DOD also requires that carriers meet certain Safety Measurement System score thresholds.[14] To remain in the TPS program, TPS carriers are required to maintain scores at or below 75 for the Vehicle Maintenance, Controlled Substances/Alcohol, Driver Fitness, and Hazardous Materials Compliance categories; and at or below 60 for the Unsafe Driving, Hours-of-Service Compliance, and Crash Indicator categories.

DOD's Defense Transportation Tracking System

DOD facilitates the transportation of security-sensitive materials including arms, ammunition and explosives, as well as missiles, weapons, classified and other security-sensitive materials. DOD's security-sensitive materials are categorized into four security risk categories (SRC): SRC I, II, III, and IV. SRC I and II materials are the most sensitive materials, while SRC III and IV materials are the least sensitive. Table 1 contains examples of materials in the four security risk categories based on information from Chapter 205 of the Defense Transportation Regulation[15] and DOD Manual 5100.76, *Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives*.[16]

[13]Military Freight Traffic Unified Rules Publication-1 (MFTURP-1) (June 3, 2013); SDDC, Freight Carrier Registration Program Welcome Package (Aug. 2014 and Sept. 2013 versions). The MFTURP-1 indicates that interstate providers must maintain a Satisfactory Safety Rating with FMCSA, while intrastate providers must maintain a Satisfactory Safety Rating with the applicable state agency.

[14]*See id*.

[15] Department of Defense, Defense Transportation Regulation 4500.9-R, pt. II, ch. 205, *Transportation Protective Service (TPS) (*July 27, 2015*).*

[16] Department of Defense Manual 5100.76, *Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (AA&E)* (Apr. 17, 2012).

Table 1: Examples of Security-Sensitive Materials by Security Risk Category (SRC)

Security Risk Category	Arms, missiles and rockets[a]	Ammunition and explosives
I	Stinger missiles, javelin, light antitank weapons, and shoulder-launched multi-purpose assault weapon rocket.	Explosive complete rounds for SRC I missiles and rockets.
II	M16, M4 rifles, light automatic weapons such as 40mm MK19 machine guns, and weapon components such as silencers, mufflers, and noise suppression devices.	Hand or rifle grenades, antitank or antipersonnel mines, explosives used in demolition operations, warheads used for sensitive missiles and rockets weighing fewer than 50 pounds.
III	Launch tube for Stinger missile, tracker for dragon missiles, mortar tubes, grenade launchers, rocket and missile launchers below a certain weight, and flame throwers.	Ammunition with explosive-filled projectile, incendiary grenades, blasting caps, supplementary charges, bulk explosives, detonating cord, and warheads for sensitive missiles and rockets weighing more than 50, but less than 100 pounds.
IV	Shoulder-fired weapons such as shotguns and bolt action rifles, handguns, and recoilless rifles.	Ammunition with non-explosive projectiles, fuses (other than for high explosives grenades), incendiary destroyers, and riot control agents.

Source: The Defense Transportation Regulation and Department of Defense (DOD) Manual 5100.76 | GAO-16-82

Note: DOD also transports other security-sensitive materials that are not categorized in the four Security Risk Categories (SRC I – IV). Examples include cryptographic items and Navy submarine class 688 propellers.

[a]There are no arms under SRC I.

Each year, the Defense Transportation Tracking System generates approximately 400 incident reports, tracks between 150 and 275 shipments per day, and processes over 50,000 messages per month regarding the status of these transported shipments. The primary function of the Defense Transportation Tracking System is to ensure the safe and secure transport of the ammunition, explosives, and other security-sensitive material that TPS carriers transport in the continental United States and Alaska. DOD uses the system's satellite-monitoring technology and a 24-hour operation center to track the transport of security-sensitive materials and also to report and facilitate the immediate emergency response to TPS carriers involved in incidents while transporting security-sensitive materials. Using satellite-based monitoring technology, DOD can track TPS carriers from the time they pick up a shipment through the point at which carriers deliver the shipment to the final destination.

The Defense Transportation Tracking System collects information on incidents involving TPS carriers transporting security-sensitive materials. In the event of an emergency such as an accident or a suspicious activity, a TPS driver can activate an immediate emergency response by hitting a

panic button to alert the Defense Transportation Tracking System office. Depending on the severity of the situation, the Defense Transportation Tracking System office may notify the local police or DOD organizations such as U.S. Transportation Command or SDDC. Non-emergency incidents such as mechanical breakdowns, secure hold denials, or unusual delays such as unauthorized stops are also reported to the Defense Transportation Tracking System by the driver or the commercial motor carrier. For both emergency and non-emergency situations, the Defense Transportation Tracking System office generates an incident report. The incident report contains information such as the date and time of the incident, hazardous material class and the controlled item inventory code designating the SRC of the shipment, a description of the shipment, the name of the carrier, the incident location, and a narrative and time-stamped message log describing the incident.

DOD's Use of DOT Safety Performance Information Does Not Fully Result in Sufficient and Reliable Information to Evaluate the Safety Performance of Individual TPS Carriers

DOD's use of DOT safety performance information does not fully result in sufficient and reliable information to evaluate the safety performance of individual commercial motor carriers in the TPS program. From November 2012 through October 2014, DOD has maintained carriers in the TPS program that have absent or dated Safety Ratings or have exceeded DOD's required Safety Measurement System (SMS) score thresholds in at least one of the Behavior Analysis and Safety Improvement Categories (BASIC). According to DOD guidance, Satisfactory Safety Ratings and specific Safety Measurement System score thresholds are required for carriers to enter and be retained as carriers entrusted to transport security-sensitive materials in the TPS. DOD has partially compensated for the absent or dated Safety Ratings by conducting corporate inspections—that is, inspections to identify any gaps in TPS carriers' compliance with DOT regulations and other safety standards—of some carriers. However, DOD has not compensated for limitations of Safety Measurement System scores, which we found also apply to TPS carriers. Further, underpinning Safety Measurement System scores is a rich source of publicly available violation data about individual carrier's safety performance that DOD is not using to supplement its safety evaluation of individual TPS carriers.

DOD Has Maintained TPS Carriers That Have Absent or Dated Safety Ratings, but DOD's Corporate Inspections Partially Address These Limitations

Although DOD requires that carriers have Satisfactory Safety Ratings to enter and remain in the TPS program, we found that DOD had maintained carriers in the TPS program with absent Safety Ratings.[17] Specifically, we found that of the 55 carriers that DOD had contracted with to transport hazardous and sensitive materials from fiscal year 2011 through fiscal year 2014, 7 carriers did not have a Safety Rating. DOD officials reported that the 7 carriers without Safety Ratings are approved to handle "general commodities" (e.g., sensitive documents) for DOD, not ammunition or hazardous materials shipments.[18] However, DOD's guidance does not discuss what absent Safety Ratings means or what actions DOD staff are to take when such ratings are missing. Thus, without clear guidance on absent safety ratings, it will be difficult for DOD to provide reasonable assurance that its staff are consistently and effectively evaluating carriers entrusted to transport security-sensitive material in the TPS program consistent with its requirements.

We also found that DOD maintained carriers in the TPS program that had dated Safety Ratings. DOD does not have a requirement for the age of a Safety Rating. Of the 55 carriers that DOD had contracted with to transport hazardous and sensitive materials from fiscal year 2011 through fiscal year 2014, 12 had Safety Ratings that were 20 or more years old; 23, 10 or more years old; and 38, 5 or more years old. Only 10 of the 55 TPS carriers had ratings that were fewer than 5 years old (see figure 1).[19] Internal controls state that management should use quality, current information from relevant, reliable, and timely information, and that policies and procedures help ensure that management's directives are

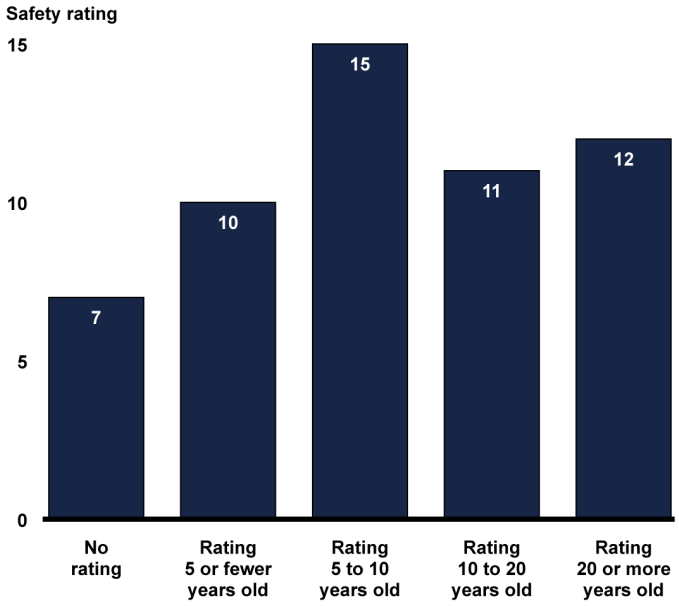
[17]Military Freight Traffic Unified Rules Publication-1 (MFTURP-1) (June 3, 2013); SDDC, Freight Carrier Registration Program Welcome Package (Aug. 2014). The MFTURP-1 indicates that interstate providers must maintain a satisfactory safety rating with FMCSA, while intrastate providers must maintain a satisfactory safety rating with the applicable state agency.

[18] Department of Defense (DOD) officials also reported that at one time, it was not required that all Transportation Protective Services (TPS) carriers have Satisfactory Safety Ratings, rather that TPS carriers not have an Unsatisfactory Safety Rating. DOD officials could not tell us when this requirement changed.

[19] One Transportation Protective Service (TPS) carrier had a Conditional Safety Rating as of June 2014; however, that carrier left the TPS program in 2013, at which time it had a Satisfactory Safety Rating. For the purposes of this graphic, we consider this carrier to have a Satisfactory Rating that is fewer than 10 years old.

carried out.[20] Without clear guidance on how DOD is to address carriers with dated Safety Ratings, the information they provide on a carrier's safety performance may be limited.

Figure 1: Number of the 55 Transportation Protective Service (TPS) Carriers DOD Contracted with from Fiscal Year 2011 through Fiscal Year 2014 with Absent or Dated Safety Ratings



Source: GAO analysis of Department of Transportation (DOT) data. | GAO-16-82

TPS carriers' Safety Ratings could also be absent or dated because DOT cannot conduct compliance reviews to assign Safety Ratings to all 500,000 carriers operating in the continental United States in a given year. For example, historically FMCSA and its state partners were able to conduct compliance reviews on about 3 percent of registered commercial motor carriers annually, meaning that the vast majority of carriers are not given or re-assigned a Safety Rating in a given year. DOT prioritizes carriers it deems "high-risk," as described above. Once a carrier is identified as high-risk, according to DOT it is then further prioritized for investigation, potentially including a compliance review, based on factors

[20]GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (November 1999).

such as whether the carrier was high-risk during the last 2 consecutive months, or whether the carrier transports hazardous materials. The Department of Transportation (DOT) has been planning a rulemaking to change the way it assigns Safety Ratings to carriers for several years. DOT officials estimated DOT would issue the Notice of Proposed Rulemaking in October 2015. Further, GAO was directed by a Senate Appropriations Committee report to monitor the implementation of CSA,[21] which we continue to do.

DOD guidance on requirements for carriers indicates that TPS carriers must have a Satisfactory Safety Rating with FMCSA to enter and remain in the program, and that DOD may conduct unannounced safety inspections of carriers' facilities, terminals, equipment, employees, records and procedures.[22] However, the guidance does not state consequences, such as actions its staff are to take, when carriers do not maintain Satisfactory Safety Ratings. For comparison, we interviewed senior officials at the Department of Energy Environmental Management Program because, like DOD, the Department of Energy uses commercial motor carriers to transport some hazardous materials. In contrast to DOD's guidance, the Department of Energy's guidance links Safety Rating requirements with the specific consequence of temporary "non-use" status (i.e. the carrier cannot be used). Carriers with Safety Ratings of Conditional or Unsatisfactory are put into temporary non-use status, until a Satisfactory Safety Rating is restored. In contrast, DOD officials said that they made decisions about consequences for carriers without Satisfactory Safety Ratings, including those with Conditional Ratings, in internal discussions, and that these consequences are not documented in guidance. For example, as noted above, they told us that the seven carriers without Safety Ratings are not approved to handle ammunition or hazardous materials shipments, just "general commodities" (e.g., sensitive documents). DOD officials told us that they could not remember

[21] *See* S. Rep. No. 112-83, at 52 (2011). This direction is contained in the Senate Appropriations Committee Report accompanying the Transportation and Housing and Urban Development, and Related Agencies Appropriations Bill, 2012, which was eventually included in the Consolidated and Further Continuing Appropriations Act, 2012, Pub. L. No. 112-55 (2011).

[22] Military Freight Traffic Unified Rules Publication-1 (MFTURP-1) (June 3, 2013); *see also* SDDC, Freight Carrier Registration Program Welcome Package (Aug. 2014). The MFTURP-1 indicates that interstate providers must maintain a Satisfactory Safety Rating with FMCSA, while intrastate providers must maintain a Satisfactory Safety Rating with the applicable state agency.

an instance in which DOD had ever placed a TPS carrier in non-use status due to absent or below Satisfactory Safety Ratings.[23] *Standards for Internal Control in the Federal Government* state that internal control activities, such as policies and procedures, help ensure that management's directives are carried out. Without updating guidance on the specific actions DOD is to take against carriers without Satisfactory Safety Ratings, DOD management does not have reasonable assurance that the Department's Safety Rating requirements are being carried out.

DOD has partially compensated for the absent or dated Safety Ratings by conducting "corporate inspections"—that is, reviews of TPS carriers that cover most of the same topics covered in DOT's compliance reviews. To do this, DOD uses a private-sector company to identify any gaps in TPS carriers' records or procedures related to compliance with DOT regulations on hazardous material transport, among other things. According to DOD officials, DOD does not have any guidance on how often to conduct corporate inspections, but DOD officials told us that they contract with a private-sector company to conduct some inspections every year, and that in most cases large TPS carriers are inspected more frequently than smaller carriers. DOD officials said they recently conducted between 12 and 25 corporate inspections each year. Of the 23 carriers that we had identified with Safety Ratings older than 10 years, DOD told us that 19 of them had received and passed a DOD corporate inspection in the last 4 years.[24] DOD told us that of the 7 carriers we had identified without Safety Ratings, all had received and passed one corporate inspection since 2008.

[23]We identified at least one case, in 2000 under an earlier program (and subject to earlier guidance), of a carrier being placed in non-use status by the Department of Defense for failure to possess a Satisfactory Department of Transportation Safety Rating. *See* Ready Transportation, Inc. v. Military Traffic Management Command, 86 F. App'x 561, 563-64 (4th Cir. 2004).

[24]Nineteen TPS carriers received Department of Defense (DOD) corporate inspections from 2011 through 2014. DOD officials reported that three did not because they were either small or Canadian companies. DOD officials said that small companies are not always prioritized for corporate inspections, and that DOD does not have a policy on how country-of-origin affects selection for corporate inspections. A fourth TPS carrier received a more focused inspection that did not cover all of the areas of a typical corporate inspection.

DOD Has Maintained TPS Carriers That Have Exceeded Required Safety Measurement System Score Thresholds, and Does Not Review Underlying Violation Data That Could at Least Partially Offset the Scores' Limitations

Although DOD requires that TPS carriers remain below certain Safety Measurement System score thresholds in the seven Behavior Analysis and Safety Improvement Categories (BASIC), we found that from November 2012 through October 2014, DOD had maintained carriers in the TPS program that did not meet those requirements.[25] For example, of the 53 TPS carriers with data in our 2-year data set,[26] 12 exceeded the Hours-of-Service Compliance threshold in 1 or more months, and 3 exceeded the Hazardous Materials Compliance threshold in 1 or more months. DOD senior officials reported that they had sent letters of concern (letters that request additional information on these scores) to these carriers. In table 2, we show in terms of 1 month, 6 months, and 12 months, the extent to which the 53 TPS carriers had Safety Measurement System scores that were above the required threshold in each category from November 2012 through October 2014.

Table 2: Transportation Protective Services (TPS) Carriers (53 Total) with Above-Threshold Safety Measurement System Scores, by Category (November 2012-October 2014)

	Unsafe Driving	Hours-of-Service Compliance	Driver Fitness	Controlled Substances/ Alcohol	Vehicle Maintenance	Hazardous Materials Compliance	Crash Indicator
Carriers above threshold for at least 1 month	11% (6)	23% (12)	6% (3)	0%	11% (6)	6% (3)	9% (5)
Carriers above threshold for more than 6 months	9% (5)	15% (8)	2% (1)	0%	8% (4)	4% (2)	2% (1)
Carriers above threshold for more than 12 months	6% (3)	11% (6)	0%	0%	6% (3)	2% (1)	2% (1)

Source: GAO Analysis of Department of Transportation Data | GAO-16-82

Note: Safety Measurement System scores reflect violations across a carrier's entire fleet, which may or may not include TPS shipments.

DOD has maintained carriers in the TPS program that exceed required Safety Measurement System thresholds in part because DOD guidance is unclear on which specific trends in Safety Measurement System scores

[25]Military Freight Traffic Unified Rules Publication-1 (MFTURP-1) (June 3, 2013). The guidance specifies that carriers providing Dual Driver Protective Service and Protective Security Service (two TPS services) must maintain score averages of 60 or lower for three categories and 75 or lower for the remaining four.

[26]For reasons described in our scope and methodology, we excluded 2 of the 55 carriers in the Transportation Protective Service program from fiscal year 2011 through 2014 that did not have data for all 24 months in our data set.

might prompt which specific consequences. For entry into the TPS program, DOD guidance clearly states that carriers "with scores which exceed the established DOT threshold levels will not be approved."[27] However, once carriers have entered the TPS program, the guidance is less clear regarding the consequences of not maintaining the required thresholds. For example, the guidance states that SDDC will review TPS carriers' Safety Measurement System scores on a quarterly basis, and request an explanation from any carrier whose score is above the threshold in any BASIC. The guidance states that "[f]ailure to provide an adequate explanation or to show improvement may result in the [TPS carrier's] placement into non-use status" for TPS shipments.[28] SDDC guidance also outlines potential consequences of exceeding threshold scores, such as sending letters of concern or warning, or placement in non-use status.[29] However, the guidance does not further define what specific Safety Measurement System scores or trends, such as scores above the threshold for a certain number of months or scores above threshold in certain BASIC categories, would prompt these actions. Further, senior DOD officials said that, similar to Safety Rating-related decisions, decisions about consequences for carriers that did not meet Safety Measurement System thresholds were made based on internal discussion, and that no TPS carrier had ever been placed in non-use status for Safety Measurement System scores that were above the required threshold, or for any other indicator of poor safety performance. DOD officials said they use Safety Measurement System scores as one of many indicators in assessing a TPS carrier's safety and determining what additional actions, if any, are needed. For example, DOD officials said that they may also look at a carrier's out of service rates for drivers, vehicles, or vehicles carrying hazardous materials. However, this process was described as ad hoc and is not clearly reflected in existing guidance, meaning that DOD has not fully documented how TPS carriers' safety performance is evaluated.

[27]SDDC*, Freight Carrier Registration Program Welcome Package* (Aug. 2014 and Sept. 2013 versions). As stated above, we were unable to compare TPS carriers' Safety Measurement System scores at entry into the TPS program to those DOD requires of carriers to enter the TPS program because the CSA Program—including Safety Measurement System scores—was not implemented until 2010, and most TPS carriers entered the program before then.

[28]Military Freight Traffic Unified Rules Publication-1 (MFTURP-1) at 17 (June 3, 2013).

[29]SDDC Regulation 15-1, Procedure for Disqualifying and Placing Transportation Service Providers (TSP) in Non-Use, app. D, paras. 2.w, 3.e(2) (Jan. 10, 2012).

Standards for Internal Control in the Federal Government state that internal control activities, such as policies and procedures, help ensure that management's directives are carried out.[30] However, DOD's policies and procedures regarding Safety Measurement System score requirements are incomplete. Thus, they may be inconsistently applied, and do not provide reasonable assurance that management's goals for TPS carrier safety performance are being carried out. By not having clear guidance regarding actions DOD should take against TPS carriers that do not meet Safety Measurement System score requirements, DOD does not have reasonable assurance that only TPS carriers that reflect desired standards of safety performance as indicated in DOD's program requirements are transporting security-sensitive material.

DOD senior officials told us that they are much more focused on TPS shipment-specific data, i.e. the driver and truck transporting the TPS shipment (which comes from their Defense Transportation Tracking System) than on TPS carrier-level data, such as Safety Measurement System scores. While it is reasonable for DOD to focus on individual TPS shipments, the safety record of the carrier across all of its drivers and vehicles provides information on the carrier's safety policies and culture, which can impact its safety performance. The Defense Transportation Tracking System does not provide this information.

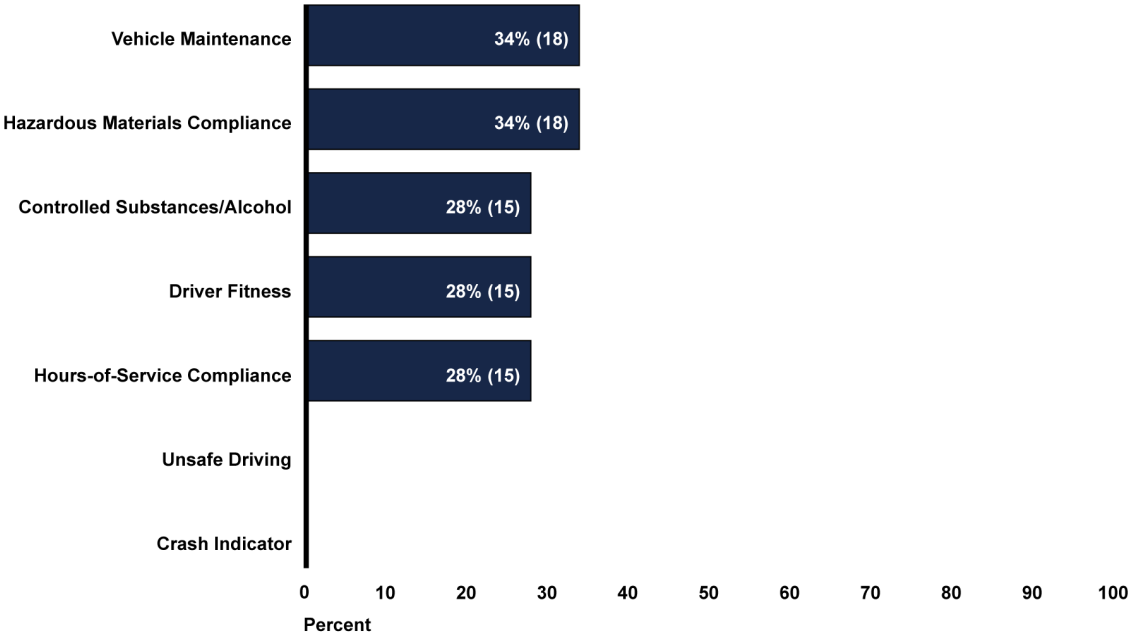
In February 2014, as mentioned above, we reported that Safety Measurement System scores for carriers with fewer than 20 vehicles in their fleet, or those with fewer than 20 inspections, are less reliable indicators of carriers' relative safety performance than for carriers with more vehicles or more inspections, which may limit FMCSA's ability to more effectively prioritize carriers for intervention.[31] During the course of

[30]GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (November 1999).

[31] In our February 2014 report (see GAO-14-114), we established a data sufficiency standard of 20 relevant inspections for the five Behavior Analysis and Safety Improvement Categories (BASIC) that use inspections to calculate a Safety Measurement System score: Hours-of-Service Compliance, Driver Fitness, Controlled Substances/Alcohol, Vehicle Maintenance, and Hazardous Materials Compliance. FMCSA often uses a lower data sufficiency standard. For example, in the Hours-of-Service BASIC, FMCSA does not calculate Safety Measurement System scores for a carrier unless it has had at least three inspections and at least one violation within the preceding 2 years. We found that by only including carriers with 20 or more inspections, we were able to identify a higher percentage of carriers as high-risk that subsequently crashed than under FMCSA's model.

this review, we found that many TPS carriers also have fewer than 20 vehicles in their fleet and few inspections, and therefore the limitations we identified in February 2014 also apply to some TPS carriers. Of the 53 carriers in the TPS program from fiscal year 2011 through fiscal year 2014 for which we had 24 months of data, 20 carriers (38 percent) had fewer than 20 vehicles, and many of the 53 had fewer than 20 inspections.[32] For example, in figure 2 we show that 34 percent of TPS carriers had fewer than 20 inspections in the Hazardous Materials Compliance category. Given that TPS carriers often transport hazardous materials, inspections in that category are particularly relevant for DOD.

Figure 2: Percentage of Transportation Protective Services (TPS) Carriers (of 53) with Fewer Than 20 Inspections by Behavior Analysis and Safety Improvement Category (BASIC) (November 2012 – October 2014)



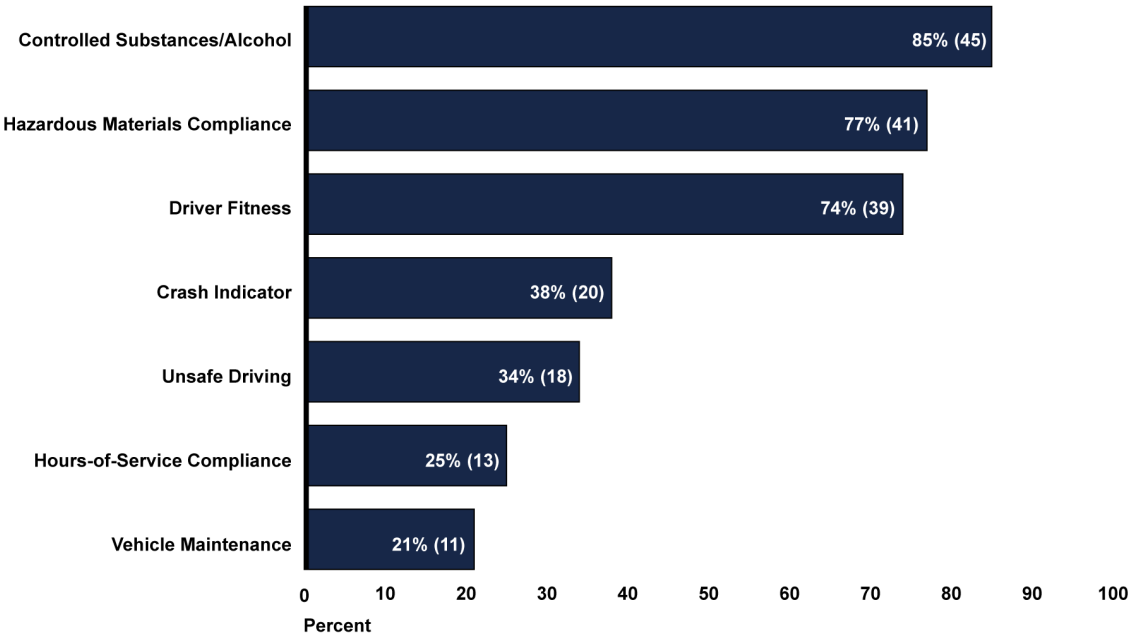
Source: GAO analysis of Department of Transportation (DOT) data. | GAO-16-82

Notes: Safety Measurement System scores in the Unsafe Driving and Crash Indicator BASICs are calculated using the carrier's number of vehicles rather than the number of inspections, so the number of inspections is less relevant.

[32]As stated above, two of the 55 TPS carriers DOD contracted with from fiscal year 2011 through fiscal year 2014 did not have Safety Measurement System scores for all 24 months in our data set as they stopped being active carriers, and thus the Department of Transportation stopped assigning those scores, before the end of October 2014, the last month in our data set.

In our February 2014 report, we noted that most carriers in the United States did not have sufficient information to receive Safety Measurement System scores in each of the seven Behavior Analysis and Safety Improvement Categories. The same is true of TPS carriers. In figure 3 we show, for example, that many of the 53 TPS carriers did not receive scores every month in some categories during the November 2012 through October 2014 time frame. For example, 77 percent of the 53 carriers did not receive a score in the Hazardous Materials Compliance category in all 24 months.

Figure 3: Transportation Protective Services (TPS) Carriers (of 53) That Did Not Receive Safety Measurement System Scores in Specific Behavior Analysis and Safety Improvement Categories, November 2012 – October 2014



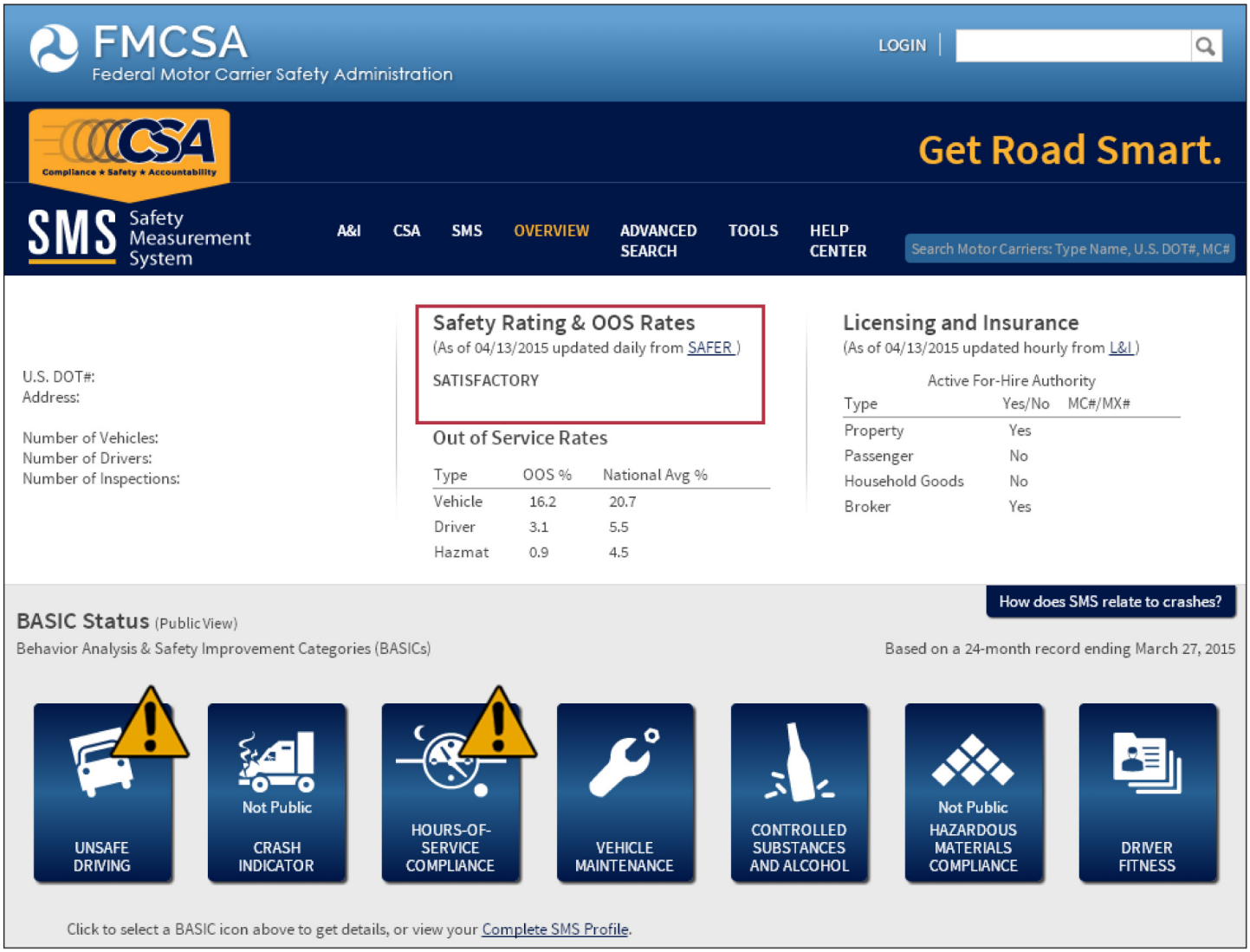
Source: GAO analysis of Department of Transportation (DOT) data. | GAO-16-82

Underlying Violation Data Are a Rich Source of Information

Though Safety Measurement System scores have limitations, we found that DOD is not analyzing trends in violation data used to calculate these scores, which are a potentially rich source of information on carriers' on-the-road safety performance, because DOD does not require its staff to review these violation data. These violation data provide additional detail that the Safety Measurement System scores do not, and are a more reliable source of information. For example, in 2014, the DOT Inspector General found that FMCSA had controls in place to improve the quality of state-reported data, which includes violations. FMCSA also has a process

through which carriers and others can request corrections to state-reported data if they identify inaccuracies. Further, violations data are readily available from FMCSA's publicly available website. To illustrate, in figures 4, 5, and 6, we show that by clicking on the publicly available website where FMCSA reports its Safety Rating and Safety Measurement System scores, DOD could easily and quickly access the violation data related to the Unsafe Driving BASIC. Clicking on that category in the screenshot displayed in figure 4 would lead DOD to the Unsafe Driving BASIC score displayed in figure 5. And clicking on that score would lead DOD to a summary of the violation data displayed in figure 6. The summary includes violations such as speeding and using a cell phone while driving, among others.

Figure 4: FMCSA's Publicly Available Website Showing Summary Information on the Seven Behavior Analysis and Safety Improvement Categories (BASICs)

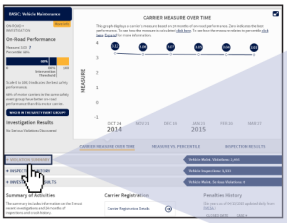


Source: Federal Motor Carrier Safety Administration (FMCSA). | GAO-16-82

Figure 5: FMCSA's Publicly Available Website Showing Information on the Unsafe Driving Behavior Analysis and Safety Improvement Category (BASIC)

Source: Federal Motor Carrier Safety Administration (FMCSA). | GAO-16-82

Figure 6: FMCSA's Publicly Available Website Showing Underpinning Violation Data on the Unsafe Driving Behavior Analysis and Safety Improvement Category (BASIC)



– VIOLATION SUMMARY — Unsafe Driving Violations: 527

Violations	Description	# Violations	# OOS Violations	Violation Severity Weight
392.2-SLLS2	State/Local Laws - Speeding 6-10 miles per hour over the speed limit	193	0	4
392.16	Failing to use seat belt while operating CMV			
392.2LV	Lane Restriction violation			
392.2-SLLS3	State/Local Laws - Speeding 11-14 miles per hour over the speed limit			
392.2C	Failure to obey traffic control device			
392.2FC	Following too close			
392.2-SLLSWZ	State/Local Laws - Speeding work/construction zone			
392.2-SLLS4	State/Local Laws - Speeding 15 or more miles per hour over the speed limit			
392.2PK	Unlawfully parking and/or leaving vehicle in the roadway			
392.82A1	Using a hand-held mobile telephone while operating a CMV			
392.2LC	Improper lane change			
392.22(a)	Failing to use hazard warning flashers			
392.60(a)	Unauthorized passenger on board CMV	5	0	1
392.2P	Improper passing	4	0	5
392.2R	Reckless driving	2	0	10
392.10(a)(4)	Failure to stop at railroad crossing - HM Cargo Tank vehicle	1	0	5
392.14	Failed to use caution for hazardous condition	1	0	5
392.2C	Failure to obey traffic control device	1	0	1
↳ State Citation Result: Conviction of a Different Charge				
392.2T	Improper turns	1	0	5

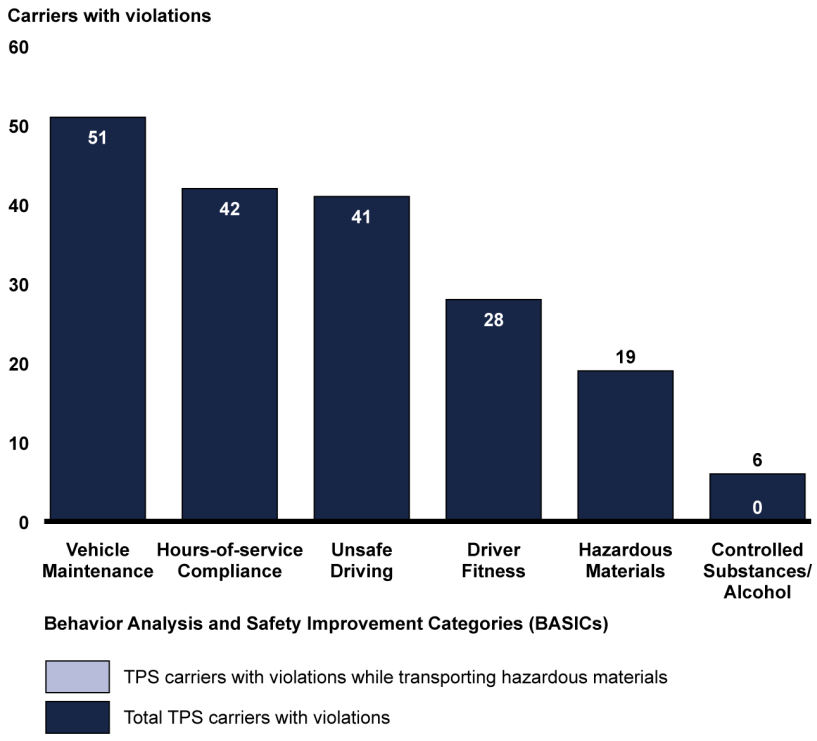
392.2-SLLS3	State/Local Laws - Speeding 11-14 miles per hour over the speed limit
392.2C	Failure to obey traffic control device
392.2FC	Following too close
392.2-SLLSWZ	State/Local Laws - Speeding work/construction zone
392.2-SLLS4	State/Local Laws - Speeding 15 or more miles per hour over the speed limit
392.2PK	Unlawfully parking and/or leaving vehicle in the roadway
392.82A1	Using a hand-held mobile telephone while operating a CMV

Source: Federal Motor Carrier Safety Administration (FMCSA). | GAO-16-82

Violations do not necessarily suggest that a carrier is unsafe—the more vehicles a carrier has, the more likely it is to incur violations—but violation data are sources of information that could be used to analyze meaningful trends within and across carriers, particularly for carriers that do not have Safety Measurement System scores. In figure 5, the carrier has a score of 79 in the Unsafe Driving category, which is above the DOT-designated threshold of 65 for general carriers. The underpinning list of violations in figure 6 provides more detailed information on that score. Even if a carrier does not have a score in a particular category, the underpinning violations records are available, thus providing information where a Safety Measurement System score does not. For example, analyzing FMCSA's violation data, we found that all but one of the 53 TPS carriers was listed as having violations in at least one category. For instance, in figure 7, we show that 6 TPS carriers had Controlled Substances/Alcohol violations, a category that includes those incurred for using or possessing drugs while operating a commercial motor vehicle, using alcohol within a certain period of time prior to duty, and violating a related order to remain out-of-

service. In addition, 19 of the 53 TPS carriers incurred violations in the Hazardous Materials Compliance category. Additionally, while transporting hazardous materials, 20 of the 53 TPS carriers incurred Unsafe Driving violations and 22 carriers incurred Vehicle Maintenance violations, according to DOT safety performance data. It is important to note that, though these violations occurred among TPS carriers while transporting hazardous materials, we do not know whether it was while transporting shipments for DOD or for another entity. Since a TPS carrier may transport for DOD and other agencies or companies, some of its drivers and trucks transport TPS shipments and others do not.

Figure 7: Transportation Protective Services (TPS) Carriers with Violations Related to Each Behavior Analysis and Safety Improvement Category (BASIC), Including Those Incurred While Transporting Hazardous Materials (November 2012-October 2014)



Source: GAO analysis of Department of Transportation (DOT) data. | GAO-16-82

Consistent with DOD's guidance, DOD officials told us they review Safety Measurement System scores on a quarterly basis, and use them as one of many indicators.[33] They do not examine underlying violation data, including for trends across or within carriers. Therefore, they were not aware of the Controlled Substances/Alcohol and Hazardous Materials Compliance violations data we characterized in our example and did not take any mitigating action. However, one senior DOD official told us that it would be possible to use the violation data to identify specific TPS shipments by matching the vehicle identification numbers (VIN) and dates of TPS shipments, to those in DOT's violation data. This approach would provide DOD with violation data specific to TPS shipments and by extension their drivers and trucks, but DOD is not currently conducting this analysis. DOD officials told us they do not have the staff that would be necessary to review underpinning violation data, and that regardless as with the case with compliance reviews and corporate inspections, they are more focused on TPS shipment-specific data, coming from the Defense Transportation Tracking System, than on carrier-level data from DOT. The Defense Transportation Tracking System, described above, records whether each shipment reaches its destination, and does not capture carrier-level safety performance data, which is important because it can reflect a carrier's safety policies and culture. Further, *Standards for Internal Control in the Federal Government* state that "management should use quality, current information from relevant, reliable, and timely information, and that policies and procedures help ensure that management's directives are carried out."[34] Reviewing the available violation data could enable DOD to more fully evaluate the safety performance of individual carriers entrusted to transport potentially dangerous or hazardous materials.

[33]DOT's Compliance, Safety, Accountability website states that "readers should not draw conclusions about a carrier's overall safety condition simply based on the data displayed in [the SMS] system."

[34]GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (November 1999).

DOD Collects TPS Carrier Incident Data but Does Not Evaluate the Data or Fully Investigate TPS Carrier Incidents to Identify Safety-Related Trends

DOD collects incident data involving TPS carriers of security-sensitive materials in its Defense Transportation Tracking System for emergency response and generates an incident report; however, the department does not evaluate TPS carrier incident data to determine whether systemic trends and patterns are linked to safety risks. Further, DOD does not fully investigate incidents of TPS carriers transporting security-sensitive materials to determine the root causes of the incidents, which further prevents the identification of safety-related trends.

DOD Uses the Defense Transportation Tracking System to Collect Incident Data but Does Not Evaluate Them to Determine Whether They Are Indicative of Systemic Trends

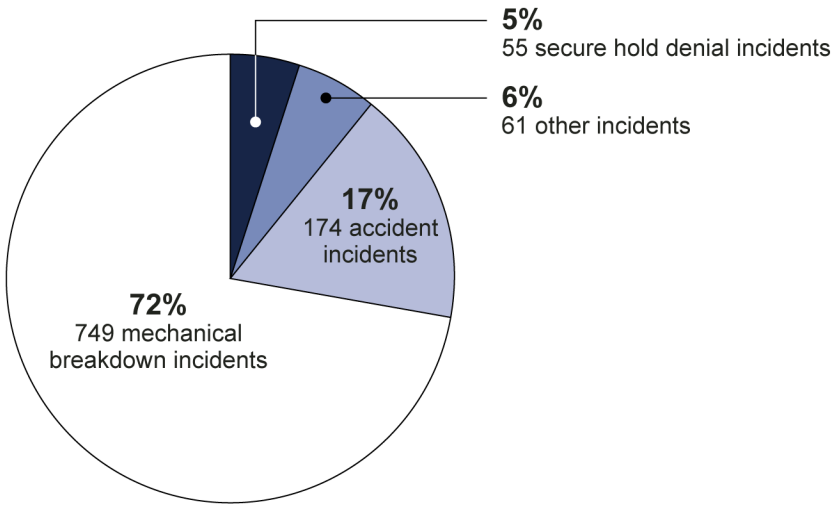
DOD uses the Defense Transportation Tracking System to collect incident data on TPS carriers to respond to emergencies involving the transport of security-sensitive materials. However, the department is not evaluating incident data to determine whether systemic trends and patterns exist that are indicative of safety risks for TPS carriers transporting security-sensitive materials. DOD Instruction 6055.16, *Explosives Safety Management Program*, which provides an overview of requirements and procedures for explosives safety management, requires the military departments and defense agencies to establish explosives safety management programs and describes, among other things, the importance of conducting appropriate analyses of incidents involving DOD ammunitions and explosives to reduce the impact of and to prevent future mishaps.[35] According to this instruction, careful analyses can identify appropriate risk mitigation actions, which in the case of TPS could better protect the drivers, the shipment, and the general public. DOD Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, which contains more detailed guidance related to the evaluation and investigations of DOD incidents, generally describes a DOD mishap as an unplanned event or series of events resulting in,

[35] *See* Department of Defense Instruction 6055.16, *Explosives Safety Management Program*, encl. 2, paras. 4-5 (July 29, 2008) (incorporating change Dec. 8, 2011); *id.* encl. 12.

among other things, damage to property, illness, or injury caused by DOD activities.[36]

The Defense Transportation Tracking System, which is managed by SDDC, contains comprehensive information related to TPS carrier incidents. Our examination of the Defense Transportation Tracking System incident data found potential areas where systemic trends or patterns related to safety might exist. For example, on the basis of our review of the 1,039 incident reports from the Defense Transportation Tracking System from fiscal years 2011 through 2014, we found that the 72 percent or 749 incident reports involving TPS carriers were related to mechanical breakdowns (see figure 8).

Figure 8: TPS Carrier Incident Data in the Defense Transportation Tracking System by Category (Fiscal Years 2011 through 2014)

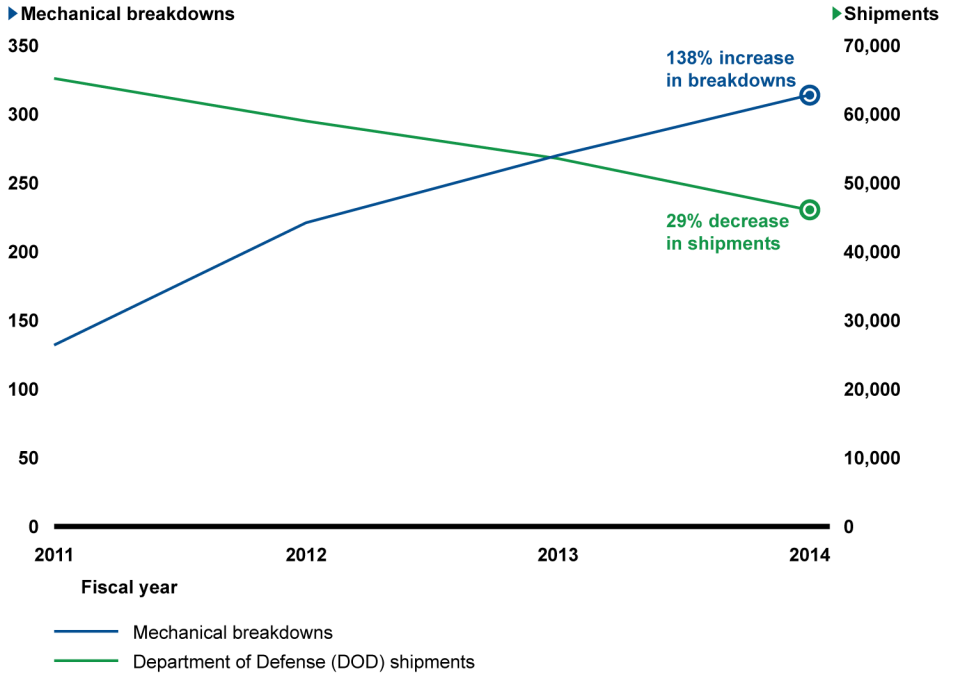


Source: GAO analysis of Defense Transportation Tracking System (DTTS) data. | GAO-16-82

[36] Specifically, Department of Defense (DOD) Instruction 6055.07 defines a DOD mishap as an unplanned event or series of events that results in damage to DOD property; occupational illness to DOD personnel; injury to DOD personnel (on- or off-duty military personnel and on-duty civilian personnel); or damage to public or private property, or injury or illness to non-DOD personnel, caused by DOD activities. *See* Department of Defense Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* at 47 (June 6, 2011).

Further, our analysis shows that there is an inverse relationship between the numbers of mechanical breakdowns and shipments involving TPS carriers. The number of mechanical breakdowns increased from 132 incidents in fiscal year 2011 to 314 incidents in fiscal year 2014, while the number of shipments decreased from 65,198 in fiscal year 2011 to 46,036 in fiscal year 2014 (see figure 9).

Figure 9: Inverse Relationship between the Number of Mechanical Breakdowns and the Number of Shipments (Fiscal Year 2011 Compared with Fiscal Year 2014)



Source: GAO analysis of Defense Transportation Tracking System (DTTS) data. | GAO-16-82

These mechanical breakdown incidents have resulted in delays that, according to SDDC officials increased the exposure of security-sensitive material to the general public. Based on our analysis of the 749 mechanical breakdown incidents, we found that 98 percent of the TPS carriers that had mechanical breakdowns while transporting the highest-risk materials (e.g., Security Risk Category I and II materials such as stinger missiles and grenades) stopped for more than 2 hours. Similarly, we found that 90 percent of the TPS carriers that had mechanical breakdowns while transporting SRC III and IV materials such as bulk explosives and fuses stopped for more than 4 hours.

If DOD were systematically analyzing incident data related to mechanical breakdowns, DOD could have determined that some of these mechanical breakdown incidents could have been detected through DOD's motor vehicle inspection process. Chapter 205 of the Defense Transportation Regulation requires DOD transportation officers to conduct inspections of vehicles used to transport certain security-sensitive materials before loading shipments, to ensure vehicles are in satisfactory condition, using DOD's *Motor Vehicle Inspection form.*[37] During the inspection, DOD transportation officers are to inspect vehicle equipment such as the electrical wiring system, the satellite motor surveillance system, the steering system, the warning equipment, the fuel and exhaust systems, the brakes, and the cargo space for the DOD materials. According to DOD's *Motor Vehicle Inspection form*, unsatisfactory equipment conditions identified during the inspection must be corrected before the security-sensitive materials are loaded. SDDC officials told us that all vehicles transporting DOD security-sensitive materials, including the 749 mechanical breakdown incidents in our review, should have been inspected to detect and correct deficiencies prior to loading. In examining incident data from the Defense Transportation Tracking System, we found that while some mechanical breakdown incidents could not have been avoided, other mechanical breakdowns incidents might have been avoided had the issue been detected in the inspection prior to loading.

For example:

- In May 2014, a TPS carrier's truck broke down while delivering explosives due to problems with its electrical system. According to DOD's Motor Vehicle Inspection form, electrical system wires should be examined during the inspection and any deficiencies should be corrected before loading the shipments. While the TPS carrier's truck was repaired, another TPS truck was used to return the shipment to the point of origin. A third TPS truck attempted to deliver the shipment to the destination but also experienced mechanical failure. A fourth TPS truck delivered the shipment to its final destination, delaying the transport by over 6 days.

[37] Department of Defense, Defense Transportation Regulation 4500.9-R, pt. II, ch. 205, *Transportation Protective Service (TPS)* (July 27, 2015). Chapter 205 requires use of the form for arms, ammunition, and explosives shipments requiring certain TPS services, as well as hazardous materials shipments.

- In May 2012, a truck driver carrying 17,280 hand grenades made an unscheduled stop to repair the satellite equipment. It was later revealed and reported that the DOD transportation officer that had inspected the truck knew that the satellite equipment was not working before the driver left the loading dock. For arms, ammunition, and explosives and other security sensitive shipments requiring satellite equipment, DOD's *Motor Vehicle Inspection form* requires the DOD inspector to ensure that the satellite equipment is operable as part of the inspection prior to loading.

- In July 2013, a loose bolt on a TPS carrier's trailer was identified during a DOD roadside inspection following DOD's motor vehicle inspection. The carrier was transporting ammunition cartridges. The trailer, including components such as bolts, should have been inspected during DOD's vehicle inspection process before the driver left the loading dock. The DOT inspectors required the driver to repair the loose bolt before leaving the DOT inspection facility and delivering the shipment.

In other cases, if DOD had systematically analyzed TPS carrier incident data related to mechanical breakdowns and the carrier had conducted preventive maintenance on vehicles, delays resulting from TPS carriers stopping at commercial repair shops for scheduled maintenance may have been avoided. We found that 70 percent of the 749 mechanical breakdown incidents involved drivers that had stopped at a commercial repair facility while delivering security-sensitive cargo. However, according to DOD Explosives Safety Board[38] and Army Safety officials, some of this unscheduled maintenance may have been avoided or, at the least, mitigated if the carrier had conducted adequate routine and preventive maintenance on vehicles.[39] Although we do not know the

[38] The purpose of the Department of Defense (DOD) Explosives Safety Board is to protect the public, military personnel, and government and private property from unintentional consequences of an incident or accident (e.g., fire and explosion) involving military munitions. The Board recommends policy, develops and provides technical guidance, evaluates programs, and provides a forum for coordination among the DOD components on all matters related to explosives safety management.

[39] Officials noted that, under Department of Transportation regulations, drivers are to be satisfied that their motor vehicles are in safe operating condition before driving. *See* 49 C.F.R. § 396.13. Motor carriers also must systematically inspect, repair, and maintain their vehicles and ensure that parts and accessories are in safe and proper operating condition, *see* § 396.3, as well as require their drivers to report on defects or deficiencies that would affect the safety of operation or result in mechanical breakdown. *See* § 396.11.

extent to which DOD carriers had conducted adequate and preventive maintenance on vehicles, the following examples illustrate mechanical breakdown incidents reported through the Defense Transportation Tracking System that resulted in the driver stopping at a commercial repair facility for maintenance and repair while delivering security-sensitive materials.

- In February 2012, a TPS carrier's driver contacted personnel from the Defense Transportation Tracking System office to inform staff of electrical issues and that they had stopped at a commercial repair facility for repair due to mechanical failure while delivering rockets. The TPS carrier's driver departed from the commercial repair facility after the repairs had been completed, but the truck subsequently broke down a second time. Although the TPS carrier's driver returned the truck to the commercial repair facility to resolve the same issue, the truck broke down a third time. As a result of these recurring mechanical issues, the cargo had to be transferred to another truck for delivery and the shipment was delayed by nearly 3 days, which according to Army Safety officials may have been avoided through proper routine maintenance of the electrical system.

- In December 2012, a TPS carrier's driver transporting release devices for launching explosives noticed an oil leak from the truck that was later found to be the result of a blown oil pressure line. The driver stopped at a commercial repair facility for repairs. However, it took nearly 4 days to repair the blown oil pressure line and depart for the shipping destination. According to Army Safety officials inspection and replacement of oil pressure lines are generally included as part of routine preventative maintenance and so this breakdown could potentially have been avoided.

- In February 2014, a TPS carrier's driver delivering security-sensitive missile guidance and control systems had problems with the truck's fuel filter, which is typically serviced as part of the preventative maintenance process. A service truck attempted to repair the fuel filter, but the original truck ultimately broke down. The service truck returned to perform the repairs again, but was unsuccessful. The truck was later towed to a commercial maintenance facility and was successfully repaired. However, due to the mechanical issues, the delivery was delayed by 10 hours. According to Army officials, inspection and replacement of the fuel filter is generally considered part of routine maintenance.

In addition, SDDC officials said they believe that in some cases TPS carriers have established a pattern of stopping at commercial maintenance shops for routine and preventive maintenance while delivering security-sensitive materials. The Defense Transportation Tracking System showed and TPS contracting office officials told us that some carriers regularly go to commercial repair facilities for routine maintenance and repairs while delivering DOD shipments of security-sensitive materials, but DOD does not know the magnitude of such occurrences and therefore cannot resolve the situation because it does not evaluate incident data for systemic patterns or trends. DOD Directive 6055.9E, *Explosives Safety Management and the DOD Explosives Safety Board*, indicates that it is DOD policy to minimize the amount of time and number of people exposed to explosives.[40] However, in reviewing information in the Defense Transportation Tracking System, we found instances where TPS carriers transporting security-sensitive materials experienced significant delays when they stopped at commercial repair facilities. For example, in April 2012, a TPS carrier transporting devices for releasing explosives stopped at a commercial repair facility for routine maintenance on the truck and brake work on the trailer, resulting in a delay of 9 hours. In another example, in January 2014, a TPS carrier transporting guided missiles stopped at a commercial repair facility to get the air conditioning system on the truck repaired, delaying the delivery by 13 hours and increasing exposure of these sensitive materials to the public.

DOD does not evaluate TPS carrier incident data from the Defense Transportation Tracking System because its existing guidance does not require the evaluation of this data to identify trends and patterns that could suggest systemic weaknesses such as frequent mechanical breakdowns or unusual delays. *Standards for Internal Control in the Federal Government* state that management should establish monitoring activities and evaluate the results. Analyzing Defense Transportation Tracking System data could help identify patterns and trends in mechanical breakdown incidents involving TPS carriers and identify systemic issues that could be addressed through corrective action. For example, an analysis of these incidents could result in the identification of deficiencies in the vehicle inspection process or the need for more

[40] *See* Department of Defense Directive 6055.9E, *Explosives Safety Management and the DOD Explosives Safety Board*, para. 4.4 (Aug. 19, 2005).

rigorous enforcement of preventative maintenance requirements, performed prior to loading security-sensitive materials. DOD officials at the office of the Under Secretary of Defense for Acquisition, Technology and Logistics, Transportation Policy have acknowledged weaknesses in the vehicle inspection process and have taken initial steps in determining how to improve the motor vehicle inspection program. However, DOD does not require an evaluation of TPS carrier data from the Defense Transportation Tracking System to identify systemic trends and patterns that might be linked to safety risks. DOD Explosives Safety Board and Army Safety officials stated that requiring the evaluation of incident data may help DOD improve the safe transport of security-sensitive materials. Although the Defense Transportation Tracking System was developed to respond to emergencies, it can also track mechanical incidents that can be used for evaluating and analyzing incidents. Without requiring the evaluation of TPS carrier incident data to determine whether there are systemic issues that have led to the incidents reported, DOD is not in the best position to mitigate future recurrences of incidents such as mechanical breakdowns.

DOD Does Not Fully Investigate Incidents Regarding TPS Carriers to Identify Their Root Causes

In addition to not evaluating trends in incident data, DOD also does not fully investigate incidents regarding TPS carriers to determine their root causes to identify trends in safety-related risks. In other contexts, DOD guidance provides for notification and investigation of mishaps. Specifically, DOD Instruction 6055.07, *Mishap Notification, Investigation, Reporting and Record Keeping*, provides guidance for the investigation of various categories of mishaps. For example, with respect to fire loss investigations, the guidance requires the investigation to identify the cause of the fire.[41] Further, Army Pamphlet 385-40, *Army Accident Investigations and Reporting*, provides guidance on conducting an investigation, noting that the procedures it provides are designed to assist the investigator in identifying the key factors that caused or contributed to the accident as well as the root cause. Through the investigation, recommendations are identified that will remedy the causes and minimize the chances for similar recurrences.[42] Although DOD Instruction 6055.07

[41] *See* Department of Defense Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, encl. 4, para. 2 (June 6, 2011).

[42] *See* Army Pamphlet 385-40, *Army Accident Investigations and Reporting*, paras. 1-4, 1-5 (Mar. 18, 2015).

covers the investigation and reporting of mishaps resulting from contractor operations that involve damage to DOD property or injury to DOD personnel, a list of exemptions specifically includes contractor mishaps in which the contractor employee is not under the direct supervision of DOD personnel.[43] According to Army Safety officials, this would exempt circumstances involving TPS shipments. Incidents such as an accident involving TPS carriers delivering explosives can be catastrophic if the explosives are ignited.

On the basis of available documentation, we found that three of the four investigations conducted by the SDDC since 2012 were preliminary and incomplete. For example, DOD did not identify the root cause for these three incidents, which limits DOD in precluding similar incidents from recurring and from identifying any safety-related trends.

Specifically, we found:

- In April 2014, Army Safety personnel began a preliminary investigation of an incident near Vian, Oklahoma, that occurred during the same month involving a TPS carrier's vehicle trailer that caught on fire (see fig. 10). There were no reported injuries or documented damage to the explosives, but this incident could have been more serious had the fire detonated the explosives in the trailer or cargo area. The preliminary investigation of the TPS carrier was never completed because the root cause of the incident was never determined. According to Army Safety officials, it was never determined whether the fire was caused by leaking brake fluid or by another preventable mechanical issue with the trailer. Without knowing the root cause, contributory factors and safety risks, DOD is not positioned to take action to prevent a future recurrence. In figure 10, we provide photographs of the underside of the TPS carrier's trailer that caught on fire near Vian, Oklahoma, in April 2014 and of the hundreds of M795 155mm high explosive projectiles that were inside the trailer.

[43] Army Regulation 385-10, which is implemented by the investigation procedures in Army Pamphlet 385-40, similarly specifies that accidents occurring during the transportation of Army materiel by commercial carriers are not reportable through Army safety channels. *See* Army Regulation 385-10, *The Army Safety Program*, para. 3-7.h (Nov. 27, 2013).

Figure 10: Burned Underside of TPS Carrier's Trailer after Fire Incident and Undetonated High Explosives inside Trailer.

Source: Army. | GAO-16-82

- In February 2015, a DOD contractor conducted a preliminary investigation of an incident involving a TPS carrier transporting explosives that caught on fire in September 2014 near Crawfordville, Georgia. The tires and the trailer were burned off. See figure 11. There were no reported injuries, but the investigation report did not identify whether there was any damage to the DOD materials. Although the report contained findings, conclusions, and recommendations, the DOD contractor assigned to investigate the incident reported that the root cause of the incident was not determined because there was no one required to search for the root cause and that the investigation was conducted nearly four months after the incident had occurred, impacting the adequacy and sufficiency of the investigation. Army Safety officials agreed that the investigation was not completed because the root cause was never identified. In figure 11, we provide a photograph of the TPS carrier's trailer that caught on fire while transporting explosives near Crawfordville, Georgia, in September 2014.

Figure 11: TPS Carrier's Trailer Being Towed Away after Fire Incident

Source: Army. | GAO-16-82

- In March 2015, a DOD contractor conducted a preliminary investigation of a trailer fire that occurred in December 2014 in Huson, Montana, according to DOD safety officials. However, the report provided by DOD on the investigation did not contain the root cause, findings or conclusions on what caused the fire, or recommendations on corrective actions for preventing future recurrences. The report primarily contained information on the carrier's facility inspection that was conducted on the same day.

Army Safety officials stated that they initiated preliminary investigations of the three incidents based on an ad hoc approach versus a required process driven by department-wide guidance that emphasizes the

importance of conducting a full investigation including the identification of the root cause. They further stated that investigations should identify such elements as the root cause and the factors contributing to the cause of the incident. For example, Army Safety personnel stated that DOD did not require the DOD contractor to examine other factors during the investigations such as the training and mental state of the drivers to determine whether the drivers might have contributed to the cause. An Army briefing describing the investigations that the Army conducts in other contexts indicates that human factors such as training, individual capabilities and actions are examined during an investigation to determine the extent to which they contributed to the incident.

We also found that DOD is not investigating near miss incidents in order to identify the root cause and identify corrective action that could prevent future recurrences of these situations. DOD Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, also briefly discusses near misses, which are defined as an undesired event that, under slightly different circumstances, would have resulted in personal harm, property damage, or an undesired loss of resources, although it does not require investigation of near misses.[44] SDDC officials stated that there have been a number of TPS carrier-related near misses that they believed warranted investigations to determine the root cause and safety risks. For example, in September 2014, the DOD's Transportation Inspection Team found a shipment of DOD small arms unattended at a commercial truck stop during a DOD in transit inspection. A DOD truck later came to pick up the shipment and place it in a secure location. However, the incident report did not indicate why the DOD small arms were unattended at a commercial truck stop because the incident was never investigated to determine the root cause and safety risks to the public. Nevertheless, near misses, such as a mechanical failures leading to fire, could lead to an explosion or result in other serious consequences and thus may warrant investigations to identify root causes and prevent future incidents.

Moreover, although the Defense Transportation Tracking System collects and tracks incidents, the system does not identify which incidents are mishaps or near misses, which could be used to determine whether

[44] *See* Department of Defense Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, Table 7 (June 6, 2011); *id.* at 49.

further investigation was warranted. For example, the incident report of the Vian, Oklahoma incident in April 2014 was identified as a mechanical breakdown rather than a fire and it did not indicate the severity of the incident such as whether it was a mishap or near miss. SDDC previously modified the Defense Transportation Tracking System to enable them to identify and address other issues. For example, the Defense Transportation Tracking System was modified in November 2014 to identify secure-hold denials on the incident reports based on findings and recommendations from our May 2014 report.[45] According to SDDC officials responsible for managing the Defense Transportation Tracking System, this enables DOD to track issues with secure-hold denials and take corrective actions.

DOD does not conduct full investigations of mishaps and investigations of near misses involving security-sensitive shipments because there is no department-wide guidance that requires comprehensive investigations of incidents involving commercial carriers with security-sensitive materials to determine potential root causes and identify corrective actions that could mitigate the recurrence of the mishap or the potential for more significant ones. In addition, DOD Explosives Safety Board and Army Safety officials stated that the guidance such as DOD Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping*, on whether and how to initiate investigations of mishaps is confusing and unclear, because it excludes commercial carriers, such as TPS. Furthermore, according to findings in a study on the DOD Implementation Plan for the Distribution of Arms, Ammunition and Explosives,[46] existing guidance often leads to confusion and inconsistent application of procedures concerning aspects of safety and may even result in direct conflict between DOD organizations. According to DOD Explosives Safety Board and Army Safety officials, many of the safety-related rules and regulations that affect transportation of security-sensitive materials are dispersed in many publications and not easily located. They further stated that they lack department-wide guidance to ensure that DOD conducts comprehensive, full investigations that consistently examine all the factors to determine the root cause of incidents involving TPS carriers and prevent future recurrences.

[45] GAO-14-375.

[46] Department of Defense *Implementation Plan, Distribution of Arms, Ammunition and Explosives* (March 2005).

Without establishing a requirement for the evaluation of the root causes of collected incidents to identify systemic trends and patterns and full investigations of incidents, DOD is not positioned to identify safety risks and effectively plan to mitigate and prevent recurrences to the extent possible. In addition, although DOD does not require the investigation of near misses involving TPS carriers, near misses such as a mechanical failure leading to a fire could ignite an explosion or result in other serious consequences. Thus, establishing department-wide guidance to identify and fully investigate incidents, including mishaps and near misses involving security-sensitive materials, would help the Department identify and address their root causes to prevent future recurrences.

Conclusions

The probability that a major mishap, such as an accident, will occur in the near future that involves a shipment of security-sensitive materials such as ammunitions and explosives is unknown. However, the effects could be devastating as the release of hazardous or security-sensitive material could result in damage to DOD materials or infrastructure as well as major injuries or fatalities that could cost DOD billions of dollars. Moreover, these shipments are at a heightened risk of theft or of the compromise of sensitive national security information. By updating TPS program guidance to (1) address actions to take when absent or dated safety ratings and poor safety scores exist and (2) document specific consequences to be enforced when carriers do not meet program requirements, and (3) require reviews of available violation data, DOD could help ensure that it effectively evaluates and accepts or retains carriers entrusted to transport security-sensitive material in the TPS program. As described above, violation data is a rich source of information about a carrier's safety record, and can be matched to TPS shipment data to identify TPS shipment-specific violations. Further, DOD's actions, such as never placing a carrier in non-use status, may not be fully consistent with the department's guidance, which indicates that a carrier may be placed in non-use status for failure to improve poor Safety Measurement System scores. This does not necessarily suggest that DOD should be placing more carriers in non-use status, but rather that it should consider revising its guidance to better match its actions. Furthermore, DOD does not currently require evaluations of incident data from the Defense Transportation Tracking System involving TPS carriers with security-sensitive materials, and therefore is not in a position to identify systemic issues linked to serious incidents, as well as with near misses, that could reduce future incidents. Similarly, DOD is not identifying the root causes of incidents, which could also help prevent future ones. Without requiring systematic evaluations of incident data and

investigations of the root causes of TPS carrier incidents, via comprehensive department-wide guidance, DOD is not in the best position to help protect TPS drivers and the public from injuries or fatalities that may result from incidents involving the transport of security-sensitive materials.

Recommendations for Executive Action

Overall, we are making four recommendations related to strengthening DOD's ability to effectively evaluate carriers it contracts with to transport security-sensitive materials and to mitigate related public safety risks that may occur during transport of those materials.

To help ensure that DOD effectively evaluates the safety performance of carriers entrusted to transport security-sensitive materials in the Transportation Protective Services (TPS) program, we recommend that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the U.S. Transportation Command to:

- update TPS program guidance to clarify (1) how to address carriers with absent or dated Safety Ratings and poor Safety Measurement System scores, and (2) what specific actions should be taken when carriers do not meet program requirements
- establish and document an approach for conducting reviews of available violation data, such as analyzing violations incurred while transporting TPS shipments.

To improve DOD's ability to identify and effectively mitigate public safety risks of TPS carriers transporting security-sensitive materials, we recommend that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the DOD Explosives Safety Board, the U.S. Transportation Command, the Surface Deployment and Distribution Command, and the Army Headquarters Safety Office, to develop department-wide guidance requiring the:

- evaluation of the Defense Transportation Tracking System TPS carrier incident data to identify trends and patterns that could suggest systemic weaknesses such as mechanical breakdowns or unusual delays that represent a heightened potential public safety risk and take action to address any identified weaknesses.
- identification and full investigation of TPS carrier incidents, including mishaps and near misses involving security-sensitive shipments, to

determine potential root causes and identify corrective actions that could mitigate the recurrence of the mishap or the potential for more significant ones.

Agency Comments and Our Evaluation

We provided a draft of this report to DOD and DOT for comment. DOT provided technical comments, which we incorporated as appropriate. In written comments, reproduced in their entirety in appendix II, DOD concurred with two of our recommendations and did not concur with the remaining two.

DOD did not concur with our first recommendation that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the U.S. Transportation Command to update Transportation Protective Services (TPS) program guidance to clarify (1) how to address carriers with absent or dated Safety Ratings and poor Safety Measurement System scores, and (2) what specific actions should be taken when carriers do not meet program requirements. In its comments, DOD stated that the TPS program guidance is sufficient in describing carrier safety requirements, including the process for taking action when carriers do not meet program requirements. DOD stated that the 7 TPS carriers that we identified without Safety Ratings are not permitted to move ammunition and explosives. DOD stated that it uses a contractor to regularly evaluate the safety performance of TPS carriers and drivers. Finally, DOD noted that all TPS carriers must have Safety Measurement System scores that meet DOT requirements but that the department has decreased its reliance on these scores in response to the findings in our February 2014 report (GAO-14-114) on the scores' limitations.

We continue to believe that DOD should update its TPS guidance to clarify how to address carriers with absent or dated Safety Ratings and poor Safety Measurement System scores and what specific actions should be taken when carriers do not meet program requirements. We note in our report that DOD officials had told us during the course of our review that they had made decisions in internal discussions about consequences for carriers (such as for the 7 without Safety Ratings) that do not meet program requirements. These DOD officials confirmed that these consequences are not documented in guidance. We believe that TPS guidance should specify whether or not carriers with absent Safety Ratings including the 7 we identified, are permitted to move specific types of sensitive shipments, such as ammunition and explosives. While DOD stated that the 7 carriers we identified without safety ratings are not

permitted to move specific types of sensitive shipments, as our report notes, the guidance was not clear on this point. Similarly, regarding Safety Measurement System scores, we note in our report that DOD guidance on these scores does not address which specific scores or trends, such as scores above required thresholds for a certain number of months or scores above thresholds in certain categories, would prompt which defined consequences. As we note in our report, DOD has maintained carriers in the TPS program that do not meet requirements regarding Safety Measurement System scores, and during the course of our review we found that decisions about consequences for this were based on undocumented, internal discussions. By more comprehensively documenting in guidance which actions DOD should take when TPS carriers do not meet Safety Rating and Safety Measurement System score requirements, including the extent to which DOD might be reducing its reliance Safety Measurement System scores, DOD could more closely align its practices with its policy—a necessary step for helping to ensure that program requirements are carried out as intended.

DOD did not concur with our second recommendation that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the U.S. Transportation Command to establish and document an approach for conducting reviews of available violation data, such as analyzing violations incurred while transporting TPS shipments. In its comments, DOD stated that it agreed with the value of reviewing violation data, particularly violations incurred while transporting TPS material, and that it could support a recommendation that would give DOD the opportunity to assess the actions needed for an executable violation data analysis process, as well as the time needed for such an assessment. DOD identified three specific reasons for not concurring with our recommendation—specifically, that DOD does not own or collect the violation data (DOT owns and collects the data), that DOT data do not distinguish between violations occurring on TPS shipments and violations occurring on non-TPS shipments, and that additional research is needed on other DOT data elements.

We continue to believe that DOD should establish and document an approach for conducting reviews of available violation data, such as analyzing violations incurred while transporting TPS shipments. As we note in our report, most of the violation data that we refer to are publicly available on DOT's Compliance, Safety, Accountability program website and could be used to analyze meaningful trends within and across carriers, particularly for carriers that do not have Safety Measurement

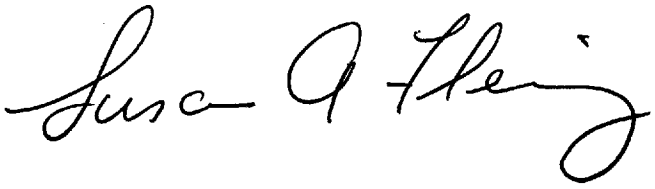
System scores. It is important that DOD consider the safety performance of an entire carrier, not just of those vehicles transporting freight under the TPS program, because the safety record of a carrier provides important information that reflects that carrier's safety policies and culture. Like DOD, we recognize that, as presented on the DOT website, the violation data do not distinguish between TPS and non-TPS shipments. However, as we stated in our report, a senior DOD official told us during the course of our review that it would be possible to use that violation data to identify specific TPS shipments by matching vehicle identification numbers (VIN) with dates for TPS shipments to determine whether vehicles transporting TPS shipments had received violations and, if so, what those violations were. Finally, we agree with DOD about the need to dedicate time to assess the actions needed to develop a process for analyzing violation data, and believe our recommendation allows DOD the flexibility to determine the feasibility of such a process.

DOD concurred with our third and fourth recommendations that, to improve DOD's ability to identify and effectively mitigate public safety risks of TPS carriers transporting security-sensitive materials, the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the DOD Explosives Safety Board, the U.S. Transportation Command, the Surface Deployment and Distribution Command, and the Army Headquarters Safety Office, to develop department-wide guidance requiring (1) the evaluation of the Defense Transportation Tracking System TPS carrier incident data to identify trends and patterns that could suggest systemic weaknesses such as mechanical breakdowns or unusual delays that represent a heightened potential public safety risk and take action to address any identified weaknesses; and (2) the identification and full investigation of TPS carrier incidents, including mishaps and near misses involving security-sensitive shipments, to determine potential root causes and identify corrective actions that could mitigate the recurrence of the mishap or the potential for more significant ones. DOD did not identify any specific steps that it planned to take to address these two recommendations.

We are sending copies of this report to the appropriate congressional committees and to the Secretary of Defense and the Secretary of Transportation. The report also is available at no charge on GAO's website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact Cary Russell at (202) 512-5431 or russellc@gao.gov; or Susan Fleming at (202) 512-2834 or flemings@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report are listed in appendix III.

Cary B. Russell
Director
Defense Capabilities and Management



Susan A. Fleming
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Physical Infrastructure Issues

Appendix I: Scope and Methodology

To address the extent to which the Department of Defense's (DOD) use of the Department of Transportation's (DOT) Compliance, Safety, Accountability (CSA) program data and other safety performance information results in sufficient and reliable information for DOD to evaluate the safety performance of individual Transportation Protective Services (TPS) carriers, we reviewed DOD guidance regarding DOD's procedures for evaluating the safety of TPS carriers (i.e., for them to enter and remain in the TPS program) and findings from our February 2014 report.[1] We assessed DOD guidance against *Standards for Internal Control in the Federal Government*.[2] We also reviewed DOT safety performance information, including Safety Measurement System scores and Safety Ratings. We reviewed DOT safety performance information available for the 55 commercial motor carriers that participated in the TPS program from fiscal years 2011 through 2014, which were the most recent available data. To determine the extent to which the limitations we had reported on in February 2014 regarding Safety Measurement System scores applied specifically to individual TPS carriers, we obtained and analyzed the most recently available 2-year "snapshot" of CSA safety performance data (November 2012 through October 2014). The 2-year snapshots are the basis for DOT's score calculations. At some point during this period, 2 of the 55 TPS carriers ceased activity; therefore, we excluded those carriers from any analyses that required observations over the entire 2-year period.

In addition, we compared TPS carriers' Safety Measurement System scores in this 2-year snapshot to those DOD requires carriers to maintain to remain in the TPS program. We were unable to compare TPS carriers' Safety Measurement System scores at entry into the TPS program with those DOD requires of carriers to enter the TPS program because the CSA Program—including Safety Measurement System scores—was not implemented until 2010, and most TPS carriers entered the program before then. To evaluate DOD's use of Safety Ratings, which are comprehensive assessments of a carrier's compliance with safety fitness standards established in DOT regulations that FMCSA conducts periodically, we first examined the most recent Safety Rating data available for all 55 TPS carriers within our November 2012 through

[1] GAO-14-114.

[2] GAO, *Standards for Internal Control in the Federal Government*, GAO/AIMD-00-21.3.1 (November 1999).

October 2014 data set, which was October 2014. We compared DOD's use of DOT safety performance information with GAO's standards for data reliability[3] and with *Standards for Internal Controls in the Federal Government.* In addition, we met with officials from DOD's U.S. Transportation Command to identify key components of the TPS program and with officials from the Department of Energy's Environmental Management Program to compare their program that uses commercial motor carriers to transport some hazardous materials to the TPS program, and the American Trucking Associations, to identify information on safety data or standards recommended or used by other agencies and organizations knowledgeable about the transport of security-sensitive materials. We determined that the DOT safety performance information was sufficiently reliable for the purpose of our data analysis by reviewing relevant DOT documentation on Safety Measurement System methodology, performing standard electronic data reliable testing such as looking for outliers or missing data in the 2012-14 data for TPS carriers, and interviewing FMCSA officials about any differences in Safety Measurement System methodology or additional data for hazardous materials carriers. Specifically, the purpose of our analysis was to determine the extent to which limitations in Safety Measurement System methodology we identified in our February 2014 (GAO-14-114) report applied to all 55 TPS carriers.

To examine the extent to which DOD has evaluated TPS carrier incident data and investigated TPS carrier incidents to identify safety-related trends, we compared safety processes and procedures from DOD Instruction 6055.16, on *DOD's Explosives Safety Management Program*, with our analysis of 1,039 incident reports from the Defense Transportation Tracking System from fiscal year 2011 through fiscal year 2014, to determine what information DOD collects, reports, and tracks when there is an incident (i.e., an accident, mechanical breakdown, or suspicious activity) reported through the Defense Transportation Tracking System involving TPS carriers. We also compared DOD's processes and procedures for analyzing incident data and investigating incidents with the DOD Instruction 6055.16, which emphasizes the importance of conducting appropriate analyses of incidents involving DOD ammunitions and explosives to preventing future incidents. For the purpose of our

[3] GAO, *Assessing the Reliability of Computer-Processed Data*, GAO-09-365G (February 2009).

review, we defined an "incident" as an accident, mechanical breakdown, suspicious activities or other event reported through the Defense Transportation Tracking System for emergency response purposes. We defined "mishap" and "near miss incidents" based on the definitions in DOD Instruction 6055.07.[4] We interviewed officials from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; the DOD Explosives Safety Board; the U.S. Transportation Command; and the Army Headquarters Safety Office. We reviewed studies and reports from organizations such as the National Transportation Safety Board, National Trucking Associations, and the American Trucking Association on recommended technologies and safety standards for TPS carriers. We assessed the reliability of the Defense Transportation Tracking System data and determined the data we examined were sufficiently reliable for identifying challenges and the extent to which they impact the transport of security-sensitive materials. We sent a questionnaire to the Defense Transportation Tracking System officials who maintain and provide oversight over the system about the reliability of the data as well as other internal and quality controls in place. We followed up with interviews as needed to clarify any responses. We also requested and reviewed documentation about how the system is structured, the data dictionary, and written procedures in place to ensure that the appropriate information in the Defense Transportation Tracking System is collected. Based on our assessment of the reliability of the Defense Transportation Tracking System data, we determined that the data we examined were sufficiently reliable for identifying challenges and the extent to which they impact the transport of security-sensitive materials.

We visited or contacted officials from the following organizations during our review:

- Headquarters, Defense Logistics Agency, Fort Belvoir, Virginia;

[4] Department of Defense (DOD) Instruction 6055.07 defines a near miss as an undesired event that, under slightly different circumstances, would have resulted in personal harm, property damage, or an undesired loss of resources. It defines a mishap as an unplanned event or series of events that results in damage to DOD property; occupational illness to DoD personnel; injury to on- or off-duty DOD military personnel; injury to on-duty DOD civilian personnel; or damage to public or private property, or injury or illness to non-DOD personnel, caused by DOD activities. *See* Department of Defense Instruction 6055.07, *Mishap Notification, Investigation, Reporting, and Record Keeping* at 47, 49 (June 6, 2011).

- Headquarters, Army Safety Office, Fort Belvoir, Virginia;
- Office of the Under Secretary of Defense (Acquisition, Technology and Logistics), Office of the Deputy Assistant Secretary of Defense (Transportation Policy), Mark Center, Alexandria, Virginia;
- U.S. Transportation Command, Scott Air Force Base, Illinois;
- Surface Deployment and Distribution Command, Scott Air Force Base, Illinois;
- Defense Transportation Tracking System Office, Scott Air Force Base, Illinois;
- Department of Energy, Office of Environmental Management, Washington, D.C.;
- U.S. Department of Transportation, Washington, D.C.;
- Federal Motor Carrier Safety Administration, Washington, D.C. ;
- National Transportation Safety Board, Washington, D.C.;
- Commercial Vehicle Safety Alliance, Greenbelt, Maryland;
- American Trucking Associations, Arlington, Virginia; and
- Owner Operator Independent Drivers Association, Washington, D.C.

We conducted this performance audit from July 2014 to December 2015 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the Department of Defense

ASSISTANT SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

LOGISTICS AND
MATERIEL READINESS

OCT 28 2015

Mr. Cary Russell
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Russell:

This is the Department of Defense (DoD) response to the Government Accountability Office (GAO) Draft Report, GAO-16-82, "DEFENSE TRANSPORTATION: DoD Needs to Improve the Evaluation of Safety and Performance Information for Carriers Transporting Security-Sensitive Materials," dated September 11, 2015 (GAO Code 351944)." Detailed comments on the report recommendations are enclosed. Thank you for the opportunity to provide comments on this draft report.

David J. Berteau

Enclosure:
As stated

GAO DRAFT REPORT DATED SEPTEMBER 11, 2015
GAO-16-82 (GAO CODE 351944)

"DEFENSE TRANSPORTATION: DOD NEEDS TO IMPROVE THE EVALUATION OF SAFETY AND PERFORMANCE INFORMATION FOR CARRIERS TRANSPORTING SECURITY-SENSITIVE MATERIALS"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

RECOMMENDATION 1: The GAO recommends that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the U.S. Transportation Command to: update Transportation Protective Services (TPS) program guidance to clarify (1) how to address carriers with absent or dated safety ratings and poor safety scores, and (2) what specific actions should be taken when carriers do not meet program requirements.

DoD RESPONSE: Non-concur with comment.

The TPS program guidance is sufficient in describing carrier safety requirements, including the Department's process for taking action when carriers do not meet program requirements. All TPS carriers approved to move ammunition and explosives have satisfactory DoT safety ratings. The 7 TPS carriers that GAO identified without DoT safety ratings are not permitted to move ammunition and explosives, which could pose a safety risk to the public.

The DoD regularly evaluates carrier safety performance for continued participation in the TPS program through the Military Surface Deployment and Distribution Command's (SDDC) Transportation Safety and Security program where a contractor performs reviews, at both carrier facilities and while shipments are in-transit, of carrier and driver safety performance.

All TPS carriers must also have safety scores that meet DoT requirements. DoD has placed less reliance on these scores for evaluating overall carrier safety performance as a result of the GAO Report 14-114, "Federal Motor Carrier Safety: Modifying Compliance, Safety, Accountability Program Would Improve the Ability to Identify High Risk Carriers," dated February 2014, which was critical of the DoT scoring system in a number of areas, to include a finding that the majority of regulations used to calculate the safety scores are not violated often enough to strongly associate them with crash risk for individual carriers.

RECOMMENDATION 2: The GAO recommends that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the U.S. Transportation Command to establish and document an approach for conducting reviews of available violation data, such as analyzing violations incurred while transporting TPS shipments.

DoD RESPONSE: Non-concur with comment.

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While the Department agrees with the value of conducting reviews of violation data, particularly violations incurred while transporting DoD TPS material, the Department cannot concur with the recommendation as written, for a number of reasons, including the following:

- The Department does not own or collect the violation data; this is done by the Department of Transportation (DoT).
- The DoT violation data do not distinguish between violations occurring on DoD and non-DoD shipments or between violations occurring on TPS shipments and general freight shipments.
- Additional research is needed on other data elements in the DoT data.

The Department could support a GAO recommendation that would give DoD the opportunity to assess the actions needed for an executable violation data analysis process, as well as the time needed for such an assessment.

RECOMMENDATION 3: The GAO recommends that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the DOD Explosives Safety Board, the U.S. Transportation Command, the Surface Deployment and Distribution Command, and the Army Headquarters Safety Office, to develop department-wide guidance requiring: the evaluation of the Defense Transportation Tracking System TPS carrier incident data to identify trends and patterns that could suggest systemic weaknesses such as mechanical breakdowns or unusual delays that represent a heightened potential public safety risk and take action to address any identified weaknesses.

DoD RESPONSE: Concur

RECOMMENDATION 4: The GAO recommends that the Secretary of Defense direct the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, in collaboration with the DOD Explosives Safety Board, the U.S. Transportation Command, the Surface Deployment and Distribution Command, and the Army Headquarters Safety Office, to develop department-wide guidance requiring the identification and full investigation of TPS carrier incidents, including mishaps and near misses involving security-sensitive shipments, to determine potential root causes and identify corrective actions that could mitigate the recurrence of the mishap or the potential for more significant ones.

DoD RESPONSE: Concur

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contacts

Cary Russell, (202) 512-5431 or russellc@gao.gov, or Susan Fleming, (202) 512-2834 or flemings@gao.gov

Staff Acknowledgments

In addition to the contacts named above, James Reynolds, Assistant Director; Brandon Haller, Assistant Director; Ani Antanesyan, Tracy Burney, Sarah Farkas, Alfonso Garcia, Mae Jones, Grant Mallie, Terry Richardson, and Michael Shaughnessy made key contributions to this report.