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AVIATION SECURITY

Preliminary Observations on TSA's Progress and Challenges in Meeting the Statutory Mandate for Screening Air Cargo on Passenger Aircraft

Statement of Stephen M. Lord, Director
Homeland Security and Justice Issues



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Highlights

Highlights of [GAO-09-422T](#), a testimony before the Subcommittee on Transportation Security and Infrastructure Protection, Committee on Homeland Security, House of Representatives

Why GAO Did This Study

The Implementing Recommendations of the 9/11 Commission Act of 2007 mandates the Department of Homeland Security (DHS) to establish a system to physically screen 50 percent of cargo transported on passenger aircraft by February 2009 and 100 percent of such cargo by August 2010. This testimony provides preliminary observations on the Transportation Security Administration's (TSA) progress in meeting the mandate to screen cargo on passenger aircraft and the challenges TSA and industry stakeholders may face in screening such cargo. GAO's testimony is based on products issued from October 2005 through August 2008, and its ongoing review of air cargo security. GAO reviewed TSA's air cargo security programs, interviewed program officials and industry representatives, and visited two large U.S. airports.

What GAO Recommends

GAO has made recommendations to DHS and TSA in prior reports to increase the security of air cargo, including completing vulnerability assessments and re-examining existing screening exemptions. DHS generally agreed with these recommendations and plans to address them. GAO discussed the preliminary observations in this statement with TSA officials. TSA agreed with GAO's findings.

View [GAO-09-422T](#) or key components. For more information, contact Stephen M. Lord at (202) 512-4379 or lords@gao.gov.

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What GAO Found

TSA has made progress in meeting the air cargo screening mandate as it applies to domestic cargo. TSA has taken steps that will allow screening responsibilities to be shared across the air cargo supply chain—including TSA, air carriers, freight forwarders (which consolidate cargo from shippers and take it to air carriers for transport), and shippers—although air carriers have the ultimate responsibility for ensuring that they transport cargo screened at the requisite levels. TSA has taken several key steps to meet the mandate, including establishing a new requirement for 100 percent screening of cargo transported on narrow-body aircraft; revising or eliminating most screening exemptions for domestic cargo; creating the Certified Cargo Screening Program (CCSP) to allow screening to take place at various points in the air cargo supply chain; and establishing a screening technology pilot. Although TSA estimates that it achieved the mandated 50 percent screening level by February 2009 as it applies to domestic cargo, the agency cannot yet verify that the requisite levels of cargo are being screened. It is working to establish a system to do so by April 2009. Also, TSA's screening approach could result in variable percentages of screened cargo on passenger flights.

TSA and industry stakeholders may face a number of challenges in meeting the screening mandate, including attracting participants to the CCSP, and technology, oversight, and inbound cargo challenges. TSA's approach relies on the voluntary participation of shippers and freight forwarders, but it is unclear whether the facilities needed to meet TSA's screening estimates will join the CCSP. In addition, TSA has taken some steps to develop and test technologies for screening air cargo, but the agency has not yet completed assessments of these technologies and cannot be assured that they are effective in the cargo environment. TSA's limited inspection resources may also hamper its ability to oversee the thousands of additional entities that it expects to participate in the CCSP. Finally, TSA does not expect to meet the mandated 100 percent screening deadline as it applies to inbound air cargo, in part due to existing inbound screening exemptions and challenges it faces in harmonizing security standards with other nations.

Screening Air Cargo Using Explosives Trace Detection and Loading It onto Passenger Aircraft



Source: GAO (left) and © 2002 by Swissport International Ltd. Services (right).

Madam Chairwoman and Members of the Subcommittee:

I appreciate the opportunity to participate in today's hearing to discuss the security of the air cargo transportation system. In 2007, about 7.6 billion pounds of cargo was transported on U.S. passenger flights—56 percent of which was transported domestically and 44 percent of which was transported on flights to the United States (inbound cargo).¹ In response to the terrorist attacks of September 11, 2001, the Aviation and Transportation Security Act (ATSA) was enacted in November 2001.² ATSA created the Transportation Security Administration (TSA) and required it to provide for the screening of all passengers and property, including cargo, U.S. mail, and carry-on and checked baggage that is transported on passenger aircraft. Recognizing the need to strengthen the security of air cargo, Congress passed, and the President signed into law, the Implementing Recommendations of the 9/11 Commission Act of 2007 (9/11 Commission Act), which mandates the establishment of a system to physically screen 50 percent of cargo on passenger aircraft—including the domestic and inbound flights of foreign and U.S. passenger operations—by February 2009, and 100 percent of such cargo by August 2010.³

The 9/11 Commission Act establishes minimum standards for screening air cargo, and requires that such standards provide a level of security commensurate with the level of security for the screening of checked baggage. Although the mandate is applicable to both domestic and inbound air cargo, TSA stated that it will address the mandate for domestic and inbound cargo through two separate systems. For example, while TSA interprets these standards to mean that all cargo, with certain exceptions, must be screened by TSA-approved methods, the exceptions vary greatly between domestic and inbound cargo. This testimony will therefore address efforts to meet the screening mandate as it applies to domestic and inbound cargo separately.

My testimony today includes preliminary observations on (1) TSA's progress in meeting the 9/11 Commission Act mandate to screen air cargo

¹For the purposes of this statement, domestic air cargo refers to cargo transported by air within the United States and from the United States to a foreign location by both U.S. and foreign based air carriers, and inbound cargo refers to cargo transported by air from a foreign location to the United States.

²Pub. L. No. 107-71, 115 Stat. 597 (2001).

³Pub. L. No. 110-53, § 1602, 121 Stat. 266, 477-80 (codified at 49 U.S.C. § 44901(g)).

transported on passenger aircraft as it applies to domestic cargo, and (2) the challenges TSA and industry stakeholders may face in screening such cargo, including challenges TSA may face in meeting the mandate as it applies to inbound cargo. My comments are based on GAO reports and testimonies issued from October 2005 through August 2008 addressing the security of the air cargo transportation system.⁴ More detailed information on our scope and methodology appears in our published reports.

This statement also includes information from our ongoing review of air cargo security requested by the Chairman of the House Committee on Homeland Security, Bennie G. Thompson, and Congressman Edward J. Markey. The results of this review will be issued later this year. To determine the progress TSA has made in meeting the 9/11 Commission Act mandate, and to identify any ongoing challenges, we reviewed TSA's air cargo security programs, and interviewed TSA air cargo program officials and representatives from various air cargo industry associations. We also conducted site visits to two large U.S. commercial airports that process domestic and inbound air cargo to observe screening operations and technologies, and interviewed local TSA officials and representatives from air carriers, freight forwarders, and shippers to obtain their views on TSA's system to implement the screening mandate.⁵ Our site visits and interviews with industry stakeholders were based on a judgmental sample and are not generalizable to the entire air cargo industry.

We conducted our work in accordance with generally accepted government auditing standards. Those standards require that we plan and

⁴GAO, *Review of the Transportation Security Administration's Air Cargo Screening Exemptions Report*, [GAO-08-1055R](#) (Washington, D.C.: August 15, 2008); *Aviation Security: Transportation Security Administration May Face Resource and Other Challenges in Developing a System to Screen All Cargo Transported on Passenger Aircraft*, [GAO-08-959T](#) (Washington, D.C.: July 15, 2008); *Transportation Security: Transportation Security Administration Has Strengthened Planning to Guide Investments in Key Aviation and Surface Transportation Security Programs, but More Work Remains*, [GAO-08-487T](#) (Washington, D.C.: May 13, 2008); *Aviation Security: Federal Efforts to Secure U.S.-Bound Air Cargo Are in the Early Stages and Could Be Strengthened*, [GAO-07-660](#) (Washington, D.C.: April 30, 2007); and *Aviation Security: Federal Action Needed to Strengthen Domestic Air Cargo Security*, [GAO-06-76](#) (Washington, D.C.: October 17, 2005).

⁵There are about 450 commercial airports in the United States. TSA classifies airports into one of five categories (X, I, II, III, and IV) based on various factors, such as the total number of takeoffs and landings annually, the extent to which passengers are screened at the airport, and other special security considerations. In general, category X airports have the largest number of passenger boardings, and category IV airports have the smallest.

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.

Summary

TSA has taken several key steps to meet the air cargo screening mandate of the 9/11 Commission Act. These include the following:

- Requiring that each air carrier ensure that 100 percent of domestic cargo transported on its narrow-body passenger aircraft is screened as of October 1, 2008, and that each air carrier ensure that 50 percent of domestic cargo transported on its entire passenger aircraft fleet is screened as of February 1, 2009.⁶ Effective February 2009, TSA also revised or eliminated most of its screening exemptions for domestic, but not inbound, cargo;⁷
- Creating the Certified Cargo Screening Program (CCSP) to allow screening to take place earlier in the shipping process and at various points in the air cargo supply chain;
- Conducting outreach to inform air cargo industry stakeholders about the new industry requirements and the CCSP;
- Establishing the Air Cargo Screening Technology Pilot to allow freight forwarders and shippers to operationally test approved screening technology; and
- Expanding its explosives detection canine program to include 85 canine teams dedicated to screening air cargo at 20 major airports.

However, while TSA estimates that it achieved the February 2009 50 percent screening mandate as it applies to domestic cargo, the agency cannot yet verify that requisite screening levels are being met. In addition, although TSA believes its current screening approach enables it to meet the statutory screening mandate as it applies to domestic cargo, some of the ways in which TSA has defined the terms for screening cargo could result in variable percentages of screened cargo on passenger flights.

⁶Narrow-body aircraft, such as B-737s and A-320s, are defined by fuselage diameter, and most narrow-body aircraft have only one aisle. Narrow-body aircraft that fly in the United States do not carry any consolidated pallets or unit loading devices (ULD) that allow packages to be consolidated in one container. Wide-body aircraft are also defined by fuselage diameter, and can carry consolidated pallets or ULDs.

⁷Details on TSA's screening exemptions are Sensitive Security Information and are not discussed in this statement.

TSA faces several challenges in meeting the air cargo screening mandate. For example, it is unclear whether the facilities needed to meet TSA's screening estimates will join its new CCSP, in part because the costs could be prohibitive. Moreover, TSA faces a number of challenges related to technology—for instance, TSA has not yet completed assessments of the technologies it plans to allow air carriers and CCSP participants to use to meet the 100 percent cargo screening mandate. TSA also faces challenges overseeing compliance with the CCSP due to the size of its current transportation security inspector (TSI) workforce. In addition, with respect to inbound cargo, TSA does not expect to achieve 100 percent screening of inbound air cargo by the mandated deadline of August 2010. This is due, in part, to existing inbound screening exemptions, and to challenges TSA faces in harmonizing the agency's air cargo security standards with those of other nations.⁸

GAO has made recommendations to the Department of Homeland Security (DHS) and TSA in prior reports to increase the security of air cargo, including completing vulnerability assessments and re-examining existing screening exemptions. DHS generally agreed with these recommendations and plans to address them. We discussed the preliminary observations that are contained in this statement related to our ongoing work with officials from TSA. TSA officials agreed with our findings. TSA also provided us with technical comments, which we have incorporated as appropriate.

Background

Air cargo ranges in size from 1 pound to several tons, and in type from perishables to machinery, and can include items such as electronic equipment, automobile parts, clothing, medical supplies, fresh produce, and human remains. Cargo can be shipped in various forms, including large containers known as unit loading devices (ULD) that allow many packages to be consolidated into one container that can be loaded onto an aircraft, wooden crates, consolidated pallets, or individually wrapped/boxed pieces, known as loose or bulk cargo. Participants in the air cargo shipping process include shippers, such as individuals and manufacturers; freight forwarders; air cargo handling agents, who process

⁸The term harmonization is used to describe countries' efforts to coordinate their security practices to enhance security and increase efficiency by avoiding duplication of effort. Harmonization efforts can include countries mutually recognizing and accepting each other's existing practices—which could represent somewhat different approaches to achieve the same outcome, as well as working to develop mutually acceptable uniform standards.

and load cargo onto aircraft on behalf of air carriers; and air carriers that load and transport cargo.⁹ A shipper may take or send its packages to a freight forwarder who in turn consolidates cargo from many shippers onto a master air waybill—a manifest of the consolidated shipment—and delivers it to air carriers for transport. A shipper may also send freight by directly packaging and delivering it to an air carrier’s ticket counter or sorting center, where the air carrier or a cargo handling agent will sort and load cargo onto the aircraft.

According to TSA, the mission of its air cargo security program is to secure the air cargo transportation system while not unduly impeding the flow of commerce. TSA’s responsibilities for securing air cargo include, among other things, establishing security requirements governing domestic and foreign passenger air carriers that transport cargo and domestic freight forwarders. TSA is also responsible for overseeing the implementation of air cargo security requirements by air carriers and freight forwarders through compliance inspections, and, in coordination with DHS’s Directorate for Science and Technology (S&T Directorate), for conducting research and development of air cargo security technologies. Of the nearly \$4.8 billion appropriated to TSA for aviation security in fiscal year 2009, approximately \$123 million is directed for air cargo security activities. TSA was further directed to use \$18 million of this amount to expand technology pilots and for auditing participants in the CCSP.

Air carriers and freight forwarders are responsible for implementing TSA security requirements. To do this, they utilize TSA-approved security programs that describe the security policies, procedures, and systems they will implement and maintain to comply with TSA security requirements. These requirements include measures related to the acceptance, handling, and screening of cargo; training of employees in security and cargo screening procedures; testing for employee proficiency in cargo screening; and access to cargo areas and aircraft. Air carriers and freight forwarders must also abide by security requirements imposed by TSA through security directives and amendments to security programs.

The 9/11 Commission Act defines screening for purposes of the air cargo screening mandate as a physical examination or nonintrusive methods of

⁹For the purposes of this statement, the term freight forwarders only includes those freight forwarders that are regulated by TSA, also referred to as indirect air carriers.

assessing whether cargo poses a threat to transportation security.¹⁰ The act specifies that screening methods include X-ray systems, explosives detection systems (EDS), explosives trace detection (ETD), explosives detection canine teams certified by TSA, physical search together with manifest verification, and any additional methods approved by the TSA Administrator.¹¹ For example, TSA also recognizes the use of decompression chambers as an approved screening method.¹² However, solely performing a review of information about the contents of cargo or verifying the identity of the cargo's shipper does not constitute screening for purposes of satisfying the mandate.

TSA Has Made Progress in Meeting the Screening Mandate as It Applies to Domestic Cargo; However, TSA Cannot Yet Verify Whether the Mandated Level Is Being Met

¹⁰See 49 U.S.C. § 44901(g)(5).

¹¹EDS uses computer-aided tomography X-rays to examine objects inside baggage and identify the characteristic signatures of threat explosives. ETD requires human operators to collect samples of items to be screened with swabs, which are chemically analyzed to identify any traces of explosives material. Certified explosives detection canine teams have been evaluated by TSA and shown to effectively detect explosive devices. Physical search together with manifest verification entails comparisons between air waybills and cargo contents to ensure that the contents of the cargo shipment matches the cargo identified in documents filed by the shipper.

¹²Decompression chambers simulate atmospheric pressures affecting aircraft by simulating flight conditions, which can cause explosives that are attached to barometric fuses to detonate.

TSA Has Made Progress in Meeting the 50 Percent and 100 Percent Mandated Screening Levels as They Apply to Domestic Cargo

TSA has taken several key steps to meet the 9/11 Commission Act air cargo screening mandate as it applies to domestic cargo. TSA's approach involves multiple air cargo industry stakeholders sharing screening responsibilities across the air cargo supply chain. TSA, air carriers, freight forwarders, shippers, and other entities each play an important role in the screening of cargo, although TSA has determined that the ultimate responsibility for ensuring that screening takes place at mandated levels lies with the air carriers. According to TSA officials, this decentralized approach is expected to minimize carrier delays, cargo backlogs, and potential increases in cargo transit time, which would likely result if screening were conducted primarily by air carriers at the airport. Moreover, because much cargo is currently delivered to air carriers in a consolidated form, the requirement to screen individual pieces of cargo will necessitate screening earlier in the air cargo supply chain—before cargo is consolidated. The specific steps that TSA has taken to address the air cargo screening mandate are discussed below.

TSA revised air carrier security programs. Effective October 1, 2008, several months prior to the first mandated deadline, TSA established a new requirement for 100 percent screening of nonexempt cargo transported on narrow-body passenger aircraft. Narrow-body flights transport about 26 percent of all cargo on domestic passenger flights.¹³ According to TSA officials, air carriers reported that they are currently meeting this requirement. Effective February 1, 2009, TSA also required air carriers to ensure the screening of 50 percent of all nonexempt air cargo transported on all passenger aircraft. Although screening may be conducted by various entities, each air carrier must ensure that the screening requirements are fulfilled. Furthermore, effective February 2009, TSA revised or eliminated most of its screening exemptions for domestic cargo. As a result, most domestic cargo is now subject to TSA screening requirements.

TSA created the Certified Cargo Screening Program (CCSP). TSA also created a program, known as the CCSP, to allow screening to take place earlier in the shipping process and at various points in the air cargo supply chain. In this program, air cargo industry stakeholders—such as freight forwarders and shippers—voluntarily apply to become Certified

¹³According to TSA officials, narrow-body aircraft make up most domestic passenger flights, and transport most passengers traveling on domestic passenger flights.

Cargo Screening Facilities (CCSF).¹⁴ This program allows cargo to be screened before it is consolidated and transported to the airport, which helps address concerns about the time-intensive process of breaking down consolidated cargo at airports for screening purposes. TSA plans to inspect the CCSFs in order to ensure they are screening cargo as required. TSA initiated the CCSP at 18 major airports that, according to TSA officials, account for 65 percent of domestic cargo on passenger aircraft. TSA expects to expand the CCSP nationwide at a date yet to be determined. CCSFs in the program were required to begin screening cargo as of February 1, 2009.

While participation in the CCSP is voluntary, once an entity is certified by TSA to participate it must adhere to TSA screening and security requirements and be subject to annual inspections by TSIs. To become certified and to maintain certification, TSA requires each CCSF to demonstrate compliance with increased security standards to include facility, personnel, procedural, perimeter, and information technology security. As part of the program, and using TSA-approved screening methods, freight forwarders must screen 50 percent of cargo being delivered to wide-body passenger aircraft and 100 percent of cargo being delivered to narrow-body passenger aircraft, while shippers must screen 100 percent of all cargo being delivered to any passenger aircraft. Each CCSF must deliver the screened cargo to air carriers while maintaining a secure chain of custody to prevent tampering with the cargo after it is screened.

TSA conducted outreach efforts to air cargo industry stakeholders.

In January 2008, TSA initiated its outreach phase of the CCSP in three cities and subsequently expanded its outreach to freight forwarders and other air cargo industry stakeholders in the 18 major airports. TSA established a team of nine TSA field staff to conduct outreach, educate potential CCSP applicants on the program requirements, and validate CCSFs. According to TSA officials, in February 2009, the agency also began using its cargo TSIs in the field to conduct outreach. In our preliminary discussions with several freight forwarders and shippers, industry stakeholders reported that TSA staff have been responsive and helpful in answering questions about the program and providing information on CCSP requirements.

¹⁴Other facilities that can become CCSFs are manufacturing facilities, third party logistics providers, warehouse/distribution centers, and independent cargo screening facilities.

TSA established the Air Cargo Screening Technology Pilot and is conducting additional technology pilots. To operationally test ETD and X-ray technology among CCSFs, TSA created the Air Cargo Screening Technology Pilot in January 2008, and selected some of the largest freight forwarders to use the technologies and report on their experiences. TSA's objectives for the pilot are to determine CCSFs' ability to screen high volumes of cargo, test chain of custody procedures, and measure the effectiveness of screening technology on various commodity classes. TSA will provide each CCSF participating in the pilot with up to \$375,000 for purchasing technology. As of February 26, 2009, 12 freight forwarders in 48 locations are participating in the pilot.¹⁵ The screening they perform as part of the operational testing also counts toward meeting the air cargo screening mandate.

TSA expanded its explosives detection canine program. To assist air carriers in screening consolidated pallets and unit loading devices, TSA is taking steps to expand the use of TSA-certified explosives detection canine teams. TSA has 37 canine teams dedicated to air cargo screening—operating in 20 major airports—and is in the process of adding 48 additional dedicated canine teams. TSA is working with the air carriers to identify their peak cargo delivery times, during which canines would be most helpful for screening.

In addition, we reported in October 2005 and April 2007 that TSA, working with DHS's S&T Directorate, was developing and pilot testing a number of technologies to screen and secure air cargo with minimal effect on the flow of commerce.¹⁶ These pilot programs seek to enhance the security of cargo by improving the effectiveness of screening for explosives through increased detection rates and reduced false alarm rates. A description of several of these pilot programs and their status is included in table 1.

¹⁵Initially, the Air Cargo Screening Technology Pilot was limited to freight forwarders. However, in November 2008, TSA issued a second announcement seeking additional freight forwarders and independent cargo screening facilities to apply for the pilot. Entities that are not part of the technology pilot must still report screening volumes to TSA, but not the screening technology data. Moreover, entities that do not participate in the pilot will not receive TSA funding to purchase screening technology.

¹⁶[GAO-06-76](#); [GAO-07-660](#).

Table 1: TSA and DHS Directorate for Science and Technology Pilot Programs to Test Technologies to Screen and Secure Air Cargo

| Pilot program | Description | Status |
|--|--|---|
| Air cargo explosives detection pilot program | Tests the use of explosives detection systems, explosives trace detectors, standard X-ray machines, canine teams, technologies that can locate a stowaway through detection of a heartbeat or increased carbon dioxide levels in cargo, and manual screening of air cargo. | Consistent with the conference report accompanying the Department of Homeland Security Appropriations Act, 2006, DHS's S&T Directorate is required to report on the initial results of the pilots every 6 months after initiation of the first pilot. ^a DHS last submitted a report dated July 2008. According to DHS officials, the final report is currently undergoing DHS executive review and DHS plans to provide this report to Congress in March 2009. |
| Explosives detection systems (EDS) | Tests the use of computer-aided tomography to compare the densities of objects to locate explosives in air cargo and to determine the long-term feasibility of using EDS equipment as a total screening process for bulk air cargo. | TSA planned to complete this pilot program in May 2008. In February 2009, TSA officials stated that the pilot was completed in December 2008, and the final report should be available in July 2009. |
| Air cargo security seals | Explores the viability of potential security countermeasures, such as tamper-evident security seals, for use during transport of screened cargo. | In February 2009, TSA officials stated that the agency is waiting for vendors to produce technology that it can test and evaluate. TSA then plans to issue operational requirements to industry. In March 2009, TSA officials stated that the agency has not set time frames for this process. |

Source: GAO analysis of information provided by TSA.

^aH.R. Conf. Rep. No. 109-241, at 53 (2005) (accompanying Pub. L. No. 109-90, 119 Stat. 2064 (2005)).

TSA Cannot Yet Verify that Screening Is Being Conducted Domestically at the Mandated Level, and TSA's Current Approach Could Result in Variable Percentages of Screened Cargo

TSA estimates that it achieved the mandate for screening 50 percent of domestic cargo transported on passenger aircraft by February 2009, based on feedback from air cargo industry stakeholders responsible for conducting screening. However, TSA cannot yet verify that screening is being conducted at the mandated level. The agency is working to establish a system to collect data from screening entities to verify that requisite screening levels for domestic cargo are being met. Effective February 2009, TSA adjusted air carrier reporting requirements and added CCSF reporting requirements to include monthly screening reports on the number of shipments screened at 50 and 100 percent.¹⁷ According to TSA officials, air carriers will provide to TSA the first set of screening data by mid-March 2009. By April 2009, TSA officials expect to have processed and analyzed available screening data, which would allow the agency to

¹⁷Details on TSA's reporting requirements are Sensitive Security Information and are not discussed in this statement.

determine whether the screening mandate has been met. Thus, while TSA asserts that it has met the mandated February 2009, 50 percent screening deadline, until the agency analyzes required screening data, TSA cannot verify that the mandated screening levels are being achieved.

In addition, although TSA believes its current screening approach enables it to meet the statutory screening mandate as it applies to domestic cargo, this approach could result in variable percentages of screened cargo on passenger flights.¹⁸ This variability is most likely for domestic air carriers that have a mixed-size fleet of aircraft because a portion of their 50 percent screening requirement may be accomplished through the more stringent screening requirements for narrow-body aircraft, thus allowing them more flexibility in the amount of cargo to screen on wide-body aircraft. According to TSA, although this variability is possible, it is not a significant concern because of the small amount of cargo transported on narrow-body flights by air carriers with mixed-size fleets. However, the approach could result in variable percentages of screened cargo on passenger flights regardless of the composition of the fleet. As explained earlier, TSA is in the process of developing a data reporting system that may help to assess whether some passenger flights are transporting variable percentages of screened cargo. This issue regarding TSA's current air cargo security approach will be further explored during our ongoing review.

Lastly, TSA officials reported that cargo that has already been transported on one passenger flight may be subsequently transferred to another passenger flight without undergoing additional screening. According to TSA officials, the agency has determined that this is an approved screening method because an actual flight mimics one of TSA's approved screening methods.¹⁹ For example, cargo exempt from TSA screening requirements that is transported on an inbound flight can be transferred to a domestic aircraft without additional screening, because it is considered to have been screened in accordance with TSA screening requirements. According to TSA, this scenario occurs infrequently, but the agency has not been able to provide us with data that allows us to assess how frequently this occurs. TSA reported that it is exploring ways to enhance the security of cargo

¹⁸Details on TSA's screening approach are Sensitive Security Information and are not discussed in this statement.

¹⁹Details on TSA's approved screening methods are Sensitive Security Information and are not discussed in this statement.

transferred to another flight, including using canine teams to screen such cargo. This issue regarding TSA's current air cargo security approach will be further explored during our ongoing review.

TSA Faces Participation, Technology, Oversight, and Inbound Cargo Challenges in Meeting the Screening Mandate

It Is Unclear Whether TSA Will Be Able to Attract the Voluntary Participants Needed to Meet the 100 Percent Screening Mandate

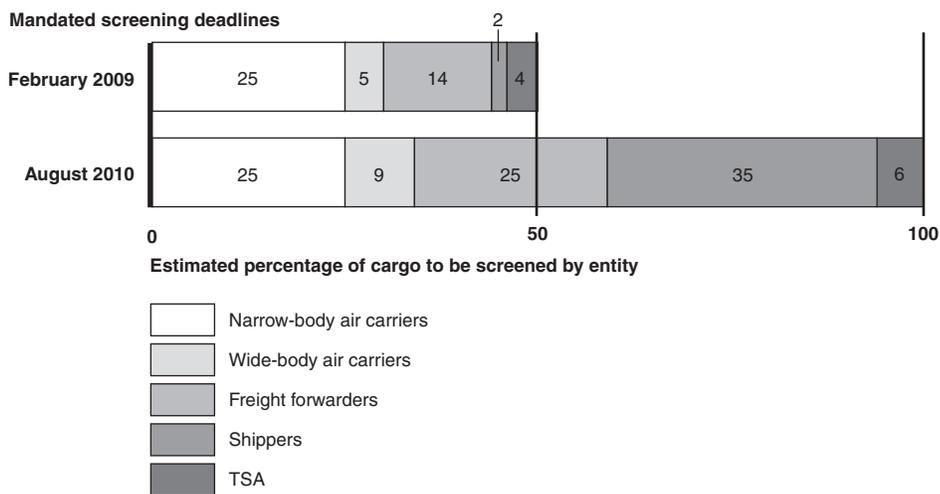
Although industry participation in the CCSP is vital to TSA's approach to spread screening responsibilities across the supply chain, it is unclear whether the number and types of facilities needed to meet TSA's screening estimates will join the CCSP. Although TSA is relying on the voluntary participation of freight forwarders and shippers to meet the screening goals of the CCSP, officials did not have precise estimates of the number of participants that would be required to join the program to achieve 100 percent screening by August 2010. As of February 26, 2009, TSA had certified 172 freight forwarder CCSFs, 14 shipper CCSFs, and 17 independent cargo screening facilities (ICSF).²⁰

TSA estimates that freight forwarders and shippers will complete the majority of air cargo screening at the August 2010 deadline, with shippers experiencing the largest anticipated increase when this mandate goes into effect. According to estimates reported by TSA in November 2008, as shown in figure 1, the screening conducted by freight forwarders was expected to increase from 14 percent to 25 percent of air cargo transported on passenger aircraft from February 2009 to August 2010, while the screening conducted by shippers was expected to increase from

²⁰An independent cargo screening facility is a facility that will accept cargo from freight forwarders and shippers, and screen it for a fee, according to CCSP guidelines.

2 percent to 35 percent. For this reason, increasing shipper participation in the CCSP is necessary to meet the 100 percent screening mandate.

Figure 1: TSA's Estimates, as of November 2008, of Air Cargo Transported on Passenger Aircraft that Various Entities Will Screen as of February 2009 and August 2010



Source: GAO analysis of TSA information.

As highlighted in figure 1, TSA estimated that, as of February 2009, screening of cargo delivered for transport on narrow-body aircraft would account for half of the mandated 50 percent screening level and 25 percent of all cargo transported on passenger aircraft. TSA expected screening conducted on cargo delivered for transport on narrow-body passenger aircraft to remain stable at 25 percent when the mandate to screen 100 percent of cargo transported on passenger aircraft goes into effect.²¹ TSA anticipated that its own screening responsibilities would grow by the time the 100 percent mandate goes into effect. Specifically, TSA anticipated that its canine teams and transportation security officers would screen 6 percent of cargo in August 2010, up from 4 percent in February 2009. It is important to note that these estimates—which TSA officials said are subject to change—are dependent on the voluntary participation of freight forwarders, shippers, and other screening entities in the CCSP. If these

²¹TSA expects air carriers operating wide-body aircraft to screen approximately 5 percent of cargo as of February 2009, and 9 percent when the 100 percent mandate goes into effect in August 2010.

entities do not volunteer to participate in the CCSP at the levels TSA anticipates, air carriers or TSA may be required to screen more cargo than was projected.

Participation in the CCSP may appeal to a number of freight forwarders and shippers, but industry participants we interviewed expressed concern about potential program costs. In preliminary discussions with freight forwarders, shippers, and industry associations, stakeholders told us that they would prefer to join the CCSP and screen their own cargo in order to limit the number of entities that handle and open their cargo. This is particularly true for certain types of delicate cargo, including fresh produce. Screening cargo in the CCSP also allows freight forwarders and shippers to continue to consolidate their shipments before delivering them to air carriers, which results in reduced shipping rates and less potential loss and damage. However, TSA and industry officials with whom we spoke agreed that the majority of small freight forwarders—which make up approximately 80 percent of the freight forwarder industry—would likely find prohibitive the costs of joining the CCSP, including acquiring expensive technology, hiring additional personnel, conducting additional training, and making facility improvements.²² TSA has not yet finalized cost estimates for industry participation in air cargo screening, but is in the process of developing these estimates and is planning to report them later this year. As of February 26, 2009, 12 freight forwarders in 48 locations have joined TSA’s Air Cargo Screening Technology pilot and are thus eligible to receive reimbursement for the technology they have purchased. However pilot participants, to date, have been limited primarily to large freight forwarders. TSA indicated that it targeted high-volume facilities for the pilot in order to have the greatest effect in helping industry achieve screening requirements.

In response to stakeholder concerns about potential program costs, TSA is allowing independent cargo screening facilities to join the CCSP and screen cargo on behalf of freight forwarders or shippers. However, it is unclear how many of these facilities will join. Moreover, according to industry stakeholders, this arrangement could result in freight forwarders being required to deliver loose freight to screening facilities for screening. This could reduce the benefit to freight forwarders of consolidating freight

²²A freight forwarder’s size is determined by its annual sales. For example, a freight forwarder with \$5 million or less in annual sales is considered to be small.

before delivering it to air carriers, a central part of the freight forwarder business model.

TSA Has Taken Some Steps to Develop and Test Technologies for Screening Air Cargo, but Has Not Yet Completed Assessments to Ensure Their Effectiveness

TSA has taken some steps to develop and test technologies for screening and securing air cargo, but has not yet completed assessments of the technologies it plans to allow air carriers and program participants to use in meeting the August 2010 screening mandate.²³ To date, TSA has approved specific models of three screening technologies for use by air carriers and CCSFs until August 3, 2010—ETD, EDS, and X-ray.²⁴ TSA chose these technologies based on its subject matter expertise and the performance of these technologies in the checkpoint and checked baggage environments. According to TSA officials, the agency has conducted preliminary assessments, but has not completed laboratory or operational testing of these technologies in the air cargo environment.

After the technology pilot programs and other testing are complete, TSA will determine which technologies will be qualified for screening cargo and whether these technologies will be approved for use after August 3, 2010. However, TSA is proceeding with operational testing and evaluations to determine which of these technologies is effective at the same time that screening entities are using these technologies to meet air cargo screening requirements. For example, according to TSA, ETD technology, which most air carriers and CCSFs plan to use, has not yet begun the qualification process. However, it is currently being used to screen air cargo as part of the Air Cargo Screening Technology Pilot and by air carriers and other CCSFs. Although TSA's acquisition guidance recommends testing the operational effectiveness and suitability of technologies prior to deploying them, and TSA agrees that simultaneous testing and deployment of technology is not ideal, TSA officials reported that this was necessary to meet the screening deadlines mandated by the 9/11 Commission Act. While we recognize TSA's time constraints, the agency cannot be assured that the technologies it is currently using to screen cargo are effective in the cargo environment, because they are still being tested and evaluated. We will continue to assess TSA's technology

²³Technologies that successfully pass lab assessments and independent testing and evaluation become eligible to undergo additional operational testing and evaluation in an operational environment. Technologies that successfully pass independent and operational evaluation will be added to a list of qualified products.

²⁴Decompression chambers are also approved for use by air carriers.

issues as part of our ongoing review of TSA's efforts to meet the mandate to screen 100 percent of cargo transported on passenger aircraft.

Although TSA is in the process of assessing screening technologies, according to TSA officials, there is no single technology capable of efficiently and effectively screening all types of air cargo for the full range of potential terrorist threats. Moreover, according to industry stakeholders, technology to screen cargo that has already been consolidated and loaded onto a pallet or ULD may be critical to meet the 100 percent screening mandate. Although TSA has not approved any technologies that are capable of screening consolidated pallets or ULDs containing various commodities, according to TSA, it is currently beginning to assess such technology. TSA officials reported that they do not expect to qualify such technology prior to the August 2010 deadline.

Air cargo industry stakeholders we interviewed also expressed some concerns regarding the cost of purchasing and maintaining screening equipment for CCSP participants. Cost is a particular concern for the CCSP participants that do not participate in the Air Cargo Screening Technology Pilot and will receive no funding for technology or other related costs; this includes the majority of CCSFs. Because the technology qualification process could result in modifications to TSA's approved technologies, industry stakeholders expressed concerns about purchasing technology that is not guaranteed to be acceptable for use after August 3, 2010. We will continue to assess this issue as part of our ongoing review of TSA's efforts to meet the mandate to screen 100 percent of cargo transported on passenger aircraft.

In addition to the importance of screening technology, TSA officials noted that an area of concern in the transportation of air cargo is the chain of custody between the various entities that handle and screen cargo shipments prior to its loading onto an aircraft. Officials stated that the agency has taken steps to analyze the chain of custody under the CCSP, and has issued cargo procedures to all entities involved in the CCSP to ensure that the chain of custody of the cargo is secure. This includes guidance on when and how to secure cargo with tamper-evident technology. TSA officials noted that they plan to test and evaluate such technology and issue recommendations to the industry, but have not set any time frames for doing so. Until TSA completes this testing, however, the agency lacks assurances that existing tamper-evident technology is of sufficient quality to deter tampering and that the air cargo supply chain is effectively secured. We will continue to assess this issue as part of our

ongoing review of TSA's efforts to meet the mandate to screen 100 percent of cargo transported on passenger aircraft.

Limited Staffing Resources May Hamper TSA's Ability to Effectively Oversee the Thousands of Additional Entities Involved in Meeting the Air Cargo Screening Mandate

Although the actual number of cargo TSIs increased each fiscal year from 2005 to 2009, TSA still faces challenges overseeing compliance with the CCSP due to the size of its current TSI workforce. To ensure that existing air cargo security requirements are being implemented as required, TSIs perform compliance inspections of regulated entities, such as air carriers and freight forwarders. Under the CCSP, TSIs will also perform compliance inspections of new regulated entities, such as shippers and manufacturers, who voluntarily become CCSFs. These compliance inspections range from an annual review of the implementation of all air cargo security requirements to a more frequent review of at least one security requirement. According to TSA, the number of cargo TSIs grew from 160 in fiscal year 2005 to about 500 in fiscal year 2009. However, cargo TSI numbers remained below levels authorized by TSA in each fiscal year from 2005 through 2009, which, in part, led to the agency not meeting cargo inspection goals in fiscal year 2007. As highlighted in our February 2009 report, TSA officials stated that the agency is still actively recruiting to fill vacant positions but could not provide documentation explaining why vacant positions remained unfilled.²⁵ Additionally, TSA officials have stated that there may not be enough TSIs to conduct compliance inspections of all the potential entities under the CCSP, which TSA officials told us could number in the thousands, once the program is fully implemented by August 2010. TSA officials also indicated plans to request additional cargo TSIs in the future, although the exact number has yet to be formulated. According to TSA officials, TSA does not have a human capital or other workforce plan for the TSI program, but the agency has plans to conduct a staffing study in fiscal year 2009 to identify the optimal workforce size to address its current and future program needs. Until TSA completes its staffing study, TSA may not be able to determine whether it has the necessary staffing resources to ensure that entities involved in the CCSP are meeting TSA requirements to screen and secure air cargo. We will continue to assess this issue as part of our ongoing review of TSA's efforts to meet the mandate to screen 100 percent of cargo transported on passenger aircraft.

²⁵GAO, Aviation Security: Status of Transportation Security Inspector Workforce, [GAO-09-123R](#) (Washington D.C.: February 6, 2009).

TSA Has Taken Some Steps to Meet the Screening Mandate as It Applies to Inbound Cargo but Does Not Expect to Achieve 100 Percent Screening of Inbound Cargo by the August 2010 Deadline

To meet the 9/11 Commission Act screening mandate as it applies to inbound cargo, TSA revised its requirements for foreign and U.S.-based air carrier security programs and began harmonization of security standards with other nations. The security program revisions generally require carriers to screen 50 percent of nonexempt inbound cargo. TSA officials estimate that this requirement has been met, though the agency is not collecting screening data from air carriers to verify that the mandated screening levels are being achieved. TSA has taken several steps toward harmonization with other nations. For example, TSA is working with foreign governments to improve the level of screening of air cargo, including working bilaterally with the European Commission (EC) and Canada, and quadrilaterally with the EC, Canada, and Australia. As part of these efforts, TSA plans to recommend to the United Nations' International Civil Aviation Organization (ICAO) that the next revision of Annex 17 to the Convention of International Civil Aviation (due for release in 2009) include an approach that would allow screening to take place at various points in the air cargo supply chain.²⁶ TSA also plans to work with the International Air Transport Association (IATA), which is promoting an approach to screening cargo to its member airlines.²⁷ Finally, TSA continues to work with U.S. Customs and Border Protection (CBP) to leverage an existing CBP system to identify and target high-risk air cargo.

However, TSA does not expect to achieve 100 percent screening of inbound air cargo by the August 2010 screening deadline. This is due, in part, to TSA's inbound screening exemptions, and to challenges TSA faces in harmonizing its air cargo security standards with those of other nations. TSA requirements continue to allow screening exemptions for certain types of inbound air cargo transported on passenger aircraft.²⁸ TSA could not provide an estimate of what percentage of inbound cargo is exempt from screening. In April 2007, we reported that TSA's screening exemptions on inbound cargo could pose a risk to the air cargo supply chain and recommended that TSA assess whether these exemptions pose an unacceptable vulnerability and, if necessary, address these

²⁶ICAO is a specialized agency of the United Nations with the primary objective to provide for the safe, orderly, and efficient development of international civil aviation.

²⁷IATA is an industry association that represents about 230 air carriers constituting 93 percent of international scheduled air traffic.

²⁸Details on TSA's screening exemptions are Sensitive Security Information and are not discussed in this statement.

vulnerabilities.²⁹ TSA agreed with our recommendation, but has not yet reviewed, revised, or eliminated any screening exemptions for cargo transported on inbound passenger flights, and could not provide a time frame for doing so. Furthermore, similar to changes for domestic cargo requirements discussed earlier, TSA's revisions to inbound requirements could result in variable percentages of screened cargo on passenger flights to the United States. We will continue to assess this issue as part of our ongoing review of TSA's efforts to meet the mandate to screen 100 percent of cargo transported on passenger aircraft.

Achieving harmonization with foreign governments may be challenging, because these efforts are voluntary and some foreign countries do not share the United States' view regarding air cargo security threats and risks. Although TSA acknowledges it has broad authority to set standards for aviation security, including the authority to require that a given percentage of inbound cargo be screened before it departs for the United States, TSA officials caution that if TSA were to impose a strict cargo screening standard on all inbound cargo, many nations likely would be unable to meet such standards in the near term. This raises the prospect of substantially reducing the flow of cargo on passenger aircraft or possibly eliminating it altogether. According to TSA, the effect of imposing such screening standards in the near future would be, at minimum, increased costs for international passenger travel and for imported goods, and possible reduction in passenger traffic and foreign imports. According to TSA officials, this could also undermine TSA's ongoing cooperative efforts to develop commensurate security systems with international partners.

TSA agreed that assessing the risk associated with the inbound air cargo transportation system will facilitate its efforts to harmonize security standards with other nations. Accordingly, TSA has identified the primary threats associated with inbound air cargo, but has not yet assessed which areas of inbound air cargo are most vulnerable to attack and which inbound air cargo assets are deemed most critical to protect. Although TSA agreed with our previous recommendation to assess inbound air cargo vulnerabilities and critical assets, it has not yet established a methodology or time frame for how and when these assessments will be completed. We continue to believe that the completion of these assessments is important to the security of inbound air cargo.

²⁹ [GAO-07-660](#).

Finally, the amount of resources TSA devotes to inbound compliance is disproportionate to the resources for domestic compliance. In April 2007, we reported that TSA inspects air carriers at foreign airports to assess whether they are complying with air cargo security requirements, but does not inspect all air carriers transporting cargo into the United States.³⁰ Furthermore, in fiscal year 2008, inbound cargo inspections were performed by a cadre of 9 international TSIs with limited resources, compared to the 475 TSIs that performed domestic cargo inspections. By mid-fiscal year 2008, international compliance inspections accounted for a small percentage of all compliance inspections performed by TSA, although inbound cargo made up more than 40 percent of all cargo on passenger aircraft in 2007. Regarding inbound cargo, we reported in May 2008 that TSA lacks an inspection plan with performance goals and measures for its international inspection efforts, and recommended that TSA develop such a plan.³¹ TSA officials stated in February 2009 that they are in the process of completing a plan to provide guidance for inspectors conducting compliance inspections at foreign airports, and intend to implement the plan during fiscal year 2009. Finally TSA officials stated that the number of international TSIs needs to be increased.

Madam Chairwoman, this concludes my statement. I look forward to answering any questions that you or other members of the subcommittee may have at this time.

GAO Contact and Staff Acknowledgements

For questions about this statement, please contact Stephen M. Lord at (202) 512- 4379 or lords@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement.

Individuals making key contributions to this testimony include Steve D. Morris, Assistant Director; Scott M. Behen; Glenn G. Davis; Elke Kolodinski; Stanley J. Kostyla; Thomas Lombardi; Linda S. Miller; Yanina Golburt Samuels; Daren K. Sweeney; and Rebecca Kuhlmann Taylor.

³⁰ [GAO-07-660](#).

³¹ [GAO-08-487T](#).

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