DEPARTMENT OF HOMELAND SECURITY

Office of Inspector General

An Evaluation of the Transportation Security Administration's Screener Training and Methods of Testing

Notice: The Department of Homeland Security, Office of Inspector General, has redacted this report for public release based on input from the relevant government entity pursuant to 49 C.F.R. Part 1520. Those redactions are identified as Part 1520 in the report. A review under the Freedom of Information Act, 5 U.S.C. § 552, will be conducted upon request.

Office of Inspections, Evaluations, & Special Reviews

OIG-04-045 September 2004

Office of Inspector General

U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

Preface

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the Homeland Security Act of 2002 (*Public Law 107-296*) by amendment to the Inspector General Act of 1978. This is one of a series of audit, inspection, investigative, and special reports prepared by the OIG as part of its DHS oversight responsibility to identify and prevent fraud, waste, abuse, and mismanagement.

This report assesses the strengths and weaknesses of the program or operation under review. It is based on interviews with employees and officials of relevant agencies and institutions, direct observations, and a review of applicable documents.

The recommendations herein have been developed to the best knowledge available to the OIG, and have been discussed in draft with those responsible for implementation. It is my hope that this report will result in more effective, efficient, and economical operations. I express my appreciation to all of those who contributed to the preparation of this report.

Clark Kent Ervin
Inspector General

Contents

Contents

Appendices

Figures

Contents

Abbreviations

AMTAP	Automated Multi-Level Training Assessment Program
ATSA	Aviation and Transportation Security Act
CBT	Computer-Based Training
DFS	Dual Function Screener
DHS	Department of Homeland Security
DOT	Department of Transportation
EDS	Explosives Detection System
ETD	Explosives Trace Detection
EQA	Office of Evaluation and Quality Assurance
FAA	Federal Aviation Administration
FSD	Federal Security Director
FY	Fiscal Year
GAO	Government Accountability Office
IED	Improvised Explosive Device
IIT	Image Interpretation Test
IMT	Image Mastery Test
IPR	Image Proficiency Review
LEO	Law Enforcement Officer
MBS-2	Modular Bomb Set, Version II
OIAPR	Office of Internal Affairs and Program Review
OIG	Office of Inspector General
OJT	On-The-Job Training
OLC	Online Learning Center
SOP	Standard operating procedure
SPR	Standard Proficiency Review
TAI	TSA approved instructor
TIP	Threat Image Projection
TRX	TIP-Ready X-ray Machine
TSA	Transportation Security Administration
TSL	Transportation Security Lab
WPT	Office of Workforce Performance and Training

Contents

Introduction

In response to the September 11, 2001, terrorist attacks in the United States, Congress enacted the Aviation and Transportation Security Act, Public Law No. 107-71 (ATSA), which established the Transportation Security Administration (TSA). On February 17, 2002, TSA officially assumed responsibility for civil aviation security functions and began hiring and training federal employees to perform passenger checkpoint and checked baggage screening functions. ATSA requires a basic screener training program that consists of 40 hours of classroom instruction, 60 hours of on-the-job training (OJT), and an OJT examination before screeners may perform duties independently. After meeting these initial requirements, screeners must also receive recurrent training, operational testing, and an annual proficiency review, which includes TSA's annual screener recertification testing.

TSA developed two basic training courses to address the needs of passenger and checked baggage screeners. Although both types of screeners are taught some shared knowledge and skills, passenger checkpoint screeners develop additional skills in X-ray operation, screening of persons, and searching accessible property, while checked baggage screeners develop additional skills in searching checked baggage and operating certain machines that detect explosives. TSA's early versions of the basic training courses received criticism from the Department of Transportation and Department of Homeland Security Offices of Inspector General for the quality of OJT and checked baggage screener testing. In June 2003, TSA's Office of Workforce Performance and Training announced plans for course revisions. We initiated this review to determine whether TSA updated the courses and is meeting the training requirements set by ATSA.

Results in Brief

Since the initial deployment of federal screeners in 2002, TSA's basic screener training program has been improved through multiple revisions and amendments. TSA's December 2003 revisions to the passenger and checked baggage screener basic training aligned the course materials with TSA's latest standard operating procedures, presented detailed and technically accurate information, and addressed most topics in sufficient depth without devoting excess class time to extraneous matter. These revisions, however, were not supported by a systematic or comprehensive instructional systems design process and, as a result, were incomplete.

For classroom courses, passenger checkpoint screeners received adequate instruction, practice, and testing to demonstrate that they learned how to perform screening functions described in the standard operating procedures, such as screening passengers with the hand-held metal detector. The same was not true, however, of checked baggage screeners, who received far less hands-on practice, partly because of insufficient access to practice equipment. In addition, some checked baggage screeners received training on a model of Explosives Trace Detection (ETD) machine different from the one on which they would be working. Furthermore, neither passenger nor checked baggage screeners received instruction, practice, or testing for some skills necessary to their functions, such as safety skills to handle deadly or dangerous weapons and objects. Although TSA planned for screeners to acquire additional skills during OJT, guidelines for both types of screeners did not include materials to support training on deferred content. Classroom and OJT could have benefited from more thorough advance planning and analysis to select course content and frame the curriculum.

Test design and administration for the classroom and OJT require further revision. Since we faulted the checked baggage classroom training quizzes and written examinations for a lack of rigor in June 2003, TSA revised and eliminated repetitive and simplistic test questions. However, TSA deployed new checked baggage examinations in December 2003 without pilot-testing and validating the passing score, resulting in a spike in examination failures, which TSA redressed with further test revision and by providing the option of re-training to terminated screeners. For both the passenger checkpoint and checked baggage practical demonstration examinations, TSA did not standardize the instructor delivery, test

scenarios, scoring of performance steps, and test equipment or props available. Variation in administration of the practical demonstration examinations, which occurred in both classroom and OJT, resulted in the deployment of screeners with different levels of course material mastery. We understand TSA's interest in expediting course and test design, but view the short-cuts as significant flaws that have weakened the training program. The following table summarizes our major observations of the December 2003 passenger checkpoint and checked baggage basic training courses that are discussed in this report:

Figure 1. Summary of Basic Screener Training Observations

Observations		As of December 1, 2003		
		Passenger	Checked Baggage	Page References
CLASSROOM	Analysis Framed Course Design	no	no	14
	Necessary Skills Trained and Tested	no	no	17, 25
	Students Trained on Equipment Models in Use at Their Airports	N/A[1]	no	66
	Curriculum Materials Technically Accurate and Detailed	yes	yes	16
	Lesson Objectives Conveyed to Students	yes	no	20
	Ample Hands-on Practice	yes	no	32
	Sufficient Training Materials and Equipment Available	no	no	25, 32
	Written Exams Pilot-Tested and Adequately Validated	no	no	21, 37
	Standardized Administration of Practical Demonstration Exams	no	no	24, 34, 37
	Sufficient Steps Taken to Prevent Exam Compromise	no	no	23
ON THE JOB	Analysis Framed Course Design	no	no	41
	Curriculum Materials Adequately Detailed	no	no	43
	Necessary Skills Trained and Tested	no	no	41, 46
	Monitors Certified to Train Screeners	no	no	47
	Standardized Administration of Practical Demonstration Exams	no	no	48

[1] The December 1, 2003, passenger basic curriculum did not provide model-specific training for the equipment that passenger screeners use, including the Explosives Trace Detection machines. Checked Baggage screeners receive model-specific training for the Explosives Trace Detection machines and Explosives Detection Systems.

In addition to the basic screener training programs, we also reviewed TSA's recurrent training, annual screener recertification testing, and issues related to increasing screeners' performance in detecting prohibited items. TSA made significant improvements to the recurrent training program, setting a screener training requirement of three hours per week and distributing an array of training materials and tools to airports. Also, TSA recently completed its first annual screener recertification testing. However, both programs require further development. For example, the Online Learning Center, TSA's intranet-based tool for tracking and disseminating recurrent training, is only partially available to the majority of airports because TSA has not yet established sufficient network connectivity for computer training labs. TSA is planning to address other identified needs, such as fully testing cross-trained screeners[2] in both passenger checkpoint and checked baggage screening skills during the next annual screener recertification.

Because screener performance in detecting prohibited items is not a reflection of training alone, TSA should also improve supervisory reinforcement of screener training and account for continually changing training requirements. Most importantly, TSA should accelerate efforts to develop and deploy advanced screener technologies because their application holds the greatest long-term potential for reducing airport security system vulnerabilities and increasing the detection of prohibited items.

An April 2004 revision to the basic screener training program, the Dual Function Screener Course, begins to address some issues raised in our review. In addition, TSA's Office of Workforce Performance and Training has developed internal plans and analyses to help guide improvements to the screener training program. This report contains 22 recommendations to the TSA Administrator to improve security screener training and methods of testing (see Appendix C).

Background

In November 2001, the President signed the Aviation and Transportation Security Act (ATSA), which created TSA within the Department of Transportation (DOT).

[2] Cross-training certifies baggage screeners on passenger screener operations or passenger screeners on baggage screener operations.

ATSA mandated that TSA deploy federal personnel to oversee the screening of all commercial airline passengers by November 19, 2002, and checked baggage by December 31, 2002. TSA hired, trained, and deployed over 55,000 federal passenger and checked baggage screeners by the mandated deadlines to commercial airports across the United States.[3] On March 1, 2003, TSA was integrated into the Department of Homeland Security (DHS) under the Border and Transportation Security Directorate.

Before September 11, 2001, screeners operating under the Federal Aviation Administration's (FAA) regulatory authority were required to undergo 12 hours of classroom instruction and 40 hours of OJT. In contrast, ATSA required that within 60 days of its enactment TSA develop a basic screener training program with a minimum of 40 hours classroom instruction, 60 hours of OJT, and an OJT examination. In response, TSA developed separate basic training programs for passenger checkpoint and checked baggage screeners that met the ATSA requirements. During the passenger checkpoint basic training program, TSA trained passenger checkpoint screeners to screen persons and their accessible property by operating walk-through metal detectors, X-ray machines, hand-held metal detectors, and ETD machines and by performing pat-downs of persons and physical searches of bags. During the checked baggage basic training program, TSA trained checked baggage screeners to screen checked baggage by operating Explosives Detection System (EDS) and ETD machines and by performing physical searches of bags.

TSA conducts classroom training at airports where a large number of newly hired screeners await training. Newly hired screeners located at airports where training is not taking place are scheduled and deployed to airports where classroom training is conducted. The number of courses offered depends upon the number of newly hired screeners in need of training.[4]

[3] Five commercial airports (San Francisco; Rochester, N.Y.; Tupelo, Miss.; Jackson, Wyo.; and Kansas City, Mo.) participate in a pilot program that allows them to employ screeners privately. These non-federal screeners must meet TSA training standards, and they attend the same basic training courses and participate in recurrent training and annual recertification.

[4] In December 2003, the typical class size for the Checked Baggage Screener Basic Course and the Passenger Screener Combo Basic Training Course was 15 and 24 students, respectively.

To prepare federal screeners for their initial deployment, TSA contracted with Lockheed Martin to provide basic training and track OJT for passenger checkpoint screeners. Boeing Service Company received the contract to provide a similar training program for checked baggage screeners. Both companies employed several subcontractors to perform contracted tasks. In May 2003, Lockheed Martin was awarded the contract to provide both types of training. TSA was appropriated approximately $206 million for screener training and trained 25,387 newly hired screeners in FY 2003. In FY 2004, approximately $112 million was appropriated, and 9,579 newly hired screeners were trained as of June 18, 2004. TSA requested a total of $145 million for training in FY 2005.[5]

Since the initial deployment of TSA's screener workforce, the screener training program and the performance of federal screeners have been the subject of numerous reports and articles. On January 26 and January 28, 2003, *Newsday* printed two articles alleging that TSA instructors of checked baggage courses held at LaGuardia Airport in New York provided students answers to questions prior to their taking the final examination. TSA's Office of Internal Affairs and Program Review (OIAPR) conducted a review of these allegations. Following OIAPR's report, we initiated an inspection of OIAPR's review on June 12, 2003. Although OIAPR's findings were supported by its interviews and analysis, we noted serious concerns regarding TSA's testing plan. Specifically, TSA instituted a training and testing method that prepared each student to answer a specific set of questions upon examination. By doing this, TSA lost the opportunity to evaluate the student's mastery and comprehension of the course material. In addition, we expressed concerns about the content and phrasing of examination questions that provided obvious clues to correct answers.[6]

Also on June 12, 2003, TSA's Workforce Performance and Training Division (WPT) issued an internal memorandum that provided information on actions planned by TSA to update, modify, and improve the training of checked baggage screeners. These actions included (1) a complete review of the program and the refinement of areas needing improvement; (2) a revamping of all quizzes

[5] Data provided by the Transportation Security Administration, June 18, 2004.

[6] Department of Homeland Security, Office of Inspector General, Office of Inspections, Evaluations, and Special Reviews, "*Transportation Security Administration's Checked Baggage Screener Training and Certification: A Letter Report,*" Report #ISP-02-03, August 2003.

and formal test material to ensure there is no duplication of questions; and (3) a review of the updated testing materials to ensure test validity.

In our initial inspection, we committed to a follow-up review of TSA's training and testing methods to evaluate the effectiveness of the changes TSA announced it would make. In response to growing public attention to airport security measures and the performance of both passenger and checked baggage screeners, we included the quality of both the passenger and checked baggage screener training programs in our review.

When we began fieldwork for this report in December 2003, TSA continued to require newly hired checked baggage screeners to complete 40 hours of classroom instruction by attending the Checked Baggage Screener Basic Training course and 60 hours of OJT. However, in partial fulfillment of TSA's June 2003 pledge, the December 2003 checked baggage course included revised training and testing materials. For passenger checkpoint screeners, TSA required successful completion of 47 hours of classroom instruction by attending the Passenger Screener Combo Basic Training course and 60 hours of OJT. Similar to the checked baggage course, the December 2003 passenger checkpoint course offered revised training and testing materials.

On April 5, 2004, TSA introduced its new 91.5-hour Dual Function Screener (DFS) training course to replace the previous basic screener curriculum for newly hired screeners. This course, taught over nine days, builds on and updates the materials from the December 2003 courses. The DFS course is a longer, modularized course designed to equip newly hired screeners with the knowledge, skills, and ability to perform successfully all the duties associated with both passenger and checked baggage screening. Newly hired screeners who are expected to operate EDS machines must pass all job-knowledge testing associated with the DFS course and receive an additional two days of training on EDS machine operation. Because it was introduced near the completion of our fieldwork, we did not review the DFS course curriculum. TSA staff commented that the DFS course revisions resolve some of the issues raised in this report, particularly regarding test development. Where we were able to verify the revisions, they are incorporated in the text of the report; further TSA comments are in Appendices A and B.

Purpose, Scope, and Methodology

We reviewed TSA's basic screener training and methods of testing to determine whether (1) screener training established the qualifications, knowledge, skills, and aptitudes necessary to detect items not authorized by federal law on aircraft, and (2) testing methods enabled TSA to identify students who will successfully perform as passenger or checked baggage screeners. In addition, we followed up to determine whether the TSA revamped the quizzes and final examinations given during classroom training, which we criticized in our first report. Finally, we determined whether recurrent training, weekly X-ray image interpretation training, screener performance improvement videos, and recertification testing were planned and implemented effectively by TSA.

We analyzed ATSA and reports related to screener training written by DHS OIG, DOT OIG, Government Accountability Office (GAO), and TSA's OIAPR. Additionally, we analyzed TSA policies, procedures, documentation, standard operating procedures (SOPs), and contracts relevant to passenger and checked baggage screener basic training. We also examined TSA and contractor passenger and checked baggage screener basic training curriculum materials and manuals, methods of testing and tools used, and related records.

We interviewed TSA personnel at headquarters and six TSA field offices, including Federal Security Directors (FSDs), Deputy Federal Security Directors, training coordinators, scheduling officers, supervisory transportation security screeners, and screening managers. We also interviewed TSA contractor training personnel from Lockheed Martin Corporation and its subcontractors, including basic screener classroom training instructors. Last, we interviewed officials from the manufacturers of security screening equipment, including InVision, GE IonTrack, Smiths Detection, and Thermo Electron Corporation, and officials from TSA's Transportation Security Laboratory.

We observed three 40-hour Checked Baggage Screener Basic Courses — two on the operation of CTX 2500/5500 EDS and Ionscan 400B ETD machines and one on the operation of 3DX 6000 EDS and Ionscan 400B ETD machines. We also observed three 47-hour Passenger Screener Combo Basic Courses and one Passenger to Checked Baggage Cross-Training Course. In addition, we visited three field locations to observe OJT.

We patterned our review of these courses after a common instructional systems design model, which focuses on identifying employee performance needs, designing training to meet the needs, and evaluating training to ensure the needs have been met. The model organizes instructional design into systematic phases: analysis, design, development, implementation, and evaluation. In general, analysis involves identifying training needs and selecting training content; design involves outlining the course, including lesson objectives and tests; development involves producing course materials; implementation includes training delivery; and evaluation involves assessing student learning and course quality in order to identify improvements. Our evaluation emphasized the analysis, design, implementation, and evaluation phases.[7]

Our fieldwork was conducted from December 2003 to May 2004. The inspection was conducted under the authority of the Inspector General Act of 1978, as amended, and according to the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency.

Findings

Basic Screener Classroom Training

Analysis

Training development should begin with a formal analysis to identify employee training needs, a process that federal regulations require agencies to perform at least annually.[8] While ATSA establishes minimum training needs for TSA, such as 40 hours of classroom instruction for new screeners, systematic and comprehensive analysis is fundamental to selecting the specific training content

[7] Assessing the efficiency and effectiveness of TSA's actions during the development phase, such as contracting out the production of training materials, was outside the scope of this review.

[8] 5 C.F.R. 410.203; Executive Order 11348, *Providing for the Further Training of Government Employees*, April 20, 1967; and OPM's *Human Capital Assessment and Accountability Framework.*

and aims.[9] TSA has not yet completed or applied training analysis to the design of the basic screener training program. Several of TSA's work products contain information pertinent to the analysis, including the 2002 *Skills Standards for Transportation Security Screeners*, the SOPs and Aviation Operations Directives that delineate screening tasks, and the 2003 *Passenger Screener Performance Improvement Study*. To date, WPT applied this guiding information to the basic training courses only partially. However, WPT indicated to us that it plans to conduct a full analysis in support of its next course revisions.

Because TSA began hiring and training screeners within two months of its formation, the initial basic screener training courses were not shaped by a formal analysis, which would have consumed the time TSA spent designing and developing the courses prior to rollout. However, as TSA revised the courses several times over the eighteen months following their first use, TSA did not revisit the analysis phase and complete a full assessment of specific screener training needs and course aims. WPT staff said that the comprehensive March 2002 *Skills Standards for Transportation Security Screeners*[10] could serve as the foundation of analysis for the basic screener training program. However, WPT has not used the study to guide the revision of the basic screener training program. Instead, WPT primarily applied TSA's SOPs and Aviation Operations Directives to determine the content of the December 2003 revisions. The SOPs and directives contain detailed information on how to perform TSA-approved screening methods. While their incorporation in the curricula was a positive step, they contain a less comprehensive list of screener job tasks than the *Skills Standards.* A number of job tasks listed in the *Skills Standards* are incompletely addressed in or absent from the basic training courses. Further, neither the *Skills Standards* nor the SOPs and Aviation Operation Directives set levels for screener

[9] One interpretation of analysis defines its primary components as needs assessment, performance analysis, and task analysis. During needs assessment, the agency identifies what employee performance changes are needed to meet organizational goals. If changes are needed, performance analysis helps the agency identify and select tools and strategies for change, which may include not only training but also environmental and motivational options. When the agency selects a training strategy, task analysis helps the agency develop job duties into discrete tasks, training content, and measurable objectives.

[10] The study inventories screener responsibilities and includes a weighted, supporting list of knowledge and skills that passenger checkpoint screeners must show in order to succeed on the job, ranging from customer service skills to screening animal cages. The study, which has undergone several revisions and accounts for some checked baggage screener responsibilities, would help WPT to select and define the job tasks in the basic courses.

performance to help guide TSA's expectations of screener performance during training and testing.

Another study TSA did not incorporate in its analysis is the July 2003 *Passenger Screener Performance Improvement Study*, which identified causes for and solutions to the screener failure rate on operational tests. The study identified over 100 recommendations that address environmental and motivational factors, as well as inadequate screener knowledge and skills. Because it examined the performance gaps of passenger checkpoint screeners who already completed basic training, the training-related solutions involve recurrent training. Some recommended solutions, however, also have implications for basic training. For example, one solution involves providing screeners with guidance on optimal on-screen bag search techniques, something that would be useful when screeners are first learning X-ray image interpretation. This solution was not included in the December 2003 screener curriculum revision.

WPT recognizes that completing and applying an analysis to frame the screener basic training courses is overdue. A December 2003 study by WPT's Performance Consulting team recommended that WPT complete an analysis for the basic screener training program. This had not been done at the time of our evaluation. Since the existing work products that support the analysis focus mainly on passenger checkpoint screeners, it is important for WPT to extend the analysis to checked baggage screeners. A complete analysis will help TSA ensure that the basic screener training program includes the appropriate content and, by extension, leads to organizational improvement.

We recommend that the TSA Administrator:

Recommendation 1: Complete the analysis for basic screener classroom training, both for passenger checkpoint and checked baggage screeners, and institute mechanisms to ensure that staff update the analysis at least annually and apply the results to curriculum revisions.

Design

The design phase involves transforming the screener training needs identified in the analysis phase into course objectives, strategies, and curricula. Partly

because TSA did not use a systematic training analysis to guide the revised design, the December 2003 design for the passenger checkpoint and checked baggage classroom courses did not fully meet basic training needs. The revisions improved previous basic course versions by updating the training content to reflect the latest version of TSA's SOPs and Aviation Operations Directives, and the revised content provided technically accurate instruction for all the TSA-approved screening methods. However, important knowledge and skills outlined in the *Skills Standards for Transportation Security Screeners* were not included in the course objectives. Instructional strategies, such as the explicit presentation of course objectives and the effective use of training materials and tools, were not fully developed. Further, the test design for both the written and practical examinations did not comprehensively address course objectives; written examinations require further validation; and practical examinations require greater standardization. Therefore, although the December 2003 revisions improved the course design, TSA should continue the revision process.

Some Standard Knowledge and Skills Identified as Important for Transportation Security Screeners Were Missing from the Course Curriculum

Neither the passenger checkpoint nor checked baggage curriculum covered the full scope of the occupational knowledge and technical skills necessary to effectively perform screening functions. In addition, certain lessons in each did not engage subject matter in appropriate depth and were, therefore, incomplete.

TSA identified occupational knowledge and technical skills that screeners should develop in the *Skills Standards for Transportation Security Screeners* and the screening SOPs. There is no requirement to teach all of these skills, e.g., heart attack recognition, in basic training. However, the basic courses should prepare screeners to perform routine duties. For the most part, the classroom courses address TSA-approved screening functions, background knowledge about TSA, and customer service skills. The courses do not address all of the skills that the *Skills Standards* and SOPs suggest new screeners need, such as:

- Reading airline tickets and baggage tags when screening selectees who require special attention;
- Handling deadly or dangerous weapons and objects;

- Recognizing acceptable forms of identification for travelers claiming a right to bring weapons on aircraft, such as Law Enforcement Officers (LEOs); and
- Repacking baggage after searches.

While some of these skills could be taught during OJT, there is no requirement that they be covered then.

Both the passenger checkpoint and checked baggage SOPs identify the ability to recognize artfully concealed threats as a requirement for the successful execution of all screening functions. However, while the lecture presentations for all of the passenger checkpoint and checked baggage screening functions contained some discussion of artful concealment, the curricula required very little practice and testing. Only the course training on X-ray operation required all screeners to receive practice and skills testing in the identification of artfully concealed threats, such as a Lockerbie-type radio bomb. For other passenger checkpoint screening functions, such as physical search of property and hand-wanding, most practice scenarios did not involve artfully concealed threats, and thus only a few screeners received hands-on practice identifying them. The checked baggage curriculum required no practice or skills testing of screeners in identifying artfully concealed items.

The checked baggage curriculum omitted other knowledge and skills critical to screeners. Although checked baggage screeners learn during classroom training to interpret EDS images to recognize common objects, such as food items and clothing, the lesson does not train screeners to recognize threat items, such as Improvised Explosive Devices (IEDs). Unlike x-ray machines, EDS machines identify threat items for additional screening, without screener image interpretation. However, screeners who can interpret EDS images to identify IEDs can take the safety precaution of holding threats in the explosive-resistant EDS tunnels,[11] thereby avoiding triggering explosive or incendiary bag contents when the luggage is ejected from the EDS machine or receives additional screening. TSA provides practice in EDS IED recognition during on-the-job training. TSA

[11] Unlike the Passenger Checkpoint SOPs, the Checked Baggage SOPs do not explicitly require threat items to be held in the EDS tunnel for further examination by a supervisor and law enforcement officer.

should take the opportunity to begin this training in the classroom because classroom training is structured and standardized.

Another skill identified by TSA as critical to screeners is the handling and screening of animals and cages. Many airlines permit house pets to be checked as baggage. This subject, however, is omitted from the checked baggage curriculum. Because live animals cannot be screened using EDS machines, checked baggage screeners must know how to handle and physically search animals and their cages for prohibited items.

Also absent from the passenger checkpoint curriculum, and reviewed in a cursory manner in the checked baggage curriculum, was discussion, demonstration, and practice of proper lifting techniques. During FY 2003, TSA employees' injury and illness rate (19.4%) and lost time rate (8.9%) were the highest in the federal government.[12] Although TSA may provide some instruction on proper lifting techniques during recurrent and on-the-job training, not all screeners received the training. A review of training records at one airport showed that just over half of active screeners had documented training in proper lifting techniques. TSA should provide thorough training, including practice, *before* screeners are required to lift baggage. Proper lifting skills are critical to both checked baggage and passenger screeners and are necessary to avoid injury and limit time away from the job.

Some occupational knowledge and technical skills identified by TSA as important to passenger checkpoint and checked baggage screeners were addressed perfunctorily or incompletely in the curricula. While classroom training materials included learning objectives on these topics, they devoted little pertinent content. For example, while both courses had "Screener Awareness" modules that addressed safety-related issues, little information was provided on how to identify hazardous substances in bags or respond to contact with toxic items in bag searches. The safety information put forward in the course was also devoid of any discussion of pathogens like HIV and hepatitis that may be communicated to screeners through contact with needles or bodily fluids in or on baggage.

In addition, ETD machine operation training in the passenger checkpoint course lacked sufficient depth. Unlike the basic checked baggage course, the passenger

[12] Federal Illness and Injury Statistics for FY 2003, OSHA.

checkpoint course did not include training on ETD component familiarization, maintenance and alarm documentation requirements, start-up and shut-down procedures, calibration/verification procedures, and shift maintenance. Also, the course abbreviated the training on ETD decontamination procedures and machine errors and corrective actions. While the responsibility for performing these important ETD operations has yet to be plainly designated by TSA, some of the associated tasks are related to basic machine operation and should be taught to rank and file screeners. Curricular shortcomings in this area could create confusion and lead to the improper use of ETD machines, thus increasing aviation security system vulnerability. At a minimum, the limited ETD training for passenger checkpoint screeners needlessly burdens screener supervisors with the tasks and creates the opportunity for screening delays.

Checked Baggage Course Objectives Were Not Clearly Presented

Course objectives specify what students should be able to do in order to be considered competent. Because they provide students the means to organize their efforts toward acquiring certain knowledge and skills and accomplishing desired tasks, course objectives should be stated clearly at the beginning of each module and lesson. Moreover, by referring to training curricula that clearly identify the results that students should attain, instructors can more easily determine whether students have gained the appropriate knowledge and skills.

The coverage of identified instructional objectives was exceptionally thorough in the passenger checkpoint curriculum. In line with model training standards, the passenger checkpoint curriculum explicitly identified specific objectives for all 17 modules of the training program. The curriculum materials addressed each objective in the content for that section and presented a review of the objectives at the end of each module.

The checked baggage curriculum, however, rarely made course and lesson expectations evident to students. Care was not taken in the design of the curriculum to ensure that learning objectives were presented to students at the beginning of the lessons. For the most part, course materials only made provision for the verbal presentation of lesson objectives to students, rather than, for example, by presentation on a slide at the beginning of a module. Of 11 modules and lessons presented during each checked baggage course, only one clearly

specified the objectives to students at the beginning of the lessons. Objective review sections were typically included at the end of the modules and lessons.

Testing Issues Remained

a. Written Examinations

As planned in June 2003, TSA revamped all checked baggage quizzes and examinations to prevent duplication of questions and reviewed the updated materials to ensure test validity.[13] By cutting and revising quizzes, TSA eliminated rehearsal of examination questions. Also, for the new, December 2003 written examinations, TSA reviewed the content for validity and eliminated simplistic questions. Nevertheless, testing issues remained.

First, each of the checked baggage course's three 25-question, multiple-choice examinations was administered immediately following relevant classroom modules. As a result, they had limited ability to assess students' long-term retention. Second, some of the test questions did not have a precise match to the lessons. Some "incorrect" answers were factually correct,[14] and some "correct" answers did not reflect what instructors emphasized to screeners. Ambiguous questions caused screener confusion and blurred the distinction between screeners who retained the lesson material and those that did not.

[13] For a test to be validated, analysis of related evidence and theory should support the proposed interpretation of the test scores; that is, the test measures what it is intended to measure.

[14] TSA elected to use "best answer" format, in which more than one answer may be correct for some questions. Only one answer, however, is the best correct answer in terms of degree of correctness.

Also, several questions, which should not be used during future testing, did not correspond to information presented in course materials.

Instead of a series of written examinations, the basic passenger checkpoint course had a single, 78-question multiple-choice test. Administered at the course's conclusion, after screeners had significant time to practice and study the course material, this test provided a better assessment of screeners' retention. In addition, passenger checkpoint test questions were generally challenging without being ambiguous or misleading.

Unfortunately, the written exams for both the passenger checkpoint and checked baggage courses were unvaried, rendering them vulnerable to compromise. The questions on the exams were always presented to test takers in the same sequence and TSA had no other versions of the exams to issue in the event that answers were leaked. Staff from TSA's Standards, Testing, and Certification division said that alternate exams have been prepared for current basic screener courses should test answers from the primary version of an exam be inappropriately disclosed.

Finally, neither the passenger checkpoint course nor checked baggage course material had post-test review sessions. Instructors could have used post-test reviews to address misunderstandings identified by the testing. Instead, screeners who failed to answer questions correctly on the written examination may have carried their associated misperceptions to the workplace. While subsequent training in an OJT setting may address those misconceptions, OJT cannot be relied on to discover or remedy them before they have become entrenched.

[15] TSA did not pilot test the checked baggage course written examinations before their release.

b. Practical Demonstration of Proficiency Evaluations

Following initial classroom training, students perform a practical demonstration of their skills and ability to perform basic screening functions. The administration of practical skills tests for checked baggage was inconsistent. Test procedures for instructor evaluations did not provide sufficient detail on assessing demonstrated tasks. The brevity of the test administrator guidelines fostered broad instructor discretion. Practical demonstration test materials included a list of tasks students were to demonstrate, but did not provide a sequenced list of steps that must be executed for a student to be credited with successfully performing a given task. For example, the 100% Checked Baggage practical test required instructors to give screeners a passing or failing mark for "General ETD Sampling Procedures/ Sampling Environment (tables, lifting)" and "General ETD Sampling Procedures/ Cross-Contamination." With the components of these tasks undefined, instructors gave some screeners passing marks even though they failed to sample and decontaminate the screening table, a step fundamental to both tasks. Further undermining uniformity, the test guidelines for practical demonstrations of ETD-swiping and physical inspections of luggage did not provide for standardized test bags and contents.

The passenger checkpoint practical skills testing showed similar weaknesses. The absence of test administration instructions and detailed guidance on how to assess performance of screening tasks permitted a subjective evaluation. Important information about appropriate test scenarios and evaluative criteria was missing from the practical assessment framework. For the walk-through metal detector practical test, for example, students screened widely varying numbers of passengers, and whether the passengers exhibited threat behavior was arbitrary and inconsistent for each test. Throughout the practical exams, students were required to discuss rather than demonstrate alarm resolution, even when sufficient props were available to enable realistic demonstration. Furthermore, instructors were not cautioned against coaching students during the evaluation.

Methods of Testing Failed to Measure Adequately Whether Some Objectives Were Met

The curriculum for passenger checkpoint and checked baggage screeners did not properly assess student comprehension on some areas of knowledge and skills relevant to screening.

TSA checked baggage course written examinations and practical demonstrations of proficiency were not structured to test trainees on all key learning objectives. Checked baggage screeners were not tested on their familiarity with IED components and configurations, knowledge of safety and maintenance reporting and documentation requirements, customer service skills, or general familiarity with airports and security systems. While much of this knowledge and many related skills may be addressed during OJT, guidelines do not call for testing in any of these areas after completion of OJT.

Similarly, when considered as a whole, the series of examinations administered to screeners following the passenger checkpoint classroom training did not test students on several important objectives and necessary job knowledge and skills presented in the curriculum. For example, students' knowledge of the different types of explosives, situations when full-body and limited pat-downs are required, screening procedures for animals, screening procedures for persons with prosthetics, communication with and information about people with disabilities, passenger rights during screening, and the legal basis for the same, were not formally tested. Guidelines for the OJT portion of basic screener training do not call for testing in any of these areas, either.

Materials and Tools Needed to Support Training Were Inadequate

Interesting and effective training materials and tools are necessary to supplement good training techniques. They reinforce learning, bring variety to the session, allow learners to use more than one sense to increase learning, provide take-home references, and encourage active participation during the instructional process.

The resources and support materials devoted to the checked baggage course were inadequate. Basic learning aids such as training manuals and slide presentation summaries were not provided to students. Students could have benefited from

the use of these materials. They permit students to access information at a later time, absorb information at their own pace, and eliminate the need to take notes frantically. Resource and support shortcomings also were evident in multimedia presentations included in the course. In one particularly notable instance, a video presented during the customer service portion of the course was produced for another audience and did not address the customer service issues associated with checked baggage screening. The materials for the passenger checkpoint course were somewhat better. Although the course did not offer a training manual for students, students received procedure summary sheets for each screening function during training.

Students enrolled in basic screener courses were not permitted to remove course materials from the classroom. This practice limited student initiative to pursue learning independently and reduced opportunities to reinforce classroom instruction. Furthermore, because of scheduling constraints on studying in class before the examinations, students' inability to refer to course materials outside of class may have adversely affected test performance. In April 2004, TSA introduced new training manuals and materials for the new DFS course. TSA also adopted a new policy permitting students enrolled in the DFS course to use these materials in class and for individual study after hours.

TSA also recognized the need to improve another important training tool—image recognition software used during the passenger checkpoint screener basic training. X-ray object recognition is arguably the most challenging aspect of passenger screening; training in this area is essential to screener job preparedness. To cultivate skill in this arena, the basic passenger screener course employed a computer-based training (CBT) tool. The original Smart Systems CBT tool permitted students to choose from simulated representations of all three models of X-ray machines in use at commercial airport screening stations in the U.S. Students using Smart System would make judgments about whether X-ray images of bags presented on their screens contained obvious threats, possible threats, or no threats. Feedback on student judgments was provided at the end of an image review session. Unfortunately, this system had several flaws. First, threats and bags were often repeated, allowing students to memorize them. While this repetitiveness reinforced students' image recall, it reduced the emphasis that could have been placed on critical review and evaluation of new images with novel threat presentations. Second, the software regarded certain items as threats that are

not currently regarded as threats in the U.S. And finally, the Smart System CBT simulator offered images that were of inferior quality when compared to those presented on actual X-ray machines.

In response to these concerns, TSA is now using a more advanced image training tool, X-Ray Tutor. This application has substantially more training images (14.4 million) and adapts to user object recognition capabilities based on past performance. In addition to customized training, X-Ray Tutor provides users with instant feedback on decisions to clear or further examine bags. Unlike the former CBT feedback mechanism, which presented information on the accuracy of screener judgments at the end of training sessions, X-Ray Tutor software educates students on decision-making failures while their rationale for clearing or further examining a bag is still fresh in their minds. The use of X-Ray Tutor also represents a major improvement in CBT because it is accompanied by a formal X-ray image interpretation training module, which includes a lesson on threat object pattern recognition, module objectives, a summary, and review test.

For all current and future basic screener classroom curricula, we recommend that the TSA Administrator:

Recommendation 2: Ensure that passenger checkpoint and checked baggage basic course objectives (1) address the knowledge and skills necessary for routine screener performance, as identified by the most current task analysis, and (2) are presented to students at the beginning of course lessons.

Recommendation 3: Further revise written examinations and administration procedures, including the following steps:

- Ensure all course objectives receive an appropriate assessment of student learning;
- Thoroughly validate tests, including passing scores, if they are to be used for selection decisions;
- Pilot-test examination questions to ensure their clarity and objectivity;
- Schedule tests later during the course to enhance their ability to measure students' long-term retention of course material; and
- Incorporate post-test reviews to prevent screener misconceptions from being carried into the workplace.

Recommendation 4: Develop and distribute detailed test administration guidelines for Practical Demonstration of Proficiency Evaluations with the aim of increasing standardization.

Recommendation 5: Distribute effective training materials to reinforce learning and allow for individual study outside the classroom.

Implementation

The implementation phase of training development focuses on the delivery of a training program. Improvements that TSA should make to the implementation of the basic screener classroom training include: reinstating the OJT requirement for newly hired instructors, requiring instructors to undergo annual recertification testing, analyzing the cost and feasibility of establishing designated training sites, increasing the use of instructional methods other than lecture, ceasing coaching of students during practical skills testing, and ensuring leadership within the screener workforce diligently monitor screeners.

Instructor Requirements Do Not Mandate Additional Practical Experience or Annual Recertification

No person is authorized to instruct basic screener training, excluding OJT, unless that person is an approved instructor who has been certified by TSA. Currently, Lockheed Martin provides TSA with contracted instructors for both passenger checkpoint and checked baggage classroom training. In order to teach basic screener courses, contracted instructors are required to meet the following qualifications:

- Be a graduate of a formalized instructor-training program, such as American Society for Training and Development or military/federal instructor training;
- Prior to instructing, attend a basic passenger or checked baggage classroom training course and pass any courses they will be teaching;
- Observe and assist a qualified instructor teaching the same course they will be teaching; and

- Successfully demonstrate the required qualifications with a one-hour "practice teach" for a panel of TSA or contractor master instructors and a quality assurance representative.

In May 2003, TSA added another requirement. After attending classroom training, newly hired contracted instructors were required to observe live screening operations for the course they instruct—three days of passenger OJT or two days of checked baggage OJT. In December 2003, however, TSA cancelled this instructor requirement due to the salary and travel costs. In addition, some instructors complained that the instructor OJT requirement had limited value because, as contractors, they were restricted to passive observance of the passenger checkpoints and checked baggage stations, rather than performance of screening duties.

Despite the cost and practical limitations of this OJT requirement, it is an important step in ensuring that instructors have the experience necessary to train newly hired screeners on screening equipment and procedures. The observations included in this modified OJT allow instructors to learn how the security screening process operates under real airport conditions, with local variations, and to learn from screeners, lead screeners, supervisory screeners, and screening managers about their experiences on the job. TSA said that it has plans to develop a new OJT program for new instructors that is "more meaningful," but still includes observation of screening operations and dedicated time with lead and supervisory screeners. The additional experience gained during OJT would better equip instructors with the knowledge and skills to lecture confidently and successfully on screening procedures, to demonstrate screening skills, and to answer questions posed by students during classroom training.

Instructors are not currently required to undergo annual recertification testing. By May 1, 2004, 170 contract instructors completed training on the new DFS course. Each of these instructors was recertified after passing three written tests with a score of 70% or better and demonstrating multiple practical skills. Instructors who did not attend the DFS training, however, have not been recertified. While the instructors teaching the courses appeared competent, all instructors, like security screeners, should undergo an annual recertification to determine their mastery of the changing screening requirements and ability to continue to perform successfully as a security screening instructor. Although TSA's Office

of Evaluation and Quality Assurance (EQA) conducts quality assurance checks by evaluating instructors, debriefing them, and removing any instructor deemed incompetent, the staff dedicated to conducting these checks is small; therefore, the number of quality assurance site visits and instructor evaluations is very limited. Staffing within TSA's EQA division permits visits to only five percent of training sites on a monthly basis. Annual recertification of instructors could serve as an additional monitoring and quality control element in verifying current competence of instructors and ensuring that each has maintained the necessary knowledge and skills. It also allows instructors to keep up with the changes and developments made to security screening.

In June 2003, an Aviation Operations directive was issued to FSDs giving guidance on how to nominate staff to attend training to become voluntary TSA approved instructors (TAI). In addition to the contract instructors who are TAIs, TSA employees, including screeners, may become TAIs as an additional duty. TSA intends to have these TAIs train fellow staff on-site in order to reduce the need for contract instructors to travel to specific field locations when additional instruction is needed or new training requirements arise.[16] Thus far, TSA has certified approximately 700 employees as TAIs. While TSA-employee TAIs were initially used for recurrent and some cross-training, TSA began to permit them to train new hires on April 12, 2004. As of May 30, 2004, FSDs had the option of requesting full support, partial support, or no support from contracted instructors, and could do so on a class by class basis. Although TSA still permits the use of contracted instructors, TSA expects that the use of TSA-employee TAIs to train newly hired screeners will increase over time.

Using TSA employees as TAIs not only will minimize dependency on contracted instructors and increase the flexibility and control that each FSD has over training of their local screeners, but also it will leverage local experience. TAIs who are drawn from the screener workforce have direct experience working within aviation security, are familiar with screening procedures and equipment, are required to undergo an annual recertification test, and are required to take

[16] In order to become a TAI, an individual must have a current or prior instructor certification by a recognized training and development organization, or have had at least two years of experience as an instructor. In addition, TAIs must have successfully completed the course of instruction they will be teaching and demonstrate instructional skills by assisting a TAI in classroom instruction and monitoring actual classroom instruction.

training on a continual basis. As a result, TAIs will be able to bring their own experiences into the classroom and address situations unique to their local airports. While TSA aims eventually to use TSA-employee TAIs to conduct new hire and cross-training on an exclusive basis, this most likely will not occur in the near future. All instructors, contracted or employed by TSA, should receive additional experience through OJT and be required to demonstrate their continued competence as a security screener instructor through annual recertification testing.

Limited Access to Screening Equipment and Training Aids Adversely Impacted Training

TSA currently conducts classroom training at airports where a large number of newly hired screeners await training. Newly hired screeners located at airports where training is not taking place travel to locations where classroom training is being conducted. Classroom training is delivered at a variety of different locales, including local airports, TSA office buildings, and hotels within the vicinity of the airports. Many of these training settings, however, are not dedicated training spaces. As a result, access to screening equipment for demonstration and practice is extremely limited at best, and sometimes not available at all.

Screening equipment is furnished for classroom instruction by TSA at local airports or is shipped to the training sites by Lockheed Martin. Both of these options pose difficulties, however, as screening equipment at airports is often in use and unavailable, and shipping equipment to training sites is difficult logistically. Due to size, it is not possible to ship or move some screening equipment, such as EDS machines, to a training facility. While TSA has some EDS machine simulators located at some training locations, it does not have enough simulators to equip all training locations.

In addition to screening equipment, training aids were not always available at the training locations. These objects include props such as luggage, prohibited items such as knives or scissors, permitted items that may conceal a prohibited item, such as a camera or book, and clothing. Training aids, critical to hands-on practice and role-playing, were often drawn from the instructors' personal items and were too few to provide all students with realistic practice opportunities.

Easier access to actual screening equipment, simulators, and training aids would ensure that instructors have the necessary tools to demonstrate screening procedures and students have the opportunity to practice new skills. Through demonstration and hands-on practice, students better comprehend, master, and retain the necessary knowledge and skills required to perform successfully as a security screener.

Because it is logistically difficult to make screening equipment, simulators, and training aids available at each training location, TSA should analyze the cost and feasibility of establishing fewer designated training locations or regional training centers at which these items are permanently located and readily available. Ideally, these designated training locations would have multiple mock passenger checkpoints and checked baggage screening stations to facilitate role-playing and mock realistic situations. Designated training locations would contribute to the standardization of screener training.

Delivery of Checked Baggage Screener Basic Training Focused Too Heavily on Lecture

In the delivery of courses, instructors primarily lectured to convey the training content to newly hired screeners. This was especially true for the checked baggage courses. During these courses, lecture was used for an estimated 95% of the 40 hours of training, and instructors did not use the majority of practice activities suggested in the curriculum.

While lecture is an instructional method by which training is commonly delivered, it can be among the least effective of methods. Research on students exposed to lectures indicates that they were attentive and readily assimilated lecture material during the first 10-20 minutes, but that attention dropped dramatically thereafter.[17] In order to enhance student attention and retention, lectures should be punctuated with periodic activities.

In addition to maintaining attention, the delivery methods of demonstration, hands-on practice, and role-playing can be much more effective in screeners'

[17] Johnston, Susan and Cooper, Jim, "Quick-thinks: Active-thinking Tasks in Lecture Classes and Televised Instruction," *Cooperative Learning and Colleges Teaching* newsletter, Vol. 8, no. 1, Fall 1997.

comprehension and retention of newly learned knowledge and skills. It is common knowledge that some adults are visual learners, some are auditory learners, and some are tactile learners, while others learn best through a combination of these. Demonstration, hands-on practice, and role-playing engage several senses: sight, hearing, and touch. By using alternative delivery methods in addition to lecture, each student's favored learning medium can be used during the course. Finally, students are often receptive to ideas from lecture when they are reintroduced during demonstration and practical exercises.

During the checked baggage courses, different activities that could be performed with students were presented in the instructor's manuals. Very few of these activities were conducted. Although some of these activities did not provide screeners with an opportunity to practice real on-the-job skills, others were of high quality and provided an opportunity for skills practice, such as ETD decontamination procedures. Of 46 different activities provided to instructors in two checked baggage courses, seven and four were fully conducted, respectively.

Figure 2. Checked Baggage Screener Basic Curriculum Activities Conducted

Lesson Title	Course 1 Activities Provided/Conducted	Course 2 Activities Provided/Conducted
TSA Overview	5/3	5/0
Customer Service	5/0	5/0
Persons With Disabilities	5/2	5/1
Screener Awareness	2/0	2/0
Improvised Explosive Devices	0/0	0/0
EDS Overview	0/0	0/0
EDS Common Object Recognition	0/0	1/0
EDS SP Operations	1/1	0/0
EDS Operational Procedures	1/0	1/0
Barringer IONSCAN 400B	15/0	15/1
100% Checked Baggage	12/1	12/2
Total	**46/7 (15.2%)**	**46/4 (8.6%)**

The small amount of demonstration and hands-on practice in the checked baggage courses was in large part due to limited access to checked baggage screening equipment. Other activities that did not require screening equipment, however,

were also not conducted. For example, activities that involved demonstrating correct methods of sampling for traces of explosives or completing maintenance forms and logbooks were not conducted. Instructors also did not use activities identified in the curriculum to practice proper customer service behavior.

While lecture was still the primary method of delivery during the passenger checkpoint course, alternate methods of delivery were used more frequently than in the checked baggage screener basic classroom courses. Passenger checkpoint course instructors performed many demonstrations and conducted multiple activities in which all students participated.[18] Passenger checkpoint students even had the opportunity to visit a closed passenger screening checkpoint at an airport prior to written and practical skill examinations. Instructors also chose to complete additional activities that provided opportunities to model or practice proper customer service behavior in situations pertinent to passenger checkpoint screening. These demonstrations and activities in the passenger checkpoint course not only helped hold students' attention and aided in their comprehension of the new knowledge and skills presented to them, but also gave the students confidence that they could perform successfully as screeners.

Although lecture is the most common means of delivering large quantities of information, a variety of delivery methods should be used to ensure that all students have full opportunity to comprehend, master, and retain the knowledge and skills necessary to perform successfully as a screener. While OJT provides a significant amount of demonstration and hands-on practice, demonstration and hands-on practice within the classroom are needed to prepare student for the practical examinations given during classroom training. Moreover, practice in the risk-free, controlled classroom environment should help screeners make the transition from classroom training to OJT, where screeners experience real-world job conditions for the first time.

Administration of Practical Skills Testing Was Not Standardized

For both the passenger checkpoint and checked baggage courses, instructors clearly communicated written test procedures by reading from a TSA-approved

[18] The greater number of demonstration and activities performed during the passenger checkpoint training was in part due to easier access to real or mock passenger checkpoint screening equipment.

test administration script. There was, however, no standardization in the administration of the practical skills tests, otherwise known as the Practical Demonstration of Proficiency Evaluations.

Proper assessment of individual skills in performing screening tasks requires the independent exercise of these tasks without assistance. However, instructors coached students through the practical skills tests. The level to which students were coached varied depending on the instructor and the student undergoing the test. Practical Demonstration of Proficiency Evaluation Test Procedures given to instructors, which provide a brief overview and general guidance in conducting practical skills tests, did not address whether instructors were permitted to provide coaching. However, according to Practical Demonstration of Proficiency Evaluation Instructions that are given to students, if a student asks the instructor a question during the evaluation, the instructor may only respond by informing the student to "act in accordance with your training."

While the associated scoring was pass/fail, coaching during practical tests may have offered an unfair advantage to some students. Also, coaching prevented some students from fully demonstrating on their own that they have the skills to perform successfully as a screener. It is imperative that students demonstrate their abilities within a controlled environment before proceeding to OJT, where they will be conducting actual screening in a live environment with multiple distractions. As a result, all coaching during the Practical Demonstration of Proficiency Evaluations should cease.

In addition, suitable testing environments were not established for the administration of practical skills evaluations and contributed to the lack of standardization. Testing took place in one room where students could watch other students take the skills test before them. This enabled those students waiting to take the test to memorize how others demonstrated their skills using precisely the same scenarios they would encounter. By placing students in an environment where they can memorize and repeat what others have done before them, TSA lost the opportunity to challenge students and assess whether they can successfully perform screening functions independently.

Security Supervision Does Not Reinforce Basic Screener Training

No matter how successful training is in establishing the necessary basic knowledge and skills to perform screening functions, it is crucial that this knowledge and these skills are continually reinforced. A screener's work is often monotonous and requires repeated application of careful methods and strict procedures. The repetitiveness of screener tasks can have a physical toll on screeners that may result in short-cutting procedures or applying improper techniques. To avoid this, lead screeners, supervisory screeners, and screening managers must reinforce basic knowledge and skills learned in basic screener training by diligently observing screeners and immediately correcting negligent screening techniques and failure to adhere to SOPs.

During some of our site visits, we observed poor supervision at passenger checkpoint and checked baggage screening stations. Lead screeners, supervisory screeners, and screening managers were not diligent in correcting screeners' lack of adherence to the SOPs and sloppy screening techniques. For example, when using ETD machines, screeners are trained on the use of specific sampling techniques for detecting trace explosives that include sampling in one direction. However, several screeners on the job used back-and-forth, circular, or zigzag sampling techniques. Also, several screeners positioned hand-held metal detectors at distances further from the body of a person than what has been prescribed and taught during basic training. These screening techniques can be corrected when pointed out to a screener. In addition, if screeners know that they are under constant supervisory observation, the screeners will be motivated to be more diligent and use precise and proper screening techniques on their own.

Because screeners may not retain all of the procedures and proper techniques learned during basic screener training and their attentiveness may decrease over time, it is imperative that supervisors and managers within the screener workforce diligently observe screeners, correct identified deficiencies, and promote a positive team environment where every screener is comfortable speaking out when they observe peers performing incorrectly.

For all current and future basic screener classroom curricula, we recommend that the TSA Administrator:

Recommendation 6: Require all TSA approved instructors to complete an appropriate form of OJT prior to providing instruction and to undergo annual recertification testing.

Recommendation 7: Analyze the cost and feasibility of establishing designated training sites where screening equipment, simulators, and training aids can be permanently located and readily available to students.

Recommendation 8: Use alternatives to lectures more frequently during classroom training to help maintain student attentiveness, contribute to the comprehension and mastery of new knowledge and skills, and foster retention of the material.

Recommendation 9: Cease all coaching of students during practical demonstration of proficiency evaluations.

Recommendation 10: Ensure that leadership within the screener workforce diligently monitors screeners and immediately corrects identified failures to adhere to screening procedures and negligent screening techniques.

Evaluation

The evaluation phase helps ensure that training is relevant, effective, and achieves training goals. While there are many types of evaluation to assess a training program's effectiveness, most models reframe Donald Kirkpatrick's four levels of evaluation: (1) student reaction to the course; (2) student learning during the course; (3) student application of learning on the job; and (4) organizational performance improvements from the training.[19] WPT formally collected data on student reactions and learning during the course, but WPT was still in the process of identifying valid measurements to evaluate student application of learning on the job and organizational improvements driven by training. WPT needs to improve its efforts to ensure that its measurements of student learning during the course are valid and comprehensive, too.

[19] Donald L. Kirkpatrick, *Evaluating Training Programs*, 1975.

TSA has a system in place to collect and evaluate data on student reactions for the basic screener classroom training. The primary benefit of collecting this data is that negative student reactions reveal opportunities for improving the training. Instructors collected from all screeners a course evaluation form that asked 36 questions, some open-ended, covering the appropriateness of course content, degree of instructor knowledge, realism of practical exercises, ease of use for computer-based training, self-assessment of screener learning, and other factors. The Evaluation Branch of WPT's EQA scans the forms into the Automated Multi-Level Training Assessment Program (AMTAP) database to collect, analyze, and report results for course managers, EQA staff, and training coordinators. EQA staff monitor student responses in order to make course adjustments, such as sending Quality Assurance staff into the field to review an instructor or course following screener complaints.

For evaluations of student learning during the course, TSA conducts written and practical examinations to measure whether screeners fully meet course objectives. When we observed the December 2003 versions of passenger and checked baggage classroom training, flaws in the examinations' design and implementation, particularly for the checked baggage course, limited their precision in showing which screeners met the course objectives and which did not. First, both passenger and checked baggage courses contained objectives that were not tested in either of the written and practical examinations. Second, for the checked baggage written examinations:

- TSA did not pilot test the new examinations to identify and revise ambiguous test questions.
-

[20]

- TSA administered the checked baggage examinations prior to practice sessions. Several screeners complained that practice prior to the examinations would have better developed their understanding of the test material, much of which addressed performance of procedures that screeners had not yet performed.

Third, TSA did not standardize the instructor delivery, test scenarios, scoring of performance steps, and test equipment and props available for the practical examinations. Without a detailed, standardized process for the practical examinations, instructors did not ensure that screeners demonstrated similar levels of mastery of the course material. For some screeners but not others, instructors simulated threat items and scenarios, provided coaching, or talked through portions of the practical exam without requiring screeners to exhibit the steps.

Given these weaknesses in the written and practical examinations, we question why TSA chose to use high-stakes tests without remediation in the absence of a requirement to do so. The *Standards for Educational and Psychological Testing* point out, "[t]he need for precision [in scoring tests] increases as the consequences of decisions and interpretations grow in importance," and "[t]he probability of misclassification will generally be relatively high for persons with scores close to the cut points."[21] TSA should consider resetting the passing score to retain marginal screeners for remediation. This will reduce TSA's risk of terminating screeners, whose selection and training TSA has already financed, who may demonstrate acceptable performance with minor additional training and more realistic, practical examinations. After all, at the end of classroom training, screeners have 60 hours of OJT to continue to develop their knowledge and skills. TSA should take the opportunity to identify screeners' remediation needs for supplemental training and testing during OJT. A new, April 2004 administration guide for practical examinations shows that TSA is moving in this direction.

Since the purpose of the basic screener training program is to provide the knowledge and skills necessary to screener on-the-job performance, evaluation of how screeners apply their training on the job is another measurement WPT should undertake. WPT's EQA is planning such measurements that may involve direct

[21] American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, *Standards for Educational and Psychological Testing,* 1999, p. 50.

observation of screener performance. While time-consuming and labor-intensive, direct observation should be informative.

Additionally, WPT is in the process of developing valid performance measurements to apply in evaluations that assess whether screener training makes a difference in TSA's organizational performance. In November 2003, GAO testified, "Our recent work on TSA's passenger screening program showed that although TSA has made numerous enhancements in passenger screening, it has collected limited information on how effective these enhancements have been in improving screeners' ability to detect threat objects."[22] The same can be said of checked baggage screening; the development of its training programs and screener performance measurements trails the passenger screening program's. To date, generalizations about TSA's organizational performance in threat detection have been based on OIAPR and DHS OIG operational test results, which involve only a small fraction of airports and screeners.[23] The Passenger Screener Performance Index, which TSA expects to compile by the end of FY 2004, will use recertification examination scores and other data to track screener ability to detect prohibited items. In addition, EQA has discussed developing its own measurements. Regardless of the measurements taken, TSA will have difficulty isolating basic screener training as the cause of improved organizational results. Ongoing changes to TSA's recurrent training program, supervisory development, equipment configurations, and other factors may also alter the frequency of detection of items that threaten flight safety. Nevertheless, it is important that TSA measure organizational results. An absence of improvement in organizational results may indicate a critical need to adjust the basic screener training program.

We recommend that the TSA Administrator:

Recommendation 11: Continue the development of evaluations that will relate training to screener application of learning on the job and to organizational results.

[22] *Aviation Security: Efforts to Measure Effectives and Address Challenges*, GAO-04-232T, November 5, 2003.
[23] For further discussion of operational testing, see page 55.

Basic Screener On-The-Job Training

ATSA requires both newly hired passenger checkpoint and checked baggage screeners to complete 60 hours of OJT and an OJT examination upon completion of classroom training. Until screeners meet these requirements, they may not make independent judgments regarding whether passengers or property may proceed without further screening. In February 2003, DOT OIG criticized TSA's OJT program for not requiring screeners "to demonstrate proficiency in all job related tasks."[24] In response, TSA issued the *Passenger Checkpoint OJT Interim Guidance for Federal Transportation Security Screeners*, *Revision 2.0,* and the *OJT Procedures (Interim Guidance) for Federal Checked Baggage Security Screeners* in April 2003. Both interim guidelines set requirements for screeners to practice and demonstrate proficiency in screening techniques. TSA also has assumed responsibility for administration of all OJT, which was contracted out during the initial federalization of screeners in 2002.

Analysis

TSA has not yet completed analysis to identify the training needs and objectives that screener OJT must address. In its current form, OJT primarily assists screeners to increase their proficiency in screening techniques learned in the classroom. However, OJT also should teach objectives that screeners do not master during classroom instruction, such as following airport-specific procedures. The interim OJT guidelines do not require screeners to meet some objectives missed in the classroom, and they provide little instructional support for OJT monitors to teach the new material. Extending analysis for basic screener training to OJT should help TSA identify and address these gaps in a systematic manner.

In both the passenger and checked baggage classroom training, instructors and training materials identified skills not taught in the classroom that screeners need to acquire at their airports during OJT. Examples of training deferred to OJT include: how to work within airport-specific screening configurations, such as inline systems; how to use the features and ensure proper operation of specific

[24] DOT OIG SC-2003-0026, *Audit of Screener Security Program,* February 28, 2003, p. 2.

models of X-ray and walk-through metal detector equipment; how to gain access to checked baggage that is locked; how to verify firearms declaration forms in checked baggage; how to apply airport-specific breach procedures; how to write incident reports; and how to identify selectees for mandatory additional screening.

In some cases, however, the OJT guidelines left out the requirement for screeners to learn the new skill. For example, after the classroom "Screener Awareness" training introduced passenger screeners to the concept of reportable security incidents, instructors were to note: "The quality of the report you write is critical in resolving situations. In some instances, your report may be admitted as evidence in a court of law. Many forms will exist at your screening locations and you will learn more how to fill them out during OJT." However, report writing is not addressed in the passenger OJT guidelines. Likewise, checked baggage classroom training tells screeners to segregate the bags of selectees for the most thorough type of search, but neither classroom training nor OJT instructs checked baggage screeners on how to identify selectees. The checked baggage OJT guidelines do not mention selectee screening at all.

In other cases, the OJT guidelines require practice of new skills but contain no instructional materials to assist OJT monitors in teaching the skills to the screener. For example, unlike checked baggage screeners, passenger screeners do not receive model-specific training on screening equipment during classroom training. The passenger classroom curriculum explicitly notes that screeners will learn how to operate model-specific features of X-ray and walk-through metal detector equipment during OJT, and the same is implied for the ETD. However, the passenger OJT guidelines do not explain which model-specific features and operations should be taught and how. Without such instructional support, it is unlikely that OJT monitors, who have limited qualifications as instructors,[25] can provide standardized training on the new material to all screeners and ensure that training objectives are met.

TSA needs to complete an analysis for basic screener training that takes into account the hand-off of objectives from classroom training to OJT, and the scope and level of proficiency required of screeners at the end of OJT. TSA should use the analysis to guide the design of OJT instructional materials as well. Without

[25] For further discussion of OJT monitor qualifications, see page 47.

systematic analysis to drive curriculum revisions, gaps in basic screener training will persist.

Design

TSA should: (1) design OJT training administration guidance to provide detailed lists of specific job tasks and establish function-specific time requirements for both newly hired and cross-trained screeners; (2) enforce policy regarding the OJT training image recognition test; and (3) require students to be tested on all key screening functions.

On-The-Job Training Guidance Needs Improvement

Each FSD was given the April 2003 OJT guidance to define the conduct of OJT for newly hired passenger checkpoint and checked baggage screeners. These documents, however, provide significantly different guidance on the structure and content of OJT. The OJT guidance for passenger screening contains seven OJT checklists for each applicable passenger screening function and establishes a specific minimum amount of time to be spent on each function in order to complete OJT. All seven checklists cite specific tasks that must be executed in order for an OJT student to be credited with successfully completing screening functions. OJT monitors are to verify that each screener has sufficient knowledge of these tasks, can perform the tasks with little intervention from the monitor, and ultimately can perform the tasks without any intervention from the monitor. In contrast, the OJT guidance for checked baggage screening contains a checklist of more general tasks that OJT monitors are to verify a student has "completed" during each OJT session. The brevity and lack of detailed tasks found in the OJT guidelines undermines the effectiveness of checked baggage OJT.

On the other hand, while both OJT guidance documents specifically set the number of hours that each screener completing OJT should spend on each screening function, only the checked baggage OJT guidance addresses time requirements for cross-trained screeners, as well as those who need "differences training," i.e., training on different models of ETD machines. The passenger checkpoint OJT guidance document also should set time standards for the functional training of cross-trained screeners.

Although time requirements are established in the checked baggage OJT guidance, passenger screeners who have been cross-trained to screen checked baggage are not required to have the full 60 hours of OJT. These cross-trained screeners are not required to spend time training on knowledge and skills they have already acquired such as security and local procedures, TSA values, and customer service. Instead, cross-trained screeners dedicate their OJT training time to new knowledge and skills. A significantly lesser amount of time, however, is required of them than of newly hired screeners. For example, EDS operation is a new task for both newly hired checked baggage screeners and cross-trained passenger checkpoint screeners. The former are required to spend 23 hours of OJT working with EDS machines, while the latter spend 5.5 hours. In addition, some tasks that are required of newly hired checked baggage screeners are not required of cross-trained screeners, and vice-versa. For example, a cross-trained passenger checkpoint screener does not have to dedicate training time to learning how to recognize improvised explosive devices in EDS images.

Figure 3. Required Cross-Training Hours for EDS Co-Located with ETD

OJT Task	Newly Hired Checked Baggage Screener Time Requirements	Cross-Trained Checked Baggage Screener Time Requirements
Security and Local Procedures	3 hours	0 hours
TSA Values	1 hour	0 hours
Customer Service	1 hour	0 hours
Persons with Disabilities	1 hour	0 hours
Screener Awareness	1 hour	0 hours
Checked Baggage Overview and Operations	1 hour	0 hours
Overview of EDS Operations	1 hour	30 minutes
EDS Operations	13 hours	3 hours
EDS Improvised Explosive Devices	3 hours	0 hours
Common Object Recognition/ Location/Bag Handling	6 hours	2 hours
Bag Transportation and Proper Handling Procedures for ETD/ Physical Search	Not Applicable	30 minutes
Overview of ETD Operations	1 hour	1 hour
ETD Operations	10 hours	0 hours
100% Checked Baggage Procedures and Alarm Resolution	9 hours	1 hour
Daily Shift	4 hours	0 hours
Questions and Answers	5 hours	1 hour
Total Time	**60 hours**	**9 hours**

Because certain tasks are new to both, the time requirements that newly hired and cross-trained checked baggage screeners are to dedicate to each of these should be of equal duration. It is possible that nine hours of OJT for a cross-trained screener is too little. On the other hand, it is possible that 60 hours of OJT for a newly hired checked baggage screener is too much. TSA should conduct an evaluation of the OJT program to determine the most appropriate amount of time that should be spent on each screening function during OJT to establish skills to perform all job related tasks and equally apply these to both newly hired and cross-trained screeners. In addition, while the checked baggage OJT includes "differences

training" to familiarize screeners with models of ETD machines not taught during their classroom training, the OJT does not provide differences training for EDS machines. Because EDS models also have operational differences and some airports have more than one model of EDS, TSA should address this shortcoming.

To ensure that OJT is a prescriptive, standardized process, TSA should craft uniform guidance that provides detailed, sequenced lists of specific tasks that each OJT student must perform. Where needed, TSA should provide more detailed instructional materials to guide OJT monitors in providing the training. TSA should also establish appropriate, function-specific time requirements for both newly hired and cross-trained screeners.

OJT Testing Issues

OJT test mechanisms for both passenger and checked baggage screener skills are limited, and to a certain extent, they are less rigorous than the testing at the end of classroom training. Yet ATSA requires testing after the completion of OJT, not classroom training.

Upon completion of passenger checkpoint OJT, passenger screeners are required to take only an image recognition test, called the Image Mastery Test (IMT), to become certified. TSA's policy gives students three opportunities to pass the IMT. Although there is no provision in the OJT program to authorize IMT remediation and testing more than three times, many TSA officials in the field said that FSDs permitted additional opportunities to retake the test. Through February 2004, TSA data indicate that of those tested, 1,154 screeners, or two percent, took the IMT more than the permitted maximum three times. In some cases, screeners took the IMT as many as eight times. Because this is the last image test threshold screeners must pass before they are permitted to make independent judgments, TSA should strictly define policies on IMT retesting.

In addition, problems remain with the IMT. The IMT software installed on machines around the nation regards several items as non-threats even though they are currently considered threats by TSA. For example, the IMT treats screwdrivers and scissors as non-threats even though they are not permitted onboard aircraft. TSA's EQA division identified this problem during the summer of 2002, and consequently, the software manufacturer made corrective adjustments to the IMT.

During a site visit in December 2003, however, we noted that the new edition of the IMT software had not been installed.

Finally, while passenger checkpoint OJT testing assesses students on their ability to recognize threat images, it does not test skills in the performance of other job-related tasks such as operation of the hand-held or walk-through metal detectors. As discussed, the passenger checkpoint OJT interim guidance calls for monitors to verify that each student can perform all screening functions without intervention. However, the guidance does not provide for realistic, practical testing of students on any screening function, such as the operation of a hand-held metal detector, other than the monitoring of X-ray machines. Likewise, the checked baggage OJT guidance calls for a practical "three-bag test" during which OJT students are required to perform a closed bag, limited bag, and open bag search with the use of an ETD machine. For those students trained on the operation of an EDS machine, however, there is no EDS practical testing component. Both guidance documents should be expanded to require post-OJT testing on all TSA-approved screening methods that the screener will be required to use.

Implementation

TSA should take steps to ensure that all OJT monitors have the necessary skills and experience to deliver OJT and that OJT test administration is standardized.

OJT Monitors Have Varying Qualifications to Teach Screening Skills

TSA does not require OJT monitors for basic screener OJT to be approved or certified. According to passenger checkpoint OJT guidance, any screener who has successfully completed the appropriate basic screener training course and the 60-hour OJT program may act as an OJT monitor. Also, according to the guidance, FSDs or their designees are encouraged to select OJT monitors with the maximum amount of experience and a demonstrated ability to mentor and counsel other screeners.

Each OJT monitor should be an expert in the necessary subject knowledge and skills as well as have the desire to teach and the ability to relate well with the person they are mentoring. But most importantly, TSA should ensure that FSDs, or their designees, choose monitors who have the ability to transfer their subject

knowledge and skills to students in an organized, systematic, easy to retain manner. To ensure that TSA has the most effective and credible OJT program, TSA should certify individual screeners who are specially designated to deliver and monitor OJT. Through certification, TSA will ensure that trainers are qualified and can competently transfer knowledge and skills. In addition, certification will ensure that trainers practice a structured training delivery method, including test administration, which promotes consistency. TSA should consider expanding the TAI program to certify employees to conduct OJT as well as classroom training.

Administration of Checked Baggage Practical "Three Bag Test" Was Not Standardized

According to the checked baggage OJT guidelines, upon completion of the 60 hours of OJT, persons administering the practical "three bag test" must use a strip with a very small amount of explosives to contaminate a test item that will cause an ETD machine to produce an alarm. Guidelines further specify that the explosive material "should be placed in the same locations for each screener. Each bag should produce an ETD alarm. Screeners must perform each procedure without error and receive an alarm on all three bags to pass this test."

Many local TSA staff and OJT administrators, however, are not testing with the explosive material strip. According to these officials, its use contaminates an ETD machine, and it is difficult to clean from an ETD machine. Officials at TSA's Transportation Security Lab (TSL), however, disagree that use of the test explosive material results in persistent machine contamination or alarm. Although more advanced testing products are currently being developed, TSL officials believe that, for now, the test strip with explosive material should be used in the field during testing. The test strip should be used, so that when an ETD machine produces an alarm, the OJT test administrator will know that proper sampling techniques are being used.

Evaluation

Because TSA's EQA is short-staffed, TSA does not conduct an analysis of the overall effectiveness of the OJT portion of basic screener training. While OJT monitors are required to measure the extent to which students improve knowledge and increase skills as a result of the 60 hours of OJT, TSA does not measure the

reaction and satisfaction of OJT students to the training program, the extent to which change in behavior has occurred as a result of OJT, nor the impact of OJT on TSA's organizational goals, such as an improved detection rate of prohibited items. As the level of staffing increases, however, EQA plans to work with TSA's Office of Aviation Operations and begin conducting a complete evaluation of the OJT program.

We recommend that the TSA Administrator:

Recommendation 12: Ensure that OJT guidance provides detailed, sequenced lists of specific tasks that each OJT student must perform, including instructional materials where needed, and establishes appropriate, function-specific time requirements for both newly hired and cross-trained screeners.

Recommendation 13: Revise OJT examinations in order to:

- Test screeners on all TSA-approved screening methods that they will be required to use upon completion of OJT;
- Enforce the use of tests with explosive material during ETD practical examinations; and
- Standardize and enforce limits on OJT retesting opportunities, including the Image Mastery Test.

Recommendation 14: Ensure OJT monitors are certified as having the skills and experience necessary to deliver and monitor OJT training and administer subsequent testing.

Recurrent Training and Recertification Testing

In an October 16, 2003, statement before the Committee on Transportation and Infrastructure, Subcommittee on Aviation, TSA's Administrator said TSA was in the process of developing a recurrent training program and that recertification testing for FY 2003-04 was underway.

Recurrent Training Program Has Been Established

ATSA specifically requires screeners to receive "training to ensure that [they] are proficient in using the most up-to-date technology and to ensure their proficiency in recognizing new threats and new weapons."[26] While TSA made important strides in developing recurrent training tools, TSA has opportunities to enhance their effectiveness. In addition, TSA should examine the workforce implications of the current three-hour-per-week training requirement of each screener.

Important Strides in Developing Recurrent Training Tools Have Been Made

On December 22, 2003, TSA's WPT issued interim guidance to FSDs that mandated the institution of a standard recurrent training program for all screeners to ensure that they maintain and enhance their knowledge, skills, and abilities to effectively screen persons and their property. To comply with the interim guidance, all FSDs are required to develop an annual screener training plan for each screener under their authority. These plans are to guarantee that all screeners (1) receive recurrent training to effectively screen persons and their property, (2) meet other mandatory administrative training requirements, such as ethics training, and (3) further their professional development (See the interim guidance in Appendix D).

According to the interim guidance, FSDs are required to develop a screener training plan that meets the legal and regulatory requirements as well as the individual performance and developmental needs of each screener. As a result, the substance of the recurrent training provided to screeners is to be developed both nationally and locally. This coupling of national and local training is designed to offer standardized training options and allow flexibility for FSDs to create their own training to develop individual competencies and to address unique operational needs at the airport level. For example, on a national level, TSA developed several recurrent training tools, including performance videos and web-based training courses on common screening procedures. On a local level, FSDs may elect to supplement these training tools with safety presentations developed in coordination with a local fire department, teamwork techniques, and workplace communication seminars.

[26] Codified in 49 U.S.C. §44935(h).

To support the recurrent training program, TSA recently developed or made available a number of training tools and practices, including the following:

- The "Excellence in Screener Performance" video series provides instruction on physical bag searches, hand-held metal detector and pat down searches, X-ray operation, and screening persons with disabilities.
- Eight computer-based training modules reinforce topics introduced in the "Excellence in Screener Performance" videos and introduce new material, including prohibited and dual-use items,[27] operating EDS machines, and technical training for supervisors.
- X-Ray Tutor, one of of the eight computer-based training modules, enables screeners to practice X-ray image interpretation with sample images adapted to individual performance ability and training needs. TSA recommends an average of one hour per week of practice on image interpretation.
- "Threat in the Spotlight" presentations describe and show pictures, in some cases X-ray images, of threats recently found by screeners or from other operational and intelligence resources.
- The Threat Image Projection System trains and tests screeners on threat image recognition using X-ray machines and EDS equipment. This learning opportunity is enhanced when screeners are provided timely coaching and feedback on their individual performance.
- Increased operational testing, including testing conducted at the local level, assesses screeners' abilities to detect a threat item under covert and realistic conditions or in a training environment.
- 366 computer-based, off-the-shelf courses from NetG provide general business and professional development training.[28]

While some of these tools are still in development, TSA has made important strides in fielding training tools and practices to exercise and sharpen screener skills necessary to detect prohibited items.

[27] 49 U.S.C. 44935 (h) specifically requires that screeners receive training in recognizing dual-use items.

[28] While some courses already relate to screener tasks, such as "Excellence in Service: Working with Upset Customers," TSA is augmenting these course offerings with TSA-specific training developed in house, such as "Sensitive Security Information Awareness."

Recurrent Training Requirements May Have Implications for the Screener Workforce

According to the interim guidance on recurrent training, all screeners, both full- and part-time, are to receive three hours of recurrent, administrative, and professional development training each week during scheduled duty time. To accommodate airports' operational constraints and scheduling limitations, this three-hour-per-week standard may be met if screeners receive this level of training on average over an entire quarter. Accordingly, an airport providing a screener six hours of recurrent training one week and none the next would be in compliance.[29]

While TSA has developed necessary recurrent training standards, it is not clear what impact associated requirements will have on localities experiencing screener staffing shortages. The three-hour-per-week training standard represents a sizeable staff time commitment: 7.5 percent of full-time and between nine and 15 percent of part-time screeners' non-overtime working hours. At certain airports, this major commitment of staff time is concurrent with a substantial screener shortage. Several training coordinators and FSDs remarked that some would find it difficult to meet this new training requirement, because doing so would leave them with insufficient numbers to staff checkpoints and checked baggage stations. When considered system-wide, screener shortages are significant. Numerous articles published in spring 2004 highlighted problems associated with multiple airports that are understaffed. In addition, between May 2003 and January 2004, TSA airports used the equivalent of more than five percent of its authorized screener workforce in overtime hours.[30] For the majority of that time, the three-hour recurrent training requirement was not yet in effect.

While it is vital that screeners receive high-quality recurrent training to enhance skills and learn about new developments, technological advances, and the latest threats, many airports may not be able to meet the current requirement. TSA should examine the workforce implications of the three-hour training requirement and consider these implications in future workforce planning to ensure that all screeners meet the recurrent training standard by performing high-quality training

[29] The guidance further recommends that this recurrent training include at least one hour of screening procedures review and one hour of X-ray image interpretation practice per week over a calendar quarter.

[30] *Challenges Exist in Stabilizing and Enhancing Passenger and Checked Baggage Operations*, GAO-04-440T, February 12, 2004.

activities and that FSDs are, without exception, able to staff checkpoints and checked baggage stations with the required number of screeners.

Threat Image Projection Program Features Should Be Fine-Tuned to Maximize Training Benefits

TSA uses Threat Image Projection (TIP) for training and testing threat image recognition on operating X-ray machines at passenger checkpoints. The EDS machines at checked baggage stations may also be configured to support TIP. Regarded in part as a component of TSA's recurrent training program, TIP transmits simulated threats onto X-ray or EDS operator screens on active machines at intervals governed by an image frequency algorithm. The program records screener responses to the simulated threats and provides immediate feedback to screeners on their performance. TIP notifies screeners when they have correctly identified a TIP threat image and cautions them when they have not recognized a TIP threat image or taken too long to evaluate a TIP image.

The image library that TIP draws upon for these projected images includes IEDs, firearms, knives, and other prohibited items and threats like opaque objects and dual-use items, e.g., screwdrivers. To challenge screener detection skills, many of the threats in these images are presented in "non-standard" orientations. An image of a gun from behind, such that only the butt of the weapon is visible, is an example of one such non-standard orientation.

In 1997, FAA initiated TIP deployment to active screening locations as a means of increasing screener vigilance, providing continual on-the-job image interpretation training, and assessing screener performance. FAA's efforts to institute TIP widely were halted by the events of September 11, 2001, out of concern that TIP would result in screening delays and increased passenger anxiety. FAA's original logic and plans formed the basis for TSA's later initiatives to use and expedite deployment of TIP at all U.S. airports. Because TSA perceived greater advantages to installing TIP on X-ray machines at passenger checkpoints rather than EDS machines at checked baggage stations, it prioritized TIP implementation at passenger checkpoints. In October 2002, TSA's Administrator directed the formation of a TIP Integrated Product Team to develop program performance criteria, identify system data collection requirements, and ensure the deployment of TIP-Ready X-ray (TRX) machines at all airports.

TSA adopted a December 31, 2003, deadline for TIP installation on X-ray machines at every passenger checkpoint in the nation. To meet this goal, TSA purchased and installed hundreds of TRX machines while its Image Development Center generated 2,400 TIP images for each of the three makes of TRX. TSA ultimately succeeded in installing TIP in 98% of X-ray machines nationwide by the deadline, but due to vendor software difficulties and TRX procurement delays, not all 1,800 X-ray machines had TIP until March 2, 2004.

TSA has espoused a time line that calls for TIP implementation on all EDS machines at checked baggage stations in FY 2005. TIP is presently installed on many EDS machines, but the image galleries that it uses are not standardized for all models of EDS. Although it has not been installed on EDS machines at airports to date, TSA has developed a common TIP image library for all EDS machines used in the U.S. TSA also is evaluating technical solutions to the challenges of TIP image projection in a three-dimensional environment.

To optimize the program's training potential, TSA is assessing the cost and feasibility of adding a user-adaptability feature to TIP. If developed, this feature will tailor TIP sessions to address individual screener weaknesses revealed in user performance data. If a screener has particular difficulty identifying IEDs, for instance, this software feature would trigger the projection of a higher proportion of simulated IEDs than under standard circumstances.

TSA plans also include the networking of all TRX machines. Once completed, TRX connectivity will provide substantial benefits. First, it will facilitate information sharing on user performance among TRX machines, which is important to the currency of user-adaptability settings on different machines. Networked TRX machines also will be able to share user performance information with off-site, computer-based image training tools, so that these training tools can be similarly customized to individual screeners' image recognition skill levels. Finally, TRX connectivity may ease airport-based TIP administrator obligations. Connectivity holds out the potential to streamline TIP data reporting and ease the process of adding newly prohibited items and future threats to TIP image galleries.

TSA intends to use TIP as both a training tool and a performance measurement mechanism. To prepare for this latter function, TSA is developing TIP

performance criteria. Setting national TIP performance standards poses some significant challenges. To confront these challenges, TSA is using TIP data from TRX machines around the nation to establish a TIP performance baseline.

TIP data analysis will provide the basis for work in other areas, as well. TSA plans to make adjustments in particular TIP image difficulty settings, for example, based on observed screener detection performance presented in TIP data. In addition, TSA is developing a secure website that will generate TIP summary reports with summaries of the performance results of individual screeners, particular airports, TSA regions, and U.S. airports as a whole. Headquarters, FSDs, and staff will be able to use these TIP data reports to customize training efforts to address observed screener threat detection shortcomings.

TIP is an important recurrent training tool and offers great potential for measuring of screener performance. Critical improvements to the program will advance its usefulness as a training tool and promote its reliability as a performance measurement mechanism.

Aspects of Operational Testing Can Be Enhanced to Maximize Training and Testing Benefits

Guidance on how to use the Modular Bomb Sets, Version II (MBS-2), and Weapons Training kits as effective training tools was included with the kit packages. Screeners are allowed to handle and assemble these items as well as experiment with how they appear on an X-ray monitor at various angles and in disassembled form, when placed in a simulated carry-on bag. As a result, both kits

[31]

can improve screener performance by providing realistic hands-on practice tools and sharpening screeners' ability to detect IEDs and firearms.

ATSA mandates the operational testing of screeners.[32] Operational tests are performed by authorized staff using simulated or inoperable threat items, such as those found in MBS-2 and Weapons Training kits, in a live screening environment. A screener's failure to identify these simulated or inoperable threats and follow appropriate procedures results in the disqualification of the screener from performing the associated screening function until they have completed remedial training. Remedial training consists of a review of the SOPs and appropriate videos associated with the screener's failure.

Thus far, operational testing has been conducted on a very limited scale and only a small fraction of the screener workforce has been subjected to it. TSA's OIAPR conducted 1,095 checkpoint operational tests from November 2003 to January 2004 and 192 checked baggage operational tests from January 2003 to January 2004. DHS OIG conducted an additional 687 checkpoint operational tests and 146 checked baggage operational tests from July to November 2003. In addition, the GAO conducted a very limited number of operational tests in 2003.

While operational tests provide key information about screener performance, they also offer opportunities to identify and address critical recurrent training needs. Recognizing the value of such testing, TSA took steps to expand the allowed usage of the MBS-2 and Weapons kits. On February 23, 2004, TSA issued an Aviation Operations Directive, which was later revised in June 2004, to FSDs that provided guidance on using these kits to conduct passenger screener tests by placing the simulated threat items in accessible property submitted for X-ray examination or hidden on a person. Tests can be "practice"[33] or "operational."[34]

[32] Codified in 49 U.S.C. §44935(f).

[33] A practice test assesses a screener's ability to detect a threat item under covert and realistic conditions or in a training environment. Failure to detect a threat item during these "practice" tests does not result in a screener being disqualified from performing the associated screening function until remedial training is completed.

[34] An operational test assesses a screener's ability to detect a threat item under covert and realistic conditions only. Failure to detect a threat item during actual operational tests results in a screener being disqualified from performing the associated screening function until remedial training is completed.

The revised Aviation Operations Directive and associated guidance were enhanced to allow firearms and IEDs to be assembled or disassembled when used during local testing. In addition, local test administrators are allowed to place assembled firearms in baggage at deceptive angles and in deceptive locations. Other possible enhancements to the local testing, however, would be to allow test objects to be artfully concealed and carried on one of the sensitive areas of the body.[35] Current procedures do not permit either. Expanding the procedures to include artful concealment and placement of test objects on sensitive areas is being considered at this time. Both of these enhancements are necessary to increase test realism and heighten its level of difficulty.

The guidelines for local testing do not authorize practice and operational testing to be conducted at checked baggage screening locations since the items in the kits have not been validated for EDS or ETD equipment. TSA said that it is currently developing operational testing tools for use with ETD and EDS machines. TSA reports, however, that completion dates for these items have not been set. We believe that the distribution of test aids of this type to FSDs around the nation would significantly increase the operational testing of checked baggage screening locations and aid in the detection of prohibited items in checked baggage. With TSA's recent approval to use on-screen resolution[36] and future wide-scale adoption of resolution procedures by EDS operators, EDS operational testing is an increasingly vital airport security system assessment mechanism.

We recommend that the TSA Administrator:

Recommendation 15: Examine the workforce implications of the three-hour training requirement and take steps to correct identified imbalances in future workforce planning to ensure that all screeners are able to meet the recurrent training standard.

Recommendation 16: Continue to pursue the development and application of TIP user adaptability features to maximize TIP training benefits.

[35] Guidance allows items to be placed on the upper-inner thigh, which TSA does not consider a sensitive area. TSA considers the breasts (females only), genitals, and buttocks to be sensitive body areas.

[36] On February 25, 2004, TSA approved the use of on-screen resolution, otherwise known as Alarm Resolution Protocol, in which the EDS operator interprets the bag image and may resolve benign alarms without explosives trace detection sampling or physical inspection. With the exception of a few pilot programs, however, on-screen resolution is not yet being used.

Recommendation 17: Expedite TRX connectivity to realize administrative and information sharing gains related to TIP.

Recommendation 18: Further enhance local operational testing efforts by: (1) revising procedures and protocols to increase opportunities for realistic and difficult testing, and (2) expediting the development, certification, and distribution of ETD and EDS operational testing tools to enable assessment of screeners performing these duties.

Annual Screener Recertification Testing for FY 2003-04 Has Been Completed

To determine whether the TSA security screener workforce has the necessary knowledge and skills to continue to perform successfully screening functions, ATSA requires TSA to conduct and document an annual proficiency review of both passenger checkpoint and checked baggage screeners. ATSA provides:

> "An individual employed as a security screener may not continue to be employed in that capacity unless the evaluation demonstrates that the individual -
> (A) continues to meet all qualifications and standards required to perform a screening function;
> (B) has a satisfactory record of performance and attention to duty based on the standards and requirements in the security program; and
> (C) demonstrates the current knowledge and skills necessary to courteously, vigilantly, and effectively perform screening functions."[37]

To comply with this requirement, TSA undertook recertification testing of its screeners, including lead and supervisory screeners, on October 1, 2003, with an estimated completion date of March 31, 2004. This recertification process consisted of two parts: (1) a knowledge and skills assessment program; and (2) a final rating on screeners' annual performance agreement, an annual assessment of screeners signed by their supervisors. To be recertified, screeners who completed OJT prior to June 30, 2003, were required to pass specified components of

[37] Codified in 49 U.S.C. § 44935(f)(5).

the knowledge and skills assessment program and achieve a rating of "met or exceeded" standards on their performance assessments.

The knowledge and skills assessment portion of the recertification tests screeners on their knowledge of passenger checkpoint or checked baggage SOPs, Aviation Operations Directives, and other screening operations guidance, as well as their skill in performing security screening functions. Three components make up the knowledge and skills assessment program.

Passenger checkpoint screeners are required to take all three components, while checked baggage screeners are required to take the job knowledge and practical skills demonstration components. Screeners receive a rating of either "pass" or "fail" for each component. If a screener fails any component, he or she is provided remedial training and an opportunity to retake the component. If he or she fails the retest for that component, the screener is separated from TSA employment.

As of May 2004, all screeners completed the FY 2003-04 recertification testing.[38] Overall, 99.9% of screeners passed the SPR, while 99.5% of passenger screeners passed the IPR. The practical skills demonstration component, delivered by Lockheed Martin, was the last component to be completed. Almost one quarter of screeners failed their first practical skills demonstration, while less than two percent of those who initially failed did so on their second attempt after receiving remedial training. Overall, 99.6% of screeners evaluated on their practical skills passed. As of May 19, 2004, recertified screeners numbered 42,682.[39] Dismissed screeners numbered 350, as a result of their failing one of the recertification components or not having a satisfactory rating on their performance assessments.

Figure 4. Screener Recertification Performance

Recertification Components	Screener Recertification Performance						
	Tested	Passed 1st Attempt	Retested	Passed 2nd Attempt	In Progress†	Overall Passed	Dismissed
✓ **Component 1** *SPR*	48,518	47,264 *97.4%*	938	908 *96.8%*	296	**48,204** ***99.9%***	30
✓ **Component 2** *IPR*	33,724	32,357 *96.0%*	1,078	909 *84.3%*	290	**33,267** ***99.5%***	169
✓ **Component 3** *Practicals*	42,970	32,312 *75.2%*	10,683	10,534 *98.6%*	148	**42,770** ***99.6%***	148

*Statistics provided by Transportation Security Administration, May 19, 2004.
†Screeners who are on extended leave, workers' compensation, or Performance Improvement Plan.

A media report on the practical skills testing conducted during the third recertification component cited screener reports that evaluations were conducted

[38] This does not include 1,152 screeners who have not completed the re-certification testing due to reasons such as being on extended leave, workers' compensation, or a Performance Improvement Plan, i.e., a screener who did not receive a satisfactory rating on his/her performance assessment but has been given the opportunity to improve.
[39] The number of re-certified screeners is significantly lower than the 48,518 screeners who took the first re-certification component and reflects screeners who failed a re-certification component, have yet to take one or more re-certification components, have left TSA after completing one or more re-certification components, or have been reassigned.

using subjective criteria and that retests were "watered down."[40] Over the full course of its delivery, the third component of the recertification process has been the subject of WPT quality assurance monitoring. Quality assurance monitors visited approximately 40 airports, or 11%, with staff undergoing practical skills evaluations between October 2003 and February 2004. Substantive comments from quality assurance visits do not support claims that retests were less rigorous than initial evaluations, but they do raise concerns about the administration of the practical skills testing. Quality assurance reports from a quarter of airports that monitors visited pointed to significant test administration problems.[41] Quality assurance officials responded to significant issues of this nature by ensuring that corrective actions were taken immediately and that the process was improved for future administration of the third recertification component. For example, after detecting early deficiencies, quality assurance staff developed and distributed guidelines that assisted Lockheed Martin's evaluators in assessing the practical skills of screeners.

Under the current TSA recertification guidelines, screeners who have been cross-trained and are "actively" working as both a passenger checkpoint and checked baggage screener are required to take only the recertification test for passenger screeners. Cross-trained screeners are, therefore, not required to take the SPR specific to checked baggage or demonstrate the practical skills necessary to perform checked baggage screening functions. As of May 17, 2004, TSA's workforce included approximately 18,588 cross-trained screeners who were certified to serve as passenger or checked baggage screeners.

TSA's future training plans call for an increase in the number of "dual function" screeners, i.e., those that perform passenger checkpoint as well as checked baggage screening functions. TSA's WPT currently is developing a process and timelines for meeting the annual screener recertification mandate for FY 2004-05. As a result of the current number of cross-trained screeners and the future increase of dual function screeners, TSA's WPT reportedly plans to establish a dual function screener recertification test for the next recertification cycle. We agree

[40] Strohm, Chris, "Airport Screeners Slam TSA Re-certification Program," *Government Executive*, February 18, 2004.

[41] The following were considered significant test administration problems: coaching of screeners during the evaluation, evaluation scenarios compromised, evaluation props in plain sight, evaluation on items not prohibited under TSA SOPs, evaluation on incorrect scenarios, evaluation scenarios too simplistic, inadequate evaluation orientation, and evaluators lacking adequate knowledge of the screening process.

that screeners should be required to be recertified on every screening function that they are expected to continue to perform and agree that a dual function recertification track should be established for all future recertification testing.

Other Issues Related to Screener Training, Screener Performance, and an Increase in the Detection of Prohibited Items

Other issues must be addressed in order to reduce further airport security system vulnerabilities.

Use of the Online Learning Center Is Limited by Network Access

In March 2004, the TSA Administrator testified, "From the standpoint of training delivery, our most significant accomplishment is the launching of our learning management system, the TSA Online Learning Center (OLC)."[42] Among its many advantages, an online learning management system can:

- Accommodate remote locations and flexible schedules;
- Reach audiences large or small;
- Make available self-paced courses, references, and job aids, including the "Excellence in Screener Performance" video series and web-based training tools, such as technical training for supervisors;
- Organize professional development plans;
- Enable rapid updates to materials;
- Ensure training delivery is highly consistent;
- Simplify changing course schedules and controlling sign-ups;
- Support standardized testing and enhanced test security measures; and
- Provide automated record-keeping of an employee's progress.

TSA has begun to realize some of these benefits since launching the OLC on October 31, 2003. However, TSA needs to improve screeners' access to computers and the TSA intranet in order to enable widespread use of the system.

[42] House Appropriations Subcommittee on Homeland Security, Hearing on the Transportation Security Administration FY05 Budget Request, March 11, 2004.

Use of the OLC continues to grow since the system was launched, increasing from 1,400 average weekday student logins in February 2004 to 3,000 weekday student logins in April 2004.[43] Much of the OLC's recent growth has been in available content, such as the screener recurrent training courses that TSA is making available online. Use of OLC training courses and record-keeping is growing.

Figure 5. OLC Use

Learning events recorded or completed online	March 2004	April 2004
Screener recurrent technical training, Threat in the Spotlight, and local testing events	66,000	93,000
Web-based online courses	25,000	35,000
Briefings and reading assignments	77,000	35,000
Instructor-led classes and miscellaneous training records	7,000	15,000
Total	175,000	265,000

TSA is using or investigating the many advantages of an online learning management system, from managing employee development plans to posting reference materials. Handbooks for using the OLC have been posted and updated online; and other materials pertinent to screening, such the SOPs and Aviation Operations Directives, are to be posted in the near future. Advantages of maintaining these references on the OLC include better version control and replacing time-consuming, manual updates to materials with quick, centralized electronic uploads over the intranet. In addition, TSA is beginning to tap the OLC's standardized testing features. The OLC has the capability to deliver online written tests with randomized questions and answers and proctor codes to control test administration and security. When this capability is exercised, it could help TSA address the test security concerns discussed on page 20. TSA plans to pilot OLC-based tests for the DFS course in summer 2004.

[43] For comparison purposes, figures include only student logins from the TSA intranet. Student logins from the TSA extranet, which TSA launched in March 2004, increase the April figures; see page 65.

In February 2004, TSA began to require the centralization of training records in the OLC. Currently, TSA does not have full, centralized records to verify that screeners meet the training requirements of ATSA and complete three hours of recurrent training for every 40 hours worked. WPT recently added analysis software to the OLC that will enable staff to compile and analyze reports of employees' certifications and completed classes, once the training records are added to the OLC. Before the launching of the OLC, TSA allowed training coordinators and contractor trainers to develop independent and non-standard training record systems. As a result, TSA's training records are fragmented between WPT and contractor databases, plus spreadsheets, databases, and paper files unique to local airports. We reviewed a judgmental sample of paper and electronic training records at four airports, where FSDs are responsible for record retention. More often than not, records of ATSA-required training were incomplete. Shortfalls included missing or partial records of classroom training, missing records of equipment-specific training and examinations, documentation of fewer than 60 OJT hours, and missing OJT examination records. Establishing complete training records in the OLC will do much to improve the quality of screener learning histories. TSA has begun to use the OLC to schedule and record new training, but the compilation of historical records from contractors, WPT, and training coordinators has been delayed. TSA has several challenges to address in order to build the OLC learning histories, such as the loss of historical training documentation. Because some contractor training records are no longer accessible, TSA will need to formulate a strategy for verifying that screeners have fulfilled the training requirements.

Other challenges include limited network connections to the OLC in the field and the manual data entry workload imposed on training coordinators when training is conducted offline. Many of the OLC's features, such as automated record keeping and secure testing, are difficult or impossible to use in the absence of computers with high-speed connectivity to TSA's intranet. However, of the 425 airports with TSA screeners, only 112, or 26.4%, have computer training labs with high-speed connectivity. At least 50 additional airports have computer training labs that could be networked, but TSA ceased these high-speed network installations in April 2004 after exhausting funds. TSA's information technology office does not expect

supplemental funding adequate to resume installations in FY 2005. This leaves screeners at 313 airports with insufficient access to the OLC.[44]

Until connectivity is improved, WPT improvised several methods to enable the use of some OLC features. In March 2004, TSA launched an extranet that enables employees to log in to the OLC from non-TSA computers, such as from home or a public library. By the end of April 2004, TSA recorded a daily average of 950 weekday and 550 weekend student logins from the extranet. In addition, WPT distributes online course materials to training coordinators in alternate formats, including CD-Rom, videos, and paper. Training coordinators, most of whom have high-speed intranet access, may download and print OLC materials or use them for overhead projections. All of the new screener recurrent web-based training and performance videos, and 50 of the 366 general NetG courses, are available for offline use. Nevertheless, the improvised solutions have limitations. For example, offline delivery of OLC content prevents training coordinators from using the OLC's automated record keeping feature, and security concerns prevent TSA from offering all but the NetG courses and account administration features over the extranet.

Providing computers with high-speed connectivity to all the airports will enable TSA to make better use of the many training features the OLC offers. In the July 2003 *Passenger Screener Performance Improvement Study,* TSA staff recommended that TSA "[e]stablish adequate airport learning centers at all airports that have not yet done so" and "[a]ccelerate broadband access and LMS [Learning Management System, or the OLC] at all airports" in order to remedy screeners' lack of skills, knowledge, or information. TSA should continue to fund the implementation of these recommendations.

We recommend that the TSA Administrator:

Recommendation 19: Fund and resume installation of computer training labs and high-speed network connectivity to provide all screeners with full access to the Online Learning Center.

[44] In FY 2003, TSA prioritized delivery of network connectivity to the administrative locations of the FSDs and their staff, installing the computers and networking for 148 out of 159 FSDs. However, many of these networked computers were dedicated to staff administrative work and distant from screening locations. TSA's original vision for installation included extending the network beyond the offices to airport operations areas, including training rooms, break rooms, operations centers, and screening locations, which would improve screeners' access to the OLC. One airport has received this full installation.

Specific Screening Equipment Training and Certification Is Necessary

TSA is required by ATSA to provide equipment-specific training to all of its security screeners. According to ATSA, "An individual employed as a security screener may not use any security screening device or equipment in the scope of that individual's employment unless the individual has been trained on that device or equipment and has successfully completed a test on the use of the device or equipment."[45] There are different models of ETD machines in use at both passenger checkpoints and checked baggage screening stations at airports around the country. In addition, more than one model of EDS machine is in use at TSA checked baggage screening stations. The following figure lists the different models of ETD and EDS machines currently in use at commercial airports:

Figure 6. Security Screening Equipment Models Currently in Use

TSA Screening Equipment	Makes & Models	Manufacturers
Explosives Trace Detection Machines (ETD)	Ionscan 400A & B	Smiths Detection
	Itemiser - Windows	GE IonTrack
	EGIS II & III	Thermo Electron Corp.
Explosives Detection Systems Machines (EDS)	3DX 6000	L-3 Communications
	CTX 2500, 5500	InVision
	CTX 9000	InVision

Each model of ETD and EDS machines has significant operational and preventive maintenance requirements specific to that model. For ETD machines, sampling media, placement of sampling swab, calibration/ verification procedures, machine start-up procedures, shift maintenance, decontamination procedures, and operations monitor display differ among each of the three makes currently in use. For EDS machines, the imaging orientation, operator image manipulation capabilities, and operator panel and console presentation and display are critically different.

[45] Codified in 49 U.S.C. § 44935(g).

To achieve ATSA compliance and foster screener understanding of the operational and preventative maintenance differences of the machines, it is essential that screeners be trained on the particular make and model of EDS and ETD machine with which they will work. Staff reported that TSA attempted to schedule newly hired checked baggage screeners on the models of EDS and ETD machines that are located at the airport at which they will be working. If a course was not available with both the required EDS and ETD models, however, the EDS model took precedence. For newly hired passenger checkpoint screeners who would be using ETD machines, TSA did not make an effort to schedule them in courses that would certify them to operate a specific model of ETD machine because TSA did not consider ETD certification a job requirement for these screeners.

We compared the model of screening devices offered during instruction in the basic passenger checkpoint and checked baggage courses throughout December 2003 against the models of ETD and EDS screening systems available at screeners' home airports. In general, screeners were scheduled to train on the appropriate EDS model for their airports. However, of 481 students enrolled in the checked baggage courses, 96, or 20%, returned to home airports listed as not having the ETD model that they had been trained to use. For passenger checkpoint screeners, 201 of 808, or 25%, returned to home airports listed as having ETD models different from the one on which they trained.

Figure 7. Model-specific Screener ETD Training

Basic Screener Training Course	Screener ETD Training		
	Student Enrollment for Dec. 2003	Trained on Home Airport ETD Model*	*Not* Trained on Home Airport ETD Model*
✓ **Checked Baggage**	481	385 *80%*	96 *20%*
✓ **Passenger Combo**	808	607 *75%*	201 *25%*
Total	**1,289**	**992** *77%*	**297** *23%*

*According to TSA EDS and ETD Machine Inventory, December 2003.

While it may be difficult logistically to schedule newly hired screeners in basic courses that certify them on the appropriate EDS and ETD models for their airports, it is imperative all checked baggage screeners have specific training that addresses the specific operation and nuances of the makes and models of ETD and EDS machines. The checked baggage OJT guidelines provide for checked baggage screeners to receive "differences training" that orients them to ETD models not taught during their scheduled classroom training, but the OJT environment is less structured and standardized than classroom training.

In addition, because passenger checkpoint screeners should be able to perform tasks related to basic ETD machine operation and maintenance, these screeners should be trained on the specific operation and nuances of the makes and models of ETD machines. While the alarm resolution procedures using ETD are different for passenger checkpoint screeners than checked baggage screeners, the operation and preventative maintenance requirements of the actual ETD machines are the same for both passenger checkpoint and checked baggage screening.

The deficiency in training on specific makes and models of ETD machines has been addressed in part by TSA through its design of the DFS course. During this course, TSA incorporated time for all newly hired screeners to learn both the

Ionscan and Itemiser ETD machines.[46] However, selected screeners train on only one make and model of EDS machine. As a result, TSA should continue to ensure that these newly hired screeners are scheduled for basic courses that certify them on the correct make and model of EDS machine for their airports.

As a corollary to training screeners on the appropriate ETD and EDS models for their airports, TSA should schedule trained screeners to operate the machine models for which they are qualified. Although the training coordinators said they communicate with scheduling officers about screener qualifications, TSA does not have a system in place to prevent scheduling officers from assigning screeners to operate equipment they are not qualified to use. During one of our site visits, we reviewed training records available at the checked baggage training stations for a random sample of checked baggage screeners to determine whether these screeners were certified on the model of EDS machine located at the checked baggage station to which they had been assigned.[47] Of 40 checked baggage screeners, 21, or 53%, were scheduled to work at stations with models of EDS machines different from the model on which they were certified.

Figure 8. On-Duty Screener EDS Certifications

Checked Baggage Screening Station	EDS Model at Station	On-Duty Screener EDS Certifications			Screeners Not Certified on Model at Screening Station
		CTX 5500	CTX 9000	3DX 6000	
✓ **Station #1**	3DX 6000	5	3	12	8 (40%)
✓ **Station #2**	CTX 5500	3	8	0	8 (73%)
✓ **Station #3**	3DX 6000	3	0	3	3 (50%)
✓ **Station #4**	CTS 5500	1	2	0	2 (67%)
Total Not Certified on Model at Screening Station		**8**	**13**	**0**	**21 (53%)**

[46] Because it is being phased out of the security screening system, TSA is not training screeners on the operation of the EGIS ETD machine.
[47] In some instances, screeners, who were not certified on the equipment located at the checked baggage to which they were assigned, were not operating the equipment but performed other duties such as loading baggage onto the machine conveyor belts.

Some scheduling officers responsible for scheduling new screeners for OJT and for shifts are informed of screener equipment certifications by training coordinators on an *ad hoc* basis, often via email or verbally. In other cases, screening managers located at passenger checkpoints and checked baggage stations were responsible for determining the equipment certifications of screeners assigned to their station by either talking to the screener, calling the local training office, or referring to sometimes outdated or incomplete training records that are located at the checkpoints and stations. One training coordinator whom we interviewed planned to improve local records of screener certification and hoped to use them as a management control to ensure appropriate work assignments. TSA is headed in this direction as well, and recently added analysis software to the OLC that will facilitate the generation of certification reports. The OLC itself offers more than 80 reports for training coordinators. To ensure that screeners are scheduled to work on machines on which they have been certified and to assist scheduling officers determine the certifications that each screener has earned, TSA should develop a scheduling system that will interface with the training records found in the OLC.

We recommend that the TSA Administrator:

Recommendation 20: Ensure that screeners are scheduled for basic classroom training that provides initial certification on the specific make and model of ETD and EDS machines that they operate.

Recommendation 21: Improve management controls for the screener scheduling system, such as linking scheduling to employee qualifications in the Online Learning Center, to ensure that TSA schedules screeners to operate only equipment on which they are certified.

Efforts to Advance the Development and Deployment of New Screening Technologies Should Be Accelerated

Current TSA screener training is largely shaped by the screening technologies in use today. Passenger checkpoint screeners, for example, dedicate considerable training time to learning how to recognize threats in X-ray images, because the effectiveness of X-ray screening depends on whether the X-ray operators

recognize threat images. Checked baggage screeners, in contrast, learn very little image interpretation because the EDS machines they use have a different technology that identifies and locates potential threats without operator intervention. The effectiveness of TSA's screening technologies depends in varying degree on operator performance. In other words, screeners' overall performance in guarding against transportation security threats relies both on human skill, which training can enhance to a certain extent, and on the capabilities of screening technology. Since there are limitations on human performance, investing in improved screening technologies is one way that TSA can improve overall performance in detecting threat items.

On their own, screeners cannot detect all threat items all of the time. Several "human factors" combine to limit screeners' ability to do so, including fatigue, task complexity, and social conventions. Screeners performing repetitive tasks, such as hand-wanding or ETD sampling, must combat a degree of monotony while strictly applying SOPs without short-cutting or adopting improper techniques. The repetitiveness of screening passengers and baggage creates fatigue, which can lead to decreased attentiveness and accuracy. X-ray operation also requires unflagging vigilance for an uncertain threat, plus extremely well-honed image recognition capabilities. Property that passes through X-ray machines for screening contains a universe of items assembled into a virtually limitless number of configurations. Given the complexity of object recognition efforts and the impact of fatigue, there are limits on human performance in this area, even if the screener has an aptitude for the work and substantial training and experience. In another example, social conventions discourage screeners from encroaching on travelers' privacy to pat down passengers close to sensitive body areas while searching for threat items. While the SOPs prohibit screeners from touching certain sensitive areas during a full-body pat down, some screeners give these areas particularly wide berth when conducting their searches. Aspects of screeners' work are extremely challenging and present substantial hurdles in vigilance, skill development, and technical and procedural adherence.

Screener selection, training, testing, and monitoring can help screeners overcome these challenges in many cases, but will not guarantee complete success. There are fundamental limitations on human performance in any line work; airport security screening is no exception. Such screener performance deficiencies create openings in the security system that render aviation more vulnerable. In fact,

recent operational test results from DHS OIG[48] indicate that screener performance was a factor in 82% of passenger checkpoint and 61% of checked baggage screening failures.[49]

To a significant extent, technological limitations result in vulnerabilities independent of human performance factors. DHS OIG staff conducting operational penetration tests in 2003 reported that screening technology limitations were a factor in 30% of security failures at checkpoints and 30% of failures at checked baggage screening stations.[50] Some of the currently deployed screening technologies lack detection capabilities for certain threats, and some depend too heavily on the detection capabilities of screeners.

In its own *Passenger Screener Performance Improvement Study*, TSA acknowledged that "technological limitations combine with human factors to prevent 100% detection" of threats. The report continues by recommending that TSA "accelerate efforts to identify, test, and deploy new technologies." In line with this analysis, TSA is actively involved in the development of new systems to improve screener performance and materially aid in threat detection efforts. One goal of development efforts is to furnish screeners with more performance monitoring aids. The implementation of TIP, discussed earlier, is an associated effort. TSA is also pursuing testing and approval of a pressure gauge for ETD sampling wands to provide feedback to screeners on the amount of pressure they are using in sampling bags. Other current TSA technological development efforts are geared toward reducing the human factor in checkpoint and checked baggage screening by developing superior automated detection aids.

A substantial measure of current airport security system vulnerability is linked to screener performance. Accordingly, some security system vulnerabilities can be addressed with improved selection, training, and monitoring of screeners. These

[48] Department of Homeland Security, Office of Inspector General, Office of Audits, "*Audit of Passenger and Baggage Screening Procedures at Domestic Airports."* OIG-04-37, September 2003.

[49] For the purposes of this section, operational test failures due to "inadequate training" or "failure to adhere to standard operating procedures" were considered failures due to screener performance. In several instances, non-human factors, e.g., technological limitations, contributed to operational test failures in which screener performance was also a factor.

[50] Operational test failures were sometimes attributable to multiple causes. In several instances, human factors contributed to operational test failures in which technological limitations were also a factor.

efforts will ultimately experience diminishing returns, however, as the quality of human performance of current screening functions is finite. At checkpoints and checked baggage screening locations, the best way to address these vulnerabilities is through the development of new technologies that provide more substantial screening assistance to operators and reduce the impact of human limitations. While organizational and individual actions will continue to play a critical role in airport screening, the application of new screening technologies holds the greatest long-term potential for reducing airport security system vulnerabilities and increasing the detection of prohibited items.

We recommend that the TSA Administrator:

Recommendation 22: Continue efforts toward the development and advancement of technologies to support screening efforts. Resource investment should place particular emphasis on technologies for passenger checkpoint screening, as passenger screening procedures are more operator dependent and, thus, more vulnerable to human factors than checked baggage screening.

Future Planning Should Account for Continually Changing Training Requirements

Transportation security screening is a dynamic field fueled by evolving threats and changing means of confronting these threats. Terrorists and others posing a threat to aviation security will continue to use different and evolving techniques to avoid detection. In response to information on these changing threats and ongoing appraisals of the screening process, TSA adjusts screening procedures. While many screening technologies under development are geared toward reducing the human factor in screening, screeners will nonetheless have to absorb new technical information on an ongoing basis to accommodate the deployment of these new technologies. Moreover, given sufficient resources, TSA's research and development efforts could result in a radical transformation of passenger and checked baggage screening operations in a matter of years.

Anticipated changes in threats, procedures, and technologies present a major future training challenge for TSA. Unlike more static fields, it will be necessary for the security screening workforce to have evolving training requirements.

Consequently, it is imperative that TSA's administrative apparatus be capable of continuously developing and implementing new training tools.

U.S. Department of Homeland Security
Office of the Administrator
601 South 12th Street
Arlington, VA 22202-4220

SEP 27 2004

Transportation Security Administration

SENSITIVE SECURITY INFORMATION

MEMORANDUM FOR: Clark Kent Ervin, Inspector General
Department of Homeland Security

THROUGH: Asa Hutchinson, Under Secretary
Border and Transportation Security

FROM: David M. Stone, Assistant Secretary
Transportation Security Administration

SUBJECT: Transportation Security Administration Response
To the "Evaluation of TSA's Screener Training
and Methods of Testing"

This memorandum constitutes the Transportation Security Administration's (TSA) response to your Draft Report on the "Evaluation of TSA's Screener Training and Methods of Testing." I would like to take this opportunity to express my appreciation for the efforts undertaken by your office to provide TSA with increased capabilities to identify certain operational issues that may be appropriate for revision.

The accompanying attachment is TSA's official Agency Comment to the Department of Homeland Security's (DHS) Office of Inspector General (OIG) review of TSA's training and testing methods. Our comments consist primarily of input from Aviation Operations, Workforce Performance and Training, and the Office of Transportation Security Policy.

TSA responses to each of the recommendations raised in the Draft Report are enclosed. We look forward to an ongoing relationship with your office as we work towards identifying and improving program requirements in an effort to better secure our transportation security infrastructure.

The protective marking SENSITIVE SECURITY INFORMATION and/or the distribution limitation statement on this document are canceled when the attachments containing SSI are removed.

Attachment

SENSITIVE SECURITY INFORMATION

TSA Response to OIG Recommendations:
Evaluation of TSA's Screener Training and Methods of Testing

Recommendation 1: Complete the analysis for basic screener classroom training, both for passenger checkpoint and checked baggage screeners, and institute mechanisms to ensure that staff update the analysis at least annually and apply the results to curriculum revisions.

The Transportation Security Administration's (TSA) Office of Workforce Performance and Training's (WPT) Performance Consulting Division (OPC) has completed a study of the Basic Screener Training Program. The Comprehensive Performance Assessment of Internal Training Development Procedures report, dated February 27, 2004, outlined the current state and made recommendations based on three levels of performance -- individual, process and the organization in order to continuously improve performance. WPT's Screener Training Division will take the lead in re-examining the basic screener-training program, with assistance from WPT's Instructional Design Division, OPC, Standards and Testing, and Quality and Assurance and Evaluation divisions. The Screener Training Division will have project management responsibility with OPC providing assistance and oversight as required.

Recommendation 2: Ensure that passenger checkpoint and checked baggage basic course objectives (1) address the knowledge and skills necessary for routine screener performance, as identified by the most current task analysis, and (2) are presented to students at the beginning of course lessons.

WPT's Dual Function Screening (DFS) course, deployed in April 2004, supports the knowledge and skills necessary for routine screener performance. Subject matter experts from both TSA and WPT contractors validated the objectives for both passenger checkpoint and checked baggage instruction. These objectives continue to be periodically reviewed by both groups to ensure they are current. As stated in our response to Recommendation 1, WPT will conduct the analysis of the screener training program to ensure that objectives of the DFS course are up-to-date and cover all skills and knowledge required for a security screener to properly perform.

The DFS course clearly identifies lesson objectives, which are presented to students at the beginning of each lesson. Objectives are reviewed and reinforced at the conclusion of each lesson.

Recommendation 3: Further revise written examinations and administration procedures, including the following steps:

- **Ensure all course objectives receive an appropriate assessment of student learning;**

SENSITIVE SECURITY INFORMATION

- **Thoroughly validate tests, including passing scores, if they are to be used for selection decisions;**
- **Pilot-test examination questions to ensure their clarity and objectivity;**
- **Schedule tests later during the course to enhance their ability to measure students' long-term retention of course material; and**
- **Incorporate post-test reviews to prevent screener misconceptions from being carried into the workplace.**

The above issues have already been addressed in the new DFS test development:

WPT's goal is to ensure that all course objectives receive an appropriate assessment of student learning, and that all course objectives are covered by test material from at least one of the forms of assessment: written job knowledge, image interpretation, and/or practical skills demonstrations. All written job knowledge test questions are mapped to learning objectives for the different modules. Some course objectives are also addressed by the practical skills demonstrations either conducted during initial training or during on-the-job-training (OJT).

All of the written job knowledge tests are content valid. Since January 2004, item-writing guidelines have been distributed to all individuals working on screener training test development. The guidelines stipulate that all test items must be directly mapped back to training content, and that link must be documented and submitted with the test item. Items are also submitted with links to the learning objectives that are being tested with that test item. All test questions have been mapped directly back to the training content.

Any time there is a change to any course material all test questions are reviewed to ensure the information is still current and directly tied to course material. With the development of the DFS tests, the cut scores for each new test were examined. Angoff panels, a technique where subject matter experts rate the probability that a minimally competent screener would answer each item correctly and base cut scores on the results, were conducted with subject matter experts from the field (e.g. screeners) to review all of the test questions. During the panel both passenger and checked baggage screeners completed all of the tests and provided feedback regarding item clarity and item difficulty. Results from the Angoff panels were used to revise test material, equate multiple forms of the tests, and to determine appropriate cut scores.

All DFS test material was piloted before the course module was released. All items were reviewed to ensure clarity and proper mapping to the training content. Feedback from statistical analysis of the items, as well as input from the instructors, was incorporated to finalize all of the tests before deployment. The new DFS course has all written job knowledge and practical skills demonstrations scheduled at the conclusion of both classroom and hands-on practice time for that section or module. This will allow

SENSITIVE SECURITY INFORMATION

additional time for practice and review of the material and skills before any test is administered.

A standardized test review process was implemented with the DFS course. The "Administration Guide for Job Knowledge Tests conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004," emphasizes the importance of conducting a test review to ensure that students do not leave the training retaining incorrect information. During the test review, individual questions are not discussed; however, concepts that were missed during the test are reviewed to ensure accuracy of trainee knowledge. The review covers any concept that more than one student missed during the test. During the review, follow-up questions are addressed and discussed to verify a thorough understanding of all training concepts.

Recommendation 4: Develop and distribute detailed test administration guidelines for Practical Demonstration of Proficiency Evaluations with the aim of increasing standardization.

Both the administration guidelines and the practical skills checklists were completely revised for implementation with the new DFS course. The "Administration Guide for Practical Skills Demonstrations conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004," standardizes the process a test administrator must follow when administering practical skills demonstrations. The guide clearly states that a student is required to perform the practical skills demonstrations initially without coaching or feedback from the Test Administrator. If a student does not perform all of the required tasks with a "Meets Standards" rating, the Test Administrator would then provide the appropriate feedback and allow the student to perform the practical skills demonstration a second time.

After the second attempt, if a student still has not achieved "Meets Standards" ratings on all of the required tasks, he or she will then be offered an opportunity for individual remediation at a specified time. The rating checklists are also much more detailed to specify exactly what behaviors need to be demonstrated for each task. This greatly reduces the subjectivity that was present in the evaluation process. The same checklists are then used during OJT.

Recommendation 5: Distribute effective training materials to reinforce learning and allow for individual study outside the classroom.

With the deployment of the DFS course in April 2004:

- Detailed student guides were developed that include both slide contents and content notes for the associated slide. The notes are written in narrative form and provide the details as presented by the instructor.

SENSITIVE SECURITY INFORMATION

- Students are allowed to take their student guides outside of the classroom allowing for individual study. Students must return the guides prior to taking the job knowledge test for each module.

Recommendation 6: Require all TSA approved instructors to complete an appropriate form of OJT prior to providing instruction and to undergo annual recertification testing.

At a minimum employees nominated as TSA Approved Instructors (TAI) must have at least 2+ years as an instructor and completed security screener training, which includes on-the-job training. Employees nominated as TAIs are trained screeners and considered security screening subject matter experts. As a TSA security screener, TAIs must meet all re-certification requirements of the Aviation Transportation Security Act.

Contract instructors do not receive a "certification" from TSA that approves them to instruct. All contract instructors are required to attain the following training/qualification standards:

- Complete American Society for Training Development "Train the Trainer" Certification.
- Pass the DFS tests with a minimum test score will be achieved. If an instructor does not meet the minimum test score, he or she shall be offered remediation and allowed to take a re-test for the corresponding test.
- Complete the DFS course or receive the DFS Differences (update course) Certification if the instructor has previous Checkpoint or Checked Baggage Certification.
- Complete the practical teaching of DFS under the supervision of a Lockheed Martin Lead Instructor (new hire instructors only).
- Complete training on the Explosive Detection System (EDS)/Explosive Trace Detectors (ETD) Machine Specific Modules.
- Maintain certifications by teaching the certified course at least once every six months. Advanced training will be provided as the curriculum is updated. As often as possible, update training will be done in conjunction with the annual re-certification process.
- Complete annual certification of proficiency in Practical Skills Demonstration (PSD).

Recommendation 7: Analyze the cost and feasibility of establishing designated training sites where screening equipment, simulators, and training aids can be located permanently and readily available to students.

TSA is currently examining the cost and effectiveness of locating training centers near proposed hiring centers and/or in currently established training centers located at or near major training locations.

SENSITIVE SECURITY INFORMATION

Recommendation 8: Use alternatives to lectures more frequently during classroom training to help maintain student attentiveness, contribute to the comprehension and mastery of new knowledge and skills, and foster retention of the material.

With the release of the DFS course, alternative delivery modes are utilized including:

- Practical labs: DFS Screening of Persons Lab uses a simulation approach by creating the checkpoint environment. Students are divided into groups and practice screening techniques using role-play to demonstrate their ability to conduct Full-Body Pat Down, correct hand wanding procedures and Walk Through Metal Detectors (WTMD) screening.
- Demonstration and practice: During the Full-Body Pat Down lesson the instructor demonstrates the proper procedures for conducting the pat down, then divides the class into small groups for practical application.
- Probing questions: Throughout the course instructors ask open-ended questions (examples are included in the instructor guide and instructors are encouraged to develop and ask their own), providing students with the opportunity to link concepts and demonstrate knowledge. Other questioning techniques include debriefing activities, paraphrasing comments, redirecting statements and asking for solutions.
- Site visits: All students are required to visit an airport checkpoint to observe and practice screening skills.
- Use of props: In the Screener Safety and Awareness lesson, students are given the opportunity to practice safe lifting techniques using props.
- Use of software applications for image interpretation.

Recommendation 9: Cease all coaching of students during practical demonstration of proficiency evaluations.

The "Administration Guide for Practical Skills Demonstrations conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004", standardizes the process a test administrator must follow when administering practical skills demonstrations. As stated in our response to Recommendation 4, the guide clearly states that a student is required to perform the practical skills demonstrations initially without coaching or feedback from the test administrator. If a student does not perform all of the required tasks with a "Meets Standards" rating, the test administrator would then provide the appropriate feedback and allow the student to perform the practical skills demonstration a second time without coaching.

In addition, after the second attempt, if a student still has not achieved "Meets Standards" ratings on all of the required tasks, they will then be offered an opportunity for individual remediation at a specified time. If a student has a question during a practical skills demonstration, it is important to only note the student's concern, however, feedback should not be given during the demonstration itself. The issue can be addressed after the practical skills demonstration has been completed.

SENSITIVE SECURITY INFORMATION

Recommendation 10: Ensure that leadership within the screener workforce diligently monitors screeners and immediately corrects identified failures to adhere to screening procedures and negligent screening techniques.

In an effort to strengthen the ability of screener workforce leadership to ensure that screeners receive immediate feedback in the event of a failure in screening technique, TSA's Aviation Operations issued Aviation Operations Directive number 400.32.2-4, "Remedial Screener Training." This directive explains the process that must be followed in the event that a screener receives a "fail" at a TSA Operational test, including all screening positions. Additionally, TSA's Operations Policy, Aviation Operations, Chief Counsel, WPT, and other lines of business are currently working on revising the Checked Baggage SOP including a chapter on "Screening Oversight and Audits." This chapter will cover how a supervisor must verify that screeners are following procedures as outlined in the SOP.

It is also important to note that Aviation Operations does allow a degree of flexibility at the airport level to allow screener workforce leadership to ensure that supervisors appropriately monitor and evaluate screener performance. For example, at Richmond International Airport, a form was created for use by all screener managers to observe and rate each screener's performance. On a weekly basis, screener managers use this form, which includes all the screener positions, and each manager is expected to evaluate his or her team and correct those screeners who make mistakes or recommend that the screeners be sent for recurrent training.

Recommendation 11: Continue the development of evaluations that will relate training to screener application of learning on the job and to organizational results.

TSA will continue the development and implementation of evaluations that examine changes in screener performance attributable to training. The TSA multi-level assessment program is based on the widely accepted (industry standard) 4-level evaluation model designed by Dr. Donald Kirkpatrick. Once resources are made available, WPT's Evaluation and Quality Assurance Division will include conducting Level 3 evaluations that focus on behavior change and application of skills and knowledge on the job following the screener training program and Level 4 evaluations that focus on the impact of screener training on the organization.

Recommendation 12: Ensure that OJT guidance provides detailed, sequenced lists of specific tasks that each OJT student must perform, including instructional materials where needed, and establishes appropriate, function specific time requirements for both newly hired and cross-trained screeners.

With the deployment of the DFS course in April 2004, the OJT checklists were redesigned to:

SENSITIVE SECURITY INFORMATION

- Specify by function area the requirements for OJT – eight specific checklists for Checkpoint and two specific checklists for Checked Baggage. Additionally, specific checklists were developed for each of the ETD and EDS machines.
- Provide a detailed, sequenced list of specific tasks as specified in the SOP.
- Specify minimum time requirements for each checklist. The time requirement for each checklist is included on the checklist form and is detailed in the revised OJT guide.

For each position, there are a minimum number of hours that must be satisfied before a screener may [or will] be certified in a position. These requirements exceed those specified by Aviation Transportation Security Act, Pub. L. 107-71, 115 Stat. 597 (2001) (ATSA).

The DFS course introduces general screening concepts for new hires. This approach was taken to manage the amount of time spent in the classroom. OJT is designed to provide an opportunity to practice and apply what is taught in the classroom and provide an opportunity for the screener to learn SOP specified details not covered in the classroom, particularly those that are airport-specific based on machine configuration.

The Screener Training Division expects that, as a result of the Screener Training analysis and the work by OJT Project Team, improvements to the OJT process and tools will be implemented

The Screener Training Division is in the process of establishing a Project Team to address improvements to the OJT program. The project team will consist of representatives from the Aviation Operations Directorate (Policy and Operations), Office of Security Technology, Transportation Security Lab and WPT. The project team will provide recommendations and implement improvements.

Recommendation 13: Revise OJT examinations in order to:

- **Test screeners on all TSA-approved screening methods that they will be required to use upon completion of OJT;**
- **Enforce the use of test strips with explosive material during ETD practical examinations; and**
- **Standardize and enforce limits on OJT retesting opportunities, including the Image Mastery Test.**

Currently, the OJT checklists serve as the standardized testing tool requiring screeners to properly demonstrate screening methods and procedures. The procedures defined in the SOPs are outlined on the appropriate checklists. Screeners are required to demonstrate proficiency in these procedures under observation of an OJT monitor. The Screener Training Division's Project Team for OJT program improvements will address this.

SENSITIVE SECURITY INFORMATION

New instructions issued as part of the OJT guide clearly define how the test strips should be used. The dry transfer strips have been determined to be unreliable as a certification test. Therefore, WPT has not implemented the same pass/fail criteria that apply to the Image Mastery Test (IMT). The screener training division is working with the Transportation Security Lab to test and implement an alternative method.

The Guidance for Administering Security Screener On-the-Job Training, version 3.5, documents the limits on retesting opportunities for the IMT. The guidance provides for two opportunities to retest. Upon failure of the IMT a third time, screeners are required to be placed on administrative leave pending removal.

Recommendation 14: Ensure OJT monitors are certified as having the skills and experience necessary to deliver and monitor OJT training and administer subsequent testing.

The Screener Training Division has implemented an OJT guide as part of the DFS course. WPT is investigating the feasibility of implementing a formalized OJT program for OJT monitors, in concurrence with Aviation Operations.

Test administrators approved by FSD's administer post-OJT testing. This will be addressed in the Screener Training Division's Project Team for OJT program improvements.

Recommendation 15: Examine the workforce implications of the three-hour training requirement and take steps to correct identified imbalances in future workforce planning to ensure that all screeners are able to meet the recurrent training standard.

WPT prepared and distributed to all Federal Security Directors (FSDs) and Area Directors the "Interim Screener Recurrent Training Program Guidance." This interim document guides FSDs in establishing a standard recurrent training program for all screeners. FSDs are responsible for ensuring that each screener's schedule includes sufficient time to meet the training standards established in this guidance. Also, FSDs are responsible for ensuring that training records for each screener under his/her purview are maintained in the On-line Learning Center (OLC). The OLC centralizes and automates record-keeping activities.

Standards for Recurrent Training are as follows: three hours (3) of scheduled duty time per week, per screener, to be used by FSDs as the planning standard to accomplish recurrent, administrative, and professional development training. Because of operational constraints, this is to be considered an average of three hours per week over a calendar quarter. This standard is primarily intended to provide the opportunity for maintenance and improvement of necessary skills, knowledge, and abilities to accomplish the mission. While three hours is specific guidance, it is intended to set expectations for planning and

SENSITIVE SECURITY INFORMATION

should not be construed to mean that we will conduct training for the sake of training to simply attain an hourly goal. FSDs must establish a training program schedule that meets the intent of the standard as well as the specific performance and developmental needs of each screener. The standard applies to both full time and part time screeners, because there can be no difference in performance expectations.

Recommendation 16: Continue to pursue the development and application of TIP user adaptability features to maximize TIP training benefits.

TSA, through the Threat Image Projection (TIP) Integrated Project Team, is finalizing the Functional Requirements for the Second Generation TIP System for x-ray machines. The Second Generation system is envisioned to include adaptive learning capability to support training. Upon finalization of requirements, TSA will work with the TRX vendors to analyze feasibility of development and implementation. The results of this analysis, in conjunction with funding availability, will drive decisions on how to proceed.

Recommendation 17: Expedite TRX connectivity to realize administrative and information sharing gains related to TIP.

TSA has created a TRX/TIP Network Pilot Program designed to achieve the following objectives:

- Connect existing TRX machines to the TSA Network
- Connect the National TIP Server to TSA Network
- Test and evaluate TIP Network
- Standardize a networking and connectivity solution that can be deployed to additional airports
- Lay the groundwork for continued screening performance improvement

Five airports are participating in this pilot: Baltimore-Washington International, Miami International, San Diego International Airport, Cleveland Hopkins International Airport, and Charlotte/Douglas International Airport. The TIP Network Pilot Program provides a foundation for TSA to move forward in the development of the Civil Aviation Security Screening Network (CASSNET). CASSNET will provide the next generation of connectivity for airport security equipment including ETD, TIP-ready x-rays, EDS and WTMD. Funding is available to support the TRX/TIP pilot for the five airports listed above. Progression towards enabling connectivity and networking in other airports is dependent on future funding levels.

Recommendation 18: Further enhance local operational testing efforts by: (1) revising procedures and protocols to increase opportunities for realistic and difficult testing, and (2) expediting the development, certification, and distribution of ETD and EDS operational testing tools to enable assessment of screeners performing these duties.

SENSITIVE SECURITY INFORMATION

The following efforts are underway to enhance local operational testing efforts:

1) Airports in Category II - IV may now request "bogus" boarding passes from aircraft operators so that the individual carrying a test object into the checkpoint appears to be a regular passenger. This procedure was developed in partnership with the airline industry and will help smaller airports accomplish realistic testing.

2) New test items have been proposed for adding to the Modular Bomb Set (MBS) and Weapons kits, which can be mixed and matched in multiple combinations.

3) TSA will study the addition of more difficult types of tests to the Screener Training Exercises and Assessments (STEA) catalog, including placement of threat objects in sensitive areas and artful concealment of threat objects in baggage. A current test allows the individual to place the threat object high on the upper inner thigh, which results in sensitive area pat-down procedures when clearing the alarm of the metal detector.

4) A list of each airport that has not conducted operational tests has been provided to all airports, along with a survey asking airports to describe the reason(s) they have been unable to conduct tests. TSA Headquarters will analyze this data to make program improvements that will make it easier for those airports to accomplish and document testing.

5) National results of STEA testing have been released to all airports, to allow them to compare their performance (which is downloaded locally) to national statistics.

6) TSA's Office of Security Technology (CTO) is currently testing a new ETD training/testing aid that will be used to assess screener trace sampling skills and provide immediate feedback to trainees.

7) CTO is starting a program to develop a wider and more representative suite of simulants for EDS. These simulants, once developed, can then be designed and inserted into field training/testing kits.

Recommendation 19: Fund and resume installation of computer training labs and high-speed network connectivity to provide all screeners with full access to the Online Learning Center.

The TSA Chief Intelligence Office (CIO) has a comprehensive plan to implement high-speed connectivity at more than 500 sites at which TSA has screeners and screening operations support staff, including both airport sites and separate, off-airport sites. All progress remains highly dependent upon funding availability and remains a very visible matter within TSA and the Department of Homeland Security (DHS). In fact, the DHS CIO Council identified TSA connectivity as its priority issue in DHS for which the CIO Council should seek solutions.

SENSITIVE SECURITY INFORMATION

Initial roll-out of high speed connectivity focused on reaching FSD office locations in lieu of airports to enable more effective management and administration of airport operations, thereby maximizing benefit to the screener workforce and the travelers. We have periodically revisited the connectivity metrics to distinguish airport needs from needs of other sites and to focus deployment to those sites with the highest value to the field operations. Our experience thus far indicates that off-airport locations have provided the quickest benefit of IT enablement without the complexities and high cost of large airport installations.

FSD office connectivity is almost complete and no longer presents a competing focus to airport location deployment. Once funding has been identified, the largest airports present the priority focus for connectivity deployment. TSA's Office of Information Technology plans to use advance site survey teams and parallel installation teams to accelerate connectivity deployment and mitigate potential delays caused by large airport complexities.

Recommendation 20: Ensure that screeners are scheduled for basic classroom training that provides initial certification, and then recertified annually, on the specific make and model of ETD and EDS machines that they operate.

All screeners receive initial training and are required to be certified on any specific make and model of ETD and EDS machines they operate.

Neither ATSA nor TSA requires annual re-certification on the specific make and model of ETD and EDS machines utilized by the screener. For the coming year, WPT is including job knowledge tests containing questions on EDS and ETD. However, the questions are not machine specific. WPT is also including a practical skills demonstration for ETD and 3-Bag tests. Re-certification evaluates whether or not screeners are familiar with procedures. It does not evaluate for machine familiarity. It is neither practical nor feasible to require certification or re-certification on particular makes and model of machines.

Not all airports have extra machines to set up in private locations for testing. If tests are conducted at a checkpoint or checked baggage area, screeners would be tested in view of the traveling public. Also, every screener at every airport must be tested within a specific time period. To implement this recommendation as stated would require additional staff to conduct all the tests as well as enough screeners to cover the screening during the administration of the tests.

TSA does not concur with the recommendation for the reasons listed above.

Recommendation 21: Improve management controls for the screener scheduling system, such as linking scheduling to employee qualifications in the Online Learning

SENSITIVE SECURITY INFORMATION

Center, to ensure that TSA schedules screeners to operate only equipment on which they are certified.

The Online Learning Center will be the source of truth for equipment/certifications data. Procedures can be arranged to share this data with the Sabre scheduling tool under the proposed Office of Information Technology Integration Services program whereby TSA will create a central data warehouse that shares data across applications and business areas.

Recommendation 22: Continue efforts toward the development and advancement of technologies to support screening efforts. Resource investment should place particular emphasis on technologies for passenger checkpoint screening, as passenger screening procedures are more operator dependent and, thus, more vulnerable to human factors than checked baggage screening.

TSA is continually working on the development and advancement of security screening technologies. We agree that emphasis should be placed on improving passenger screening technologies, and have initiated many initiatives to accomplish that goal. TSA is currently conducting a pilot test to examine the use of ETD portals to help screeners identify passengers that may attempt to transport explosives on his or her person. These pilots are underway at four airports and a fifth site is scheduled to come on-line in September 2004. Additionally, TSA is scheduled to begin operational test and evaluation pilots using ETD document scanners at four airports in FY 2004. TSA is finalizing plans to operationally test and evaluate an explosives detection technology prototype that will be an adjunct system to the current x-ray technology, as a first step in TSA's efforts to develop an automated certified EDS for carry-on baggage at screening checkpoints. While these technology pilot tests are underway, TSA is also continuing its human factors studies to develop procedures to address fatigue, operator currency, and improve teamwork and communication between screeners and supervisors/managers.

General Comments to the text of the Report

Page 5: *TSA deployed new checked baggage examinations in December 2003 without pilot-testing and validating the passing score, resulting in a spike in examination failures, which TSA redressed with further test revision and by providing the option of re-training to terminated screeners.*

Comment: In November 2003, TSA contractors were tasked with updating course material to include all relevant SOPs and Aviation Order changes. The delivery date for the updated material also corresponded with the perceived roll out for the new course on December 1, 2003. The materials were reviewed and submitted, and the tests approved for deployment in less than one week. All the checked baggage items were reviewed and compared to the course content to ensure accuracy and correct item mapping. Given the

SENSITIVE SECURITY INFORMATION

time available to pilot and deploy the new material, the first week of deployment was considered the pilot for the new tests.

We did recognize there was a problematic item within the Barringer exam and recommended that the item be changed and that all tests that had been previously scored be re-scored. Anyone who had failed the training because of that item was then invited to come back to training and finish where they had left off.

In 2004 all tests included in the new DFS curriculum, including the checked baggage test, were piloted and validated. The following description provides a brief summary of the steps that were undertaken to ensure the accuracy and validity of the testing process. First, both Headquarters test development experts and subject matter experts reviewed every item that was submitted by contractors. Revisions were made to test items based on the review and items were put into final form. The test development experts then developed two versions for every test based on a review of the learning objectives that were covered by the items. Angoff panels were conducted with subject matter experts from the field (*e.g.*, screeners) to review all of the test questions. During the panel both passenger and checked baggage screeners completed all of the tests and provided feedback regarding item clarity and item difficulty. Based on the results from the Angoff panels, additional revisions were made to test items, items were adjusted to equate the multiple forms of the tests, and appropriate cut scores were determined. All DFS test material was then piloted before the corresponding course module was released. Feedback was received from students and instructors and additional revisions were made to ensure clarity and direct mapping to the training content. Additional information from statistical analysis of the items results was also incorporated to finalize all of the tests and cut scores before deployment.

A new addition with the DFS course is the opportunity for remediation and re-testing for any initial test failure. The re-tests are equivalent independent tests that address the same learning objectives as the initial test. The same care was taken in the development of the re-tests as was taken in developing the initial tests for all modules.

Page 5: *For both the passenger checkpoint and checked baggage practical demonstration examinations, TSA did not standardize the instructor delivery, test scenarios, scoring of performance steps, and test equipment or props available. Variation in administration of the practical demonstration examinations, which occurred in both classroom and OJT, resulted in the deployment of screeners with different levels of course material mastery*

On April 5, 2004, TSA introduced its new 91.5-hour DFS training course to replace the previous basic screener curriculum for newly hired screeners. Because it was introduced near the completion of our fieldwork, we did not review the DFS course curriculum. However, because the DFS course shares substantial content with the December 2003

SENSITIVE SECURITY INFORMATION

passenger checkpoint and checked baggage courses, our findings related to these courses also apply to the DFS course.

Page 19 –20:

a. Written Examinations
... Second, some of the test questions did not have a precise match to the lessons. Some "incorrect" answers were factually correct[14], and some "correct" answers did not reflect what instructors emphasized to screeners. Ambiguous questions caused screener confusion and blurred the distinction between screeners who retained the lesson material and those that did not. (Page 19)

[14] TSA elected to use "best answer" form, in which more than one answer may be correct for some questions. Only one answer, however, is the best correct answer in terms of degree of correctness

Also, several questions, which should not be used during future testing, did not correspond to information presented in course material (pg.19).

Revising exam questions to provide a more clear distinction between "correct" and "incorrect" answer choices could make test scores more meaningful (pg. 20).

Comments Page 5, 19-20: Sound testing practice distinguishes between the "best answer" format and "one correct answer" format. Either method is acceptable, as long as it is clearly stated in the directions which format is being used. For all screener-training tests, it is clearly communicated before any testing begins that the "best answer" format should be considered when answering test questions. Therefore, although more than one answer may seem correct, there is in fact only one best answer.

Guidelines for writing multiple-choice test questions are very clear on the importance of writing plausible distractors, to help ensure that test scores are meaningful. Distractors should be similar to the correct answer in terms of knowledge to help avoid any potential confusion or give cues to the correct answer. The suggestion of providing a more clear distinction between "correct" and "incorrect" answer choices would seem to go against the philosophy of developing plausible distractors. Test items are meant to measure the acquisition of the appropriate knowledge being tested and that performance is not an artifact of the way the item was constructed.

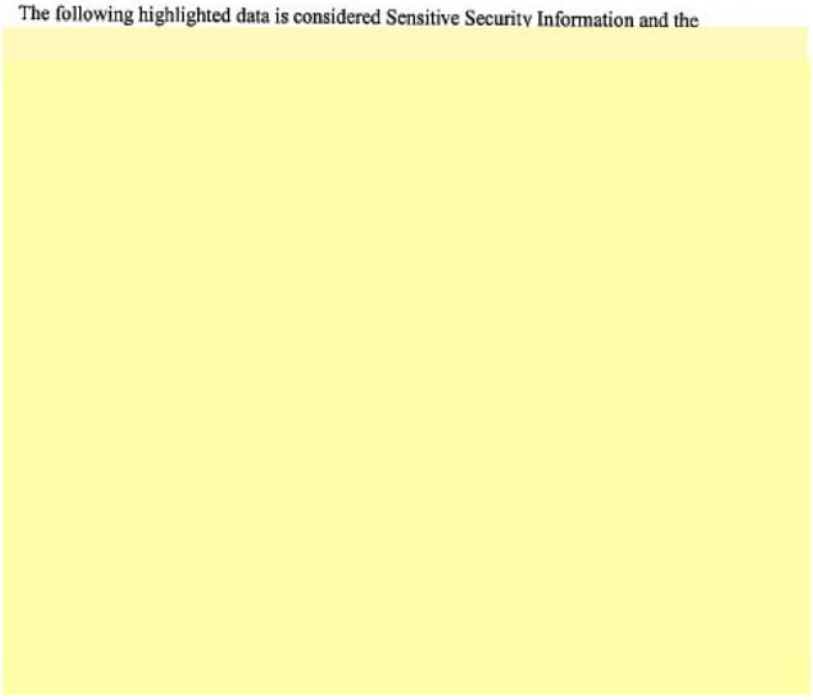
Since January 2004, item-writing guidelines have been distributed to all individuals working on screener training test development. The guidelines stipulate that all test items must be directly mapped back to training content and that link must be documented and submitted with the test item. Items are also submitted with links to the learning objectives that are being tested with that test item. All test questions have been mapped directly back to the training content. Any time there is a change to any course material

SENSITIVE SECURITY INFORMATION

all test questions are reviewed to ensure the information is still current and directly tied to course material.

The Office of Inspector General report states that because the DFS course shares substantial content with the December 2003 passenger checkpoint and checked baggage courses, the findings related to these courses also apply to the DFS course. Although the course content is similar, since the job of a screener is still essentially the same, the entire design and implementation of the DFS course, especially the tests, has been greatly altered. A great deal of effort has been made in developing and validating the new DFS tests and test administration policies that was not possible with the December 2003 course roll-out. Specifically, all DFS tests have been properly developed and piloted, and the cut scores have been validated. The administration of all tests has also been standardized and re-test opportunities are now provided with an independent equivalent test.

The following highlighted data is considered Sensitive Security Information and the



SENSITIVE SECURITY INFORMATION

[redacted]

Page 32 and 33: *Proper assessment of individual skills in performing screening tasks requires the independent exercise of these tasks without assistance. However, instructors coached students through the practical skills tests. The level to which students were coached varied depending on the instructor and the student undergoing the test. Practical Demonstration of Proficiency Evaluation Test Procedures given to instructors, which provide a brief overview and general guidance in conducting practical skills tests, did not address whether instructors were permitted to provide coaching. (pg.32)*

While the associated scoring was pass/fail, coaching during practical tests may have offered an unfair advantage to some students…As a result, all coaching during the Practical Demonstration of Proficiency Evaluations should cease. (pg. *33)*

In addition, suitable testing environments were not established for the administration of practical skills evaluations and contributed to the lack of standardization. Testing took place in one room where students could watch other students take the skills test before them. This enabled students waiting to take the test to memorize how others demonstrated their skills using precisely the same scenarios they would encounter. (pg. 33)

SENSITIVE SECURITY INFORMATION

Comment: The new Test Administration Guides address the testing environment by stating that students should be divided into equal groups. Teams will then rotate through the skill areas with each team member individually demonstrating proficiency. If a student does not feel comfortable performing a skill in front of the entire group, it is permissible to take him/her aside to a more private location for his/her practical demonstration. Although this does not address the observation by other students, there is no feedback given during the procedure. Therefore, a student that is observing will not benefit from watching another student perform the skill since the skill may not be performed correctly. The student must know on his or her own what the correct procedures are in order to ensure successful completion of the demonstration.

SENSITIVE SECURITY INFORMATION

Pages 36 –37: *Given these weaknesses in the written and practical examinations, we question why TSA chose to use high-stakes tests without remediation in the absence of a requirement to do so. The Standards for Educational and Psychological Testing point out "[t]he need for precision [in scoring tests] increase as the consequences of decisions and interpretations grown in importance," and "[t]he probability of misclassification will generally be relatively high for persons with scores close to the cut points" TSA should consider resetting the passing score to retain marginal screeners for remediation. TSA should take the opportunity to identify screeners' remediation needs for supplemental training and testing during OJT. A new, April 2004 administration guide for practical examinations show that TSA is moving in this direction.*

Comment: With the new DFS course, all written job knowledge tests that are administered contain a second equivalent remediation test. Any student who does not successfully pass any of the written job knowledge tests is provided guided remediation before being administered a re-test. Currently, passenger checkpoint practical demonstrations are not part of the DFS course. However, anyone who does not successfully demonstrate a checked baggage skill during his or her practical evaluation is given the opportunity to perform the skill again after coaching is provided. If the individual still is unable to demonstrate the skill successfully, the deficient area is noted on the OJT checklist; however, the student does not fail the course.

We evaluated TSA's written comments to the draft report and made changes, as appropriate, to the final version. Below is a summary of our analysis of TSA's response to the recommendations contained in the draft report.

Recommendation 1: Complete the analysis for basic screener classroom training, both for passenger checkpoint and checked baggage screeners, and institute mechanisms to ensure that staff update the analysis at least annually and apply the results to curriculum revisions.

TSA Response: WPT's Screener Training Division will re-examine the basic screener training program with assistance from WPT's Instructional Design, Performance Consulting, Standards and Testing, and Quality and Assurance and Evaluation Divisions. TSA also noted that its Performance Consulting Division completed a performance assessment of internal training development procedures in February 2004, which examined overall improvements for the basic screener training program.

OIG Evaluation: The Performance Consulting Division's study that TSA cites provided comprehensive recommendations on program management for basic screener training. The study does not contain analysis of the training needs of new passenger checkpoint and checked baggage screeners, nor does it develop job competencies into discrete tasks, training content and strategies, and measurable objectives. However, the study recommends that WPT adopt an instructional design model that includes the analysis phase and "immediately" launch a second study to examine and link job competencies, performance expectations, learning objectives, learning activities, and test items. The Performance Consulting Division also recommended that WPT develop and annually revise a long-range program plan for screener training. Based on TSA's response, it appears that WPT has not yet completed these recommendations from the February 2004 study. Their completion should satisfy our recommendation. In its action plan, TSA should provide an update on its progress toward completing the second study and long-range plan. Recommendation 1 is resolved – open.

Recommendation 2: Ensure that passenger checkpoint and checked baggage basic course objectives (1) address the knowledge and skills necessary for routine screener performance, as identified by the most current task analysis, and (2) are presented to students at the beginning of course lessons.

TSA Response: Internal and contractor subject matter experts evaluated the course objectives for the April 2004 version of the Dual Function Screening course and found that they support the knowledge and skills necessary for routine screener performance. The new course materials present objectives at the beginning and end of each lesson. TSA added that when WPT completes the analysis for the basic screener training program, per our first recommendation, staff will update the course objectives and content, as needed.

OIG Evaluation: We accept TSA's response and look forward to reviewing TSA's course materials once they are revised based on the completed analysis. Recommendation 2 is resolved – open.

Recommendation 3: Further revise written examinations and administration procedures, including the following steps:

- Ensure all course objectives receive an appropriate assessment of student learning;
- Thoroughly validate tests, including passing scores, if they are to be used for selection decisions;
- Pilot-test examination questions to ensure their clarity and objectivity;
- Schedule tests later during the course to enhance their ability to measure students' long-term retention of course material; and
- Incorporate post-test reviews to prevent screener misconceptions from being carried into the workplace.

TSA Response: TSA's goal is to ensure that all course objectives receive an appropriate assessment of student learning and are covered by test material from one of the DFS written, image interpretation, or practical skills demonstration tests. To validate tests, TSA directly mapped DFS written test items back to training content and revised cut scores using Angoff panels, a technique where subject matter experts rate the probability that a minimally competent screener would answer each item correctly. Furthermore, TSA piloted all DFS tests before the course was released. Finally, TSA now administers tests at the conclusion of the course and conducts standardized post-test reviews. During these reviews, missed concepts, and not individual questions, are discussed.

OIG Evaluation: We are satisfied that TSA has thoroughly validated and piloted written tests. In addition, we are pleased that TSA currently is administering written tests near the end of its DFS course and conducting post-test reviews. We maintain, however, that instructors need to review all concepts missed by screeners who will advance to OJT, whether associated test items were missed by one or many students. Finally, we agree that TSA's goal should be to ensure that all course objectives receive an assessment of student learning. We request that TSA provide, as part of its action plan, the document that maps course objectives to test items. Recommendation 3 is resolved – open.

Recommendation 4: Develop and distribute detailed test administration guidelines for Practical Demonstration of Proficiency Evaluations with the aim of increasing standardization.

TSA Response: TSA revised the practical skills checklists and administration guidelines for implementation with the new DFS course. The more detailed practical skills checklists specify exactly what behaviors need to be demonstrated for each task. The *Administration Guide for Practical Skills Demonstrations conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004*, standardizes the process by clearly stipulating that a student is required to perform the practical skills demonstrations without coaching from the test administrator.

OIG Evaluation: TSA's revisions may address this recommendation by providing instructors with sufficient detail on assessing demonstrated tasks and a list of steps that must be executed by students for them to be credited with successfully performing each task. As part of its action plan to resolve this recommendation, TSA should provide us with a copy of the practical skills checklists and the *Administration Guide for Practical Skills Demonstration conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004*, from the new DFS course. This recommendation will be closed when we have reviewed revised DFS practical skills checklists and administration guide. Recommendation 4 is resolved – open.

Recommendation 5: Distribute effective training materials to reinforce learning and allow for individual study outside the classroom.

TSA Response: With the deployment of the DFS course, TSA developed detailed student guides that include slide contents and content notes for each associated slide. Students are permitted to take these guides outside of the classroom allowing for individual study and must return the guides before taking the job knowledge test for each module.

OIG Evaluation: TSA should provide us with a copy of the DFS student guide. This recommendation will be closed upon our review of that document. Recommendation 5 is resolved – open.

Recommendation 6: Require all TSA approved instructors to complete an appropriate form of OJT prior to providing instruction and to undergo annual recertification testing.

TSA Response: TAIs have completed security screener training, including OJT, and are required to meet all recertification requirements. TSA also lists a number of contract instructor requirements, including a complete annual certification of proficiency in a Practical Skills Demonstration.

OIG Evaluation: Because TAIs complete OJT and meet all recertification requirements, using TAIs to conduct new hire and cross-training on an exclusive basis is the direction that TSA should take. Until this is implemented fully, however, the additional experience gained from completing OJT would better equip contract instructors with the knowledge and skills to conduct screener training effectively. TSA's response does not address OJT requirements for contract instructors. In addition, because changes and developments in security screening procedures are frequent, TSA should have a method to verify, on an annual basis, that instructors maintain the knowledge and skills necessary to teach current screening procedures and machine operation. Some contract instructors who recently completed a train-the-trainer course on how to instruct the DFS course passed written and practical tests on updated procedures. However, it is unclear whether contract instructors would receive annual evaluations of their familiarity with current procedures, in the absence of new train-the-trainer courses. Recommendation 6 is unresolved. To resolve this recommendation, TSA should adopt a means to verify that contractor instructors know current screening procedures, by annual recertifications or some alternative, and possess familiarity with screening in airports, through OJT or otherwise.

Recommendation 7: Analyze the cost and feasibility of establishing designated training sites where screening equipment, simulators, and training aids can be permanently located and readily available to students.

TSA Response: TSA is currently examining the cost and effectiveness of locating training centers near proposed hiring centers or in currently established training centers located at or near major training locations.

OIG Evaluation: The establishment of designated training sites would improve the effectiveness of initial screener training. We are pleased that TSA is assessing the cost of establishing such training sites. Upon completion of TSA's analysis, we will close this recommendation. Recommendation 7 is resolved – open.

Recommendation 8: Use alternatives to lectures more frequently during classroom training to help maintain student attentiveness, contribute to the comprehension and mastery of new knowledge and skills, and foster retention of the material.

TSA Response: With the release of the DFS course, a number of alternative delivery modes are employed in basic training, including practical labs in a simulated checkpoint environment, additional demonstration and practice during the full-body pat down and screener safety and awareness lessons, probing questioning by instructors, a visit to an airport checkpoint, and new software applications for image interpretation.

OIG Evaluation: Alternate methods of delivery were used more frequently in passenger checkpoint courses than in checked baggage courses. The alternate delivery methods listed by TSA in its response focus largely on passenger checkpoint screening. However, TSA must ensure that alternate methods of delivery are used by instructors when training screeners how to operate EDS machines and follow checked baggage screening procedures. This should include a visit to an airport checked baggage station and demonstration and practice on an EDS machine or simulator. In addition to reviewing TSA's action plan to resolve this recommendation, we will review the DFS course curriculum, including the course schedule and course administration manual given to instructors. Recommendation 8 is resolved – open.

Recommendation 9: Cease all coaching of students during practical demonstration of proficiency evaluations.

TSA Response: TSA's *Administration Guide for Practical Skills Demonstration conducted during Checkpoint, Checked Baggage, or Dual Functioning Screener Training, May 2004*, standardizes the process a test administrator must follow when administering practical skills demonstrations. This guide clearly stipulates that a student is required to perform the practical skills demonstrations initially without coaching or feedback from the test administrator.

OIG Evaluation: The new administration guide specifically prohibits coaching during practical demonstration of proficiency evaluations and allows quality assurance staff to observe the skills demonstration. Recommendation 9 is closed.

Recommendation 10: Ensure that leadership within the screener workforce diligently monitors screeners and immediately corrects identified failures to adhere to screening procedures and negligent screening techniques.

TSA Response: TSA is working on revising the Checked Baggage SOP, including a chapter on "Screening Oversight and Audits," that will cover how a supervisor must verify that screeners are following procedures as outlined in the SOP. In addition, TSA allows flexibility at the local level to decide how supervisors appropriately monitor and evaluate screener performance. For example, leadership at one airport created a form for screener managers to observe and rate each screener's performance on a weekly basis and correct mistakes or recommend recurrent training.

OIG Evaluation: TSA may address part of this recommendation through the incorporation of a "Screening Oversight and Audits" chapter in the Checked Baggage SOP. However, TSA also should revise the Passenger Checkpoint SOP to include a chapter on oversight. In addition, while we are encouraged by the example of extra measures taken by a local airport to observe, rate, and correct screener performance, until such measures are adopted and enforced at the national level, room for improvement remains. As part of its action plan to further resolve this recommendation, TSA should provide us with a copy of the "Screener Oversight and Audits" chapter of the Checked Baggage SOP. Recommendation 10 is resolved – open.

Recommendation 11: Continue the development of evaluations that will relate training to screener application of learning on the job and to organizational results.

TSA Response: Implementing a 4-level evaluation model, including evaluations that focus on the application of learning on the job and the organizational impact of training, is an industry standard and one of WPT's goals. WPT is waiting for resources to become available to conduct these two additional levels of evaluation.

OIG Evaluation: We accept TSA's response. In its action plan, TSA should specify the resources required for conducting the evaluations. In the absence of a comprehensive 4-level evaluation regimen, TSA may be able to apply existing performance measurements, such as operational testing results, as indicators of training outcomes. Recommendation 11 is resolved – open.

Recommendation 12: Ensure that OJT guidance provides detailed, sequenced lists of specific tasks that each OJT student must perform, including instructional materials where needed, and establishes appropriate, function-specific time requirements for both newly hired and cross-trained screeners.

TSA Response: TSA redesigned its OJT checklists to include a detailed, sequenced list of tasks to be completed and minimum OJT time requirements for particular job functions. TSA is now in the process of establishing a team to consider OJT program improvements.

OIG Evaluation: TSA's updates to OJT checklists are responsive to this recommendation. However, TSA's response did not specifically address function specific OJT time requirements for cross-trained screeners. If these requirements have not already been set out in the revised OJT checklists, the project team charged with devising ways to improve the OJT program should address this. As part of its action plan to resolve this recommendation, TSA should provide us with its revised OJT checklists. Recommendation 12 is resolved – open.

Recommendation 13: Revise OJT examinations in order to:

- Test screeners on all TSA-approved screening methods that they will be required to use upon completion of OJT;
- Enforce the use of tests with explosive material during ETD practical examinations; and
- Standardize and enforce limits on OJT retesting opportunities, including the Image Mastery Test.

TSA Response: The current OJT checklists serve as examinations on the procedures outlined in the screening SOPs. Screener Training Division's Project Team for OJT program improvements will address improvements to the OJT examinations. Improvements include working with the Transportation Security Lab to develop a reliable method for testing with explosive material during ETD practical examinations. TSA also noted that its *Guidance for Administering Security Screener On-the-Job Training, version 3.5*, limits retesting opportunities to two.

OIG Evaluation: TSA's comments are responsive to the first two parts of the recommendation. We modified the second part of the draft recommendation to account for TSA's plan to develop and use an alternative explosive material during ETD examinations, as the current material, i.e., dry transfer strips, is not sufficiently reliable. Regarding the third part of the recommendation, TSA's response establishes a standardized limit on OJT retesting opportunities. Our concern is that the same limit existed previously and was not enforced, thereby allowing some FSDs to grant screeners as many as eight opportunities to take the IMT. In its action plan, TSA should clarify how it plans to monitor and enforce the retesting limits in the *Guidance for Administering Security Screener On-the-Job Training*. TSA also should provide copies of the revised OJT checklists and an update on the Transportation Security Lab's progress in developing an alternative explosive test material for ETD examinations. Recommendation 13 is resolved – open.

Recommendation 14: Ensure OJT monitors are certified as having the skills and experience necessary to deliver and monitor OJT training and administer subsequent testing.

TSA Response: TSA is analyzing the feasibility of implementing a formalized OJT program for OJT monitors. In addition, this recommendation is one of the improvements to the OJT program that TSA's Project Team will address.

OIG Evaluation: We are encouraged that TSA is analyzing the feasibility of implementing a formalized OJT program for OJT monitors. The implementation of an effective OJT program for OJT monitors would be fully responsive to our recommendation. Recommendation 14 is resolved – open.

Recommendation 15: Examine the workforce implications of the three-hour training requirement and take steps to correct identified imbalances in future workforce planning to ensure that all screeners are able to meet the recurrent training standard.

TSA Response: TSA summarized its "Interim Screener Recurrent Training Program Guidance." TSA recounted the methodology for measuring and logging training hours, the types of available recurrent training, and its expectations for FSDs to develop and manage training plans that meet both the three-hour requirement for recurrent training and screener developmental needs.

OIG Evaluation: TSA's comments are not responsive to our recommendation because they do not indicate whether TSA's workforce plans ensure that an additional three-hour demand on screeners' workweek is feasible. TSA's history of logging extensive screener overtime hours and comments from TSA field staff suggest that the demand may not be feasible at current staffing levels. We are particularly concerned for part-time screeners, who also must meet the three-hour requirement but who typically are not scheduled to work during periods of low passenger volume when airports might conduct screening and training concurrently. During the course of our review, we made four requests for a copy of TSA's 2004 workforce plan in order to evaluate the extent to which the plan accounted for the recurrent training requirement. In its action plan, TSA should provide a copy of the workforce plan and an explanation of how the recurrent training requirement affected or will affect planned staffing levels. Other steps that TSA could take toward resolving this recommendation include providing statistics from the Online Learning Center regarding the extent to which airports have been able to log the required three hours per screener. Recommendation 15 is unresolved.

Recommendation 16: Continue to pursue the development and application of TIP user adaptability features to maximize TIP training benefits.

TSA Response: TSA is finalizing the Functional Requirements for the Second Generation TIP System for x-ray machines that is envisioned to include an adaptive learning capability. Upon finalization of requirements, TSA will work with TRX vendors to analyze the feasibility of development and implementation.

OIG Evaluation: TSA's efforts are responsive to this recommendation. We are hopeful that TSA's analysis will result in the actual development and application of an adaptive learning capability to TIP. Recommendation 16 is resolved – open.

Recommendation 17: Expedite TRX connectivity to realize administrative and information sharing gains related to TIP.

TSA Response: TSA is currently conducting a TRX/TIP Network Pilot Program at five airports. This pilot is designed to connect existing TRX machines and the National TIP Server to the TSA Network, test and evaluate the TIP Network, standardize a networking and connectivity solution that can be deployed to additional airports, and lay the groundwork for continued screening performance improvement. In addition, the pilot provides a foundation for TSA to develop the Civil Aviation Security Screening Network (CASSNET) which will provide the next generation of connectivity for airport security equipment including ETD, TIP-ready x-rays, EDS, and WTMD.

OIG Evaluation: We are encouraged by the TRX/TIP Network Pilot Program currently being conducted and are hopeful that connectivity and networking at all other airports is achieved in the near future. Recommendation 17 is resolved — open.

Recommendation 18: Further enhance local operational testing efforts by: (1) revising procedures and protocols to increase opportunities for realistic and difficult testing, and (2) expediting the development, certification, and distribution of ETD and EDS operational testing tools to enable assessment of screeners performing these duties.

TSA Response: TSA will study the addition of more difficult types of operational tests, including the use of threat objects that are artfully concealed and the placement of threat objects on sensitive areas. Other efforts already taken by TSA to increase the realism and difficulty of local operational testing include the use of "bogus" boarding passes from aircraft operators so that the individual carrying a test object into the checkpoint appears to be a regular passenger and the proposal of adding new test items to the MBS-2 and Weapons kits. In addition, TSA is testing a new ETD training and testing aid that will be used to assess screener trace sampling skills and is beginning to develop simulated items for EDS that can be inserted into the testing and training kits.

OIG Evaluation: We are hopeful that TSA's study will result in the permission to use threat objects that are artfully concealed in baggage and placed on sensitive areas of the body during local operation testing. In addition, we are encouraged by the current testing and development of ETD and EDS operational testing tools. Recommendation 18 is resolved – open.

Recommendation 19: Fund and resume installation of computer training labs and high-speed network connectivity to provide all screeners with full access to the Online Learning Center.

TSA Response: The TSA Chief Information Officer has a comprehensive plan to implement high-speed connectivity at more than 500 screener and support staff sites. To date, TSA has established high-speed connectivity primarily for FSD office locations. Further progress is dependent on funding availability. TSA asserted that funding the network installations is a high-priority issue for TSA and that TSA has the support of the DHS CIO Council.

OIG Evaluation: We recognize the efforts of TSA's Office of Information Technology in planning extensively for the implementation of high-speed connectivity at field sites. We also acknowledge that TSA has many competing demands for its resources. Choosing to fund the installation of high-speed connectivity at all screener sites will enable TSA to use the advanced training features in the Online Learning Center, plus it will decrease the clerical burden on training coordinators who must log training by hand. We encourage TSA to continue to improve connectivity at field sites. Recommendation 19 is resolved – open.

Recommendation 20: Ensure that screeners are scheduled for basic classroom training that provides initial certification on the specific make and model of ETD and EDS machines that they operate.

TSA Response: TSA does not concur with the recommendation. TSA stated that all screeners do receive initial training and certification on any specific make and model of equipment they operate. Due to logistical and resource issues, TSA does not believe it is practical or feasible to require annual re-certification on particular makes and models of machines.

OIG Evaluation: While TSA policy may require certification for each make and model of equipment a screener operates, our field observations were that the policy was not consistently followed. In cases where screeners received formal classroom training on equipment models inappropriate for their duty assignment, the screeners may later have received "differences" training for the appropriate models at their airports. However, machine certification should be completed in a controlled classroom setting, not an active checkpoint. It is important that screeners have a comprehensive understanding and familiarity with the specific types of machines they will be operating before they do so in a live screening environment during OJT. The risks of improperly screening carry-on items and checked baggage, damaging expensive machinery, and creating screening delays are too great to permit machine certification to occur after screeners are working in a live setting.

Given the current structure of TSA's annual screener re-certification process, we accept TSA's explanation that machine make- and model-specific re-certification would not be feasible at all airports. Therefore, we modified our recommendation to exclude an annual re-certification requirement on specific makes and models of ETD and EDS equipment. Nevertheless, because TSA has made no commitment to certify screeners on specific machine makes and models during initial classroom training, Recommendation 20 is unresolved.

Recommendation 21: Improve management controls for the screener scheduling system, such as linking scheduling to employee qualifications in the Online Learning Center, to ensure that TSA schedules screeners to operate only equipment on which they are certified.

TSA Response: TSA agreed that the Online Learning Center is the official repository of employee certifications data and that it could be integrated with the Sabre scheduling tool through the proposed Office of Information Technology Integration Services program.

OIG Evaluation: TSA staff envisioned enabling the Online Learning Center and Sabre scheduling tool to share data as a long-range goal. In its action plan, TSA should include an update on progress toward the data integration. Recommendation 21 is resolved – open.

Recommendation 22: Continue efforts toward the development and advancement of technologies to support screening efforts. Resource investment should place particular emphasis on technologies for passenger checkpoint screening, as passenger screening procedures are more operator dependent and, thus, more vulnerable to human factors than checked baggage screening.

TSA Response: TSA agrees that efforts toward the development and advancement of security screening technologies, with an emphasis on passenger checkpoint technologies, should be continued. TSA is conducting pilot programs to test technologies that will identify explosives carried on a person as well as on documents, such as boarding passes. In addition, an explosives detection technology prototype that will act as an automated certified EDS for carry-on baggage is being tested and will be an adjunct system to the current x-ray technology at screening checkpoints.

OIG Evaluation: TSA's response demonstrates a continued commitment to pursue needed technological development and deployment efforts. Recent pilot testing of new tools for passenger screening are directly responsive to this recommendation. Recommendation 22 is closed.

Recommendations

Recommendation 1: Complete the analysis for basic screener classroom training, both for passenger checkpoint and checked baggage screeners, and institute mechanisms to ensure that staff update the analysis at least annually and apply the results to curriculum revisions.

Recommendation 2: Ensure that passenger checkpoint and checked baggage basic course objectives (1) address the knowledge and skills necessary for routine screener performance, as identified by the most current task analysis, and (2) are presented to students at the beginning of course lessons.

Recommendation 3: Further revise written examinations and administration procedures, including the following steps:

- Ensure all course objectives receive an appropriate assessment of student learning;
- Thoroughly validate tests, including passing scores, if they are to be used for selection decisions;
- Pilot-test examination questions to ensure their clarity and objectivity;
- Schedule tests later during the course to enhance their ability to measure students' long-term retention of course material; and
- Incorporate post-test reviews to prevent screener misconceptions from being carried into the workplace.

Recommendation 4: Develop and distribute detailed test administration guidelines for Practical Demonstration of Proficiency Evaluations with the aim of increasing standardization.

Recommendation 5: Distribute effective training materials to reinforce learning and allow for individual study outside the classroom.

Recommendation 6: Require all TSA approved instructors to complete an appropriate form of OJT prior to providing instruction and to undergo annual recertification testing.

Recommendation 7: Analyze the cost and feasibility of establishing designated training sites where screening equipment, simulators, and training aids can be permanently located and readily available to students.

Recommendation 8: Use alternatives to lectures more frequently during classroom training to help maintain student attentiveness, contribute to the comprehension and mastery of new knowledge and skills, and foster retention of the material.

Recommendation 9: Cease all coaching of students during practical demonstration of proficiency evaluations.

Recommendation 10: Ensure that leadership within the screener workforce diligently monitors screeners and immediately corrects identified failures to adhere to screening procedures and negligent screening techniques.

Recommendation 11: Continue the development of evaluations that will relate training to screener application of learning on the job and to organizational results.

Recommendation 12: Ensure that OJT guidance provides detailed, sequenced lists of specific tasks that each OJT student must perform, including instructional materials where needed, and establishes appropriate, function-specific time requirements for both newly hired and cross-trained screeners.

Recommendation 13: Revise OJT examinations in order to:

- Test screeners on all TSA-approved screening methods that they will be required to use upon completion of OJT;
- Enforce the use of tests with explosive material during ETD practical examinations; and
- Standardize and enforce limits on OJT retesting opportunities, including the Image Mastery Test.

Recommendation 14: Ensure OJT monitors are certified as having the skills and experience necessary to deliver and monitor OJT training and administer subsequent testing.

Recommendation 15: Examine the workforce implications of the three-hour training requirement and take steps to correct identified imbalances in future workforce planning to ensure that all screeners are able to meet the recurrent training standard.

Recommendation 16: Continue to pursue the development and application of TIP user adaptability features to maximize TIP training benefits.

Recommendation 17: Expedite TRX connectivity to realize administrative and information sharing gains related to TIP.

Recommendation 18: Further enhance local operational testing efforts by: (1) revising procedures and protocols to increase opportunities for realistic and difficult testing, and (2) expediting the development, certification, and distribution of ETD and EDS operational testing tools to enable assessment of screeners performing these duties.

Recommendation 19: Fund and resume installation of computer training labs and high-speed network connectivity to provide all screeners with full access to the Online Learning Center.

Recommendation 20: Ensure that screeners are scheduled for basic classroom training that provides initial certification on the specific make and model of ETD and EDS machines that they operate.

Recommendation 21: Improve management controls for the screener scheduling system, such as linking scheduling to employee qualifications in the Online Learning Center, to ensure that TSA schedules screeners to operate only equipment on which they are certified.

Recommendation 22: Continue efforts toward the development and advancement of technologies to support screening efforts. Resource investment should place particular emphasis on technologies for passenger checkpoint screening, as passenger screening procedures are more operator dependent and, thus, more vulnerable to human factors than checked baggage screening.


Transportation
Security
Administration

Appendix D
TSA's Interim Screener Recurrent Training Program Guidance—December 22, 2003

Melissa M. Howard, Chief Inspector, Department of Homeland Security, Office of Inspections, Evaluations, and Special Reviews

Meredith L. Megles, Senior Inspector, Department of Homeland Security, Office of Inspections, Evaluations, and Special Reviews

E. Wynne Krause, Inspector, Department of Homeland Security, Office of Inspections, Evaluations, and Special Reviews

Justin H. Brown, Inspector, Department of Homeland Security, Office of Inspections, Evaluations, and Special Reviews

Jennifer A. Lindsey, Inspector, Department of Homeland Security, Office of Inspections, Evaluations, and Special Reviews

Department of Homeland Security

Secretary
Deputy Secretary
Chief of Staff
General Counsel
Under Secretary, Border and Transportation Security
DHS OIG Liaison
DHS Public Affairs
DHS Deputy Chief Security Officer

Transportation Security Administration

Assistant Secretary of Homeland Security for the Transportation Security Administration
Director, Workforce Performance and Training
Director, Aviation Operations
Director, Human Resources
Director, Information Technology
Director, Internal Affairs and Program Review
Director, Security Technology
Director, Operations Policy
DHS OIG Audit Liaison, Office of Transportation Security Policy

Office of Management and Budget

Chief, Homeland Security Branch
DHS OIG Program Examiner

Congress

Congressional Oversight and Appropriations Committees

Additional Information and Copies

To obtain additional copies of this report, call the Office of Inspector General (OIG) at (202) 254-4100, fax your request to (202) 254-4285, or visit the OIG web site at www.dhs.gov/oig.

OIG Hotline

To report alleged fraud, waste, abuse or mismanagement, or any other kind of criminal or noncriminal misconduct relative to department programs or operations, call the OIG Hotline at 1-800-323-8603; write to Department of Homeland Security, Washington, DC 20528, Attn: Office of Inspector General, Investigations Division – Hotline. The OIG seeks to protect the identity of each writer and caller.