



United States  
General Accounting Office  
Washington, D.C. 20548

Resources, Community, and  
Economic Development Division  
B-281440

November 13, 1998

The Honorable John McCain  
Chairman, Committee on Commerce,  
Science, and Transportation  
United States Senate

Subject: Aviation Security: FAA's Deployments of Equipment  
to Detect Traces of Explosives

Dear Mr. Chairman:

Concerned about security at the nation's airports, the Congress provided \$144.2 million in the Omnibus Consolidated Appropriations Act of 1997 to purchase commercially available advanced security screening equipment for checked and carry-on baggage. Of this total, the Federal Aviation Administration (FAA) planned to use about \$45 million to purchase and deploy 489 units of equipment to detect traces of explosives on this baggage.<sup>1</sup> These deployments were to be made at all 19 category X and all 60 category 1 airports.<sup>2</sup> In April 1998, we reported that FAA was about a year behind in its planned schedule for deploying this equipment.<sup>3</sup>

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<sup>1</sup>Trace detection equipment uses either a vacuum system or a "wipe" to sample vapors or pick up particles of explosives on the surfaces of various objects.

<sup>2</sup>Category X airports represent the nation's largest and busiest airports as measured by the volume of passenger traffic and are potentially attractive targets for criminal and terrorist activity. Category 1 airports are somewhat smaller airports with an annual volume of at least 2 million passengers. There are also other categories of airports with less passenger traffic. FAA has no plans to provide trace devices to these airports at this time.

<sup>3</sup>Aviation Security: Implementation of Recommendations Is Under Way, but Completion Will Take Several Years (GAO/RCED-98-102, Apr. 24, 1998).

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On October 23, 1998, you asked us to provide updated information on the status of FAA's deployments of trace detection equipment at the nation's busiest airports. Specifically, this report provides information on (1) the current status of FAA's deployments of the trace detection equipment, including whether all of the 19 category X or 60 category 1 airports are supplied with this equipment and, if not, why; (2) FAA's plans for deploying any remaining trace equipment; and (3) any problems that could affect the future deployments or operation of this equipment. In addition, the report describes the process FAA follows in deploying trace equipment. (See enc. I.)

In summary:

- As of October 29, 1998, FAA had deployed 327 units of trace detection equipment at passenger checkpoints to use on carry-on bags. All 19 category X airports had received trace equipment (214 units), although 3 of these airports had not received all of their planned allotment. In addition, 26 of the 60 category 1 airports had received a total of 113 units of trace detection equipment. This combined deployment is 162 units short of the agency's goal of fully deploying 489 units by December 31, 1997. The trace equipment is generally being deployed to the busiest airports first, whether these are category X or category 1 airports. According to an FAA official, three category X airports do not have all their trace equipment because FAA did not have enough equipment to deploy and decided not to buy additional equipment until it had obtained more operating data and resolved some operational problems. FAA now plans to have the additional equipment in place by December 31, 1998. According to all the FAA federal security managers we spoke with at category X airports, the installed equipment is operational. Several said that the equipment is improving the screening process and has been well received by the air carriers and the public.

According to an FAA official, a number of problems delayed the deployments of the trace detection equipment. First, reliability and operational problems with the equipment had to be corrected. Second, FAA had to delay further procurements while testing the equipment to determine if it could detect a specific additional type of explosives material; FAA found that all but one type of the equipment could do so. According to an FAA official, further deployments will include only equipment that can detect this explosives material. Finally, FAA had to use fiscal year 1998 funds initially planned for purchasing trace detection equipment to instead install other equipment designed to screen checked

baggage for explosives. This other equipment was delivered ahead of schedule and was at airports awaiting installation.

- FAA plans to purchase and deploy approximately 104 additional units of trace detection equipment for use on carry-on bags to complete the deployments to checkpoints at category X and category 1 airports by December 31, 1998. Final decisions on the number of units to be purchased from the various vendors are expected to be made by late November 1998 by FAA's Security Equipment Integrated Product Team.<sup>4</sup> According to FAA, upon completion of these deployments, at least one piece of equipment will be at each checkpoint for both category X and category 1 airports, and larger checkpoints will have more. In addition, by December 31, 1998, FAA plans to purchase and deploy to category X and category 1 airports about 60 units of trace equipment for use with the explosives detection equipment for checked baggage. These purchases will bring the total deployments of all trace equipment to 491.<sup>5</sup> FAA plans to spend about \$10.5 million to complete these deployments.
- Several federal security managers expressed concern that the high turnover rate of security screeners<sup>6</sup> could cause future problems in the operation of trace detection equipment if they did not have enough trained screeners available to operate the equipment. At one airport, for example, the federal security manager estimated that the turnover rate was about 130 percent per year, with some jobs being filled more than once during the year. During other reviews, we have found the turnover rate to be

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<sup>4</sup>The Security Equipment Integrated Product Team is a cross-functional team of FAA employees and a variety of aviation industry officials and representatives. The team is charged with planning, purchasing, and deploying advanced explosives detection technologies.

<sup>5</sup>This total reflects FAA's current estimate of the number of trace detection units needed. The actual number deployed could change based on the decisions that are expected to be made by FAA's Security Equipment Integrated Product Team in late November 1998 when it considers the latest information on the number and operational needs of the checkpoints reported by the aviation industry officials..

<sup>6</sup>Screeners are security staff who screen all passengers and other persons and all property intended to be carried in the cabin of airplanes or into sterile areas to prevent any explosive, incendiary, or other deadly or dangerous weapon from being carried aboard airplanes or into sterile areas.

even higher in other locations. We are currently looking into the factors that influence screeners' performance and the issue of screener turnover.

### SCOPE AND METHODOLOGY

To determine the current status of FAA's deployments of trace equipment, its plans for deploying additional equipment, and the process for deploying equipment, we interviewed the lead FAA official on the Security Equipment Integrated Product Team and obtained and reviewed FAA's documents concerning deployments. We also interviewed by telephone 18 of the 19 federal security managers at the category X airports to learn if the trace detection equipment was actually installed and operating at their airports and if they had any problems or concerns that could affect the planned deployments or operation of trace equipment. We were unable to contact the remaining security manager. Because of time constraints, we did not contact FAA officials at category 1 airports. We conducted our review in October and November 1998 in accordance with generally accepted government auditing standards.

Enclosure II provides information on the status of FAA's deployments of trace equipment by airport category, the number of devices deployed, and the number to be deployed.

### AGENCY COMMENTS

We provided copies of a draft of this report to the Department of Transportation and FAA for review and comment. We met with agency officials, including the Director of the Office of Civil Aviation Security Policy and Planning, the Deputy Director of the Office of Civil Aviation Security Operations, and the Deputy Director of the Office of Aviation Research. FAA agreed with the facts in the report and provided some suggested technical and clarifying language that we incorporated as appropriate. The Department did not provide any comments.

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As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of this letter. At that time, we will send copies to interested congressional committees; the Secretary of Transportation, and the Administrator of the Federal Aviation Administration. We will also make copies available to others on request.

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Major contributors to this report were J. Michael Bollinger, David Bryant, Barry Kime, and Henry Townsend. Please call me at (202) 512-3650 if you have any questions about this report.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Gerald Dillingham", with a long horizontal flourish extending to the right.

Gerald L. Dillingham  
Associate Director,  
Transportation Issues

Enclosures - 2

FAA'S PROCESS FOR SELECTING AND DEPLOYING  
EQUIPMENT TO DETECT TRACES OF EXPLOSIVES

The Federal Aviation Administration (FAA) took the steps discussed below in selecting and deploying equipment to detect traces of explosives.

First, FAA's William J. Hughes Technical Center conducted laboratory tests of commercially available detection equipment to assess their effectiveness (e.g., instrument detection capability, the frequency of nuisance alarms, sampling methodology) in a controlled laboratory environment.

Second, FAA's Security Equipment Integrated Product Team (SEIPT) purchased a small number of detection units (5 to 10 from various vendors) assessed as effective and installed them at airports for initial testing to determine the equipment's suitability outside the laboratory. Essential to any further consideration in this evaluation process was the ability of vendors to support and maintain their equipment when operating at airport sites.

Third, SEIPT established a list of approved vendors for trace equipment for airport evaluations. SEIPT also negotiated long-term contracts with each vendor for future purchases.

Fourth, SEIPT purchased a larger number of units (25 to 50 from various vendors) suitable for full-scale operational testing and evaluation and deployed them at airports. This equipment was evaluated for technical performance in an airport operating environment, reliability, maintainability, availability, acceptance by screeners, and operational suitability for airlines' use. These evaluations also included assessments by SEIPT of various equipment vendors' responsiveness and ability to maintain, repair, and support their products under the rigorous requirements of airport operations.

Fifth, air carriers used the results of these airport operational testing and suitability assessments in deciding which equipment to select for each airport screening checkpoint.

Sixth, FAA is deploying equipment to all security screening checkpoints at category X and category 1 airports. At least one piece of equipment is being deployed to each checkpoint, and where passenger screening workloads require additional devices, they are being deployed at a ratio of one piece of trace detection equipment for every three X-ray units.

Seventh, the order of deployments has generally been to deploy trace detection equipment to the busiest airports first and progress down the list according to passenger screening workloads. For ease of equipment maintenance and training of screeners, the airlines

have generally preferred to use the same trace detection equipment throughout a particular airport.

Finally, on November 4 and 5, 1998, SEIPT reviewed the results of recent additional technical performance tests of the equipment's ability to detect explosives and further operational analyses. Decisions on the number of units of trace detection equipment to be purchased from the various vendors for the last phase of deployments are expected to be completed by late November 1998. FAA will issue delivery orders to vendors and expects to complete these installations by the end of December 1998.

**STATUS OF DEPLOYMENTS OF EQUIPMENT  
TO DETECT TRACES OF EXPLOSIVES, AS OF OCTOBER 29, 1998**

<b>Airport type</b>	<b>Number of airports</b>	<b>Airports with deployments of trace equipment completed</b>	<b>Trace equipment deployed</b>	<b>Additional trace equipment to be deployed for carry-on bags</b>	<b>Additional trace equipment to be deployed for checked bags</b>	<b>Total trace equipment to be deployed by Dec. 31, 1998</b>
Category X	19	16	214	19	51	284
Category 1	60	26	113	85	9	207
<b>Total</b>	<b>79</b>	<b>42</b>	<b>327</b>	<b>104</b>	<b>60</b>	<b>491</b>

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