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General Accounting Office
Washington, D.C. 20548

Accounting and Information
Management Division

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March 8, 1996

The Honorable John J. Hamre
Comptroller
Department of Defense

Dear Dr. Hamre:

This letter responds to your, staff's January 17, 1996, and February 16, 1996, letters that requested our views on whether (1) the pilot test of an Air Force automated travel system we sanctioned in February 1995¹ could be expanded from 2 to 18 sites, (2) the electronic signatures generated by the Corps of Engineers electronic signature system can be used for travel claims at another site, (3) for 12 additional sites, disbursing officers need to review and retain the paper copies of travel documents, and (4) the Fortezza² system can be used to generate adequate electronic signatures.

We support the Department of Defense's (DOD) efforts to evaluate the costs and risks of different signature techniques and encourage such an analysis. We believe that the results will not only help DOD but other agencies as well. In making your final determination, DOD should have external parties, such as the National Institute of Standards and Technology (NIST), which has computer security responsibilities, and the Department of Justice, which has the responsibility for prosecuting travel fraud, concur with your final recommendations. This should help ensure widespread acceptance.

We reviewed the material attached to the requests and other information provided by your staff and, as discussed below,

- sanction the expanded use of an Air Force automated travel system to the 18 sites listed in enclosure I,
- sanction the proposed operation of another automated travel system at the Waterways Experiment Station (Vicksburg, Mississippi) which will use the Corps of Engineers's electronic signature system previously sanctioned by GAO,³ and

¹Air Force Automated Travel System (GAO/AIMD-95-74R, February 14, 1995).

²A key component in DOD's Multi-level Information System Security Initiative is the Fortezza security system. Fortezza is envisioned to provide both data integrity and confidentiality services for a variety of applications.

³Corps of Engineers Electronic Signatures and Travel Receipts (GAO/AIMD-95-236R, September 20, 1995).

- approve the concept of disbursing officers relying on a system of internal controls, rather than on the review of paper documents, to fulfill their responsibilities at the 12 sites listed in enclosure II.

Further, we will continue monitoring DOD efforts to use Fortezza to provide the necessary data integrity at seven of the sites listed in enclosure II.

We did not test your current or proposed systems, and, consequently, our response only addresses your proposal conceptually. The following discusses our views on these issues in more detail.

Pilot Test Sanctioned in February 1995 Can Be Expanded

Your proposal would use electronic signature techniques to provide data integrity over electronic travel data for 18 sites. In our February 1995 letter to the Air Force and a November 1994 letter to the Defense Finance and Accounting Service⁴ (DFAS), we noted that any system, regardless of the technology used, must incorporate adequate controls to ensure data integrity. Since our February 1995 letter, in which we discussed weaknesses significant enough to prevent this system from meeting the electronic signature criteria contained in 71 Comp. Gen. 109 (1991), some minor improvements have been made.

Although the basic weaknesses of signature generation and validation continue and cannot be adequately addressed until a companion system development effort discussed below is completed, we believe the benefits of expanding the test at 18 sites should outweigh the risks associated with the electronic signature weaknesses identified. Therefore, we believe an expansion of your test is warranted for a 1-year period so that DOD can develop and begin implementing the necessary system enhancements while gaining the necessary knowledge of how a reengineered travel process should work in DOD.

Since our February 1995 letter, DOD and the Department of Energy have entered into an agreement with NIST to develop the necessary system specifications for a standardized system to generate and validate electronic signatures. The resulting system that will be developed from these specifications is expected to address our concerns with the signature generation and validation process. It is our understanding that DOD will incorporate these specifications in the necessary procurement documents to ensure that future systems will utilize electronic signature

⁴Electronic Imaging (GAO/AIMD-95-26R, November 10, 1994).

techniques that meet the GAO criteria. We also understand that the systems used at the test sites will incorporate these necessary improvements as well as the other controls implemented by the Air Force, such as the sampling methodologies.

One Site Using the Corps of Engineers Electronic Signature System Can Be Sanctioned

The Waterways Experiment Station plans to use the electronic signature system developed by the Corps of Engineers to ensure the integrity of the travel data.⁵ As noted in our September 1995 letter to the Corps, we believe that the electronic signature system used in the Corps of Engineers Financial Management System should generate electronic signatures that provide at least the same quality of evidence as the handwritten signatures they are designed to replace. Since this system is used to maintain the data integrity of the travel records, we believe that your proposed concept should provide the necessary controls to allow a “paperless” travel process.

A Disbursing Officer Can Rely on Electronic Records When Adequate Controls Have Been Implemented

The pilot implementations at 12 sites envision transmitting the travel data electronically to a disbursing officer while retaining the paper travel order and voucher at the traveler’s location. One question that has been raised is whether the disbursing officer will have sufficient evidence to establish the validity of the claim. As noted in our February 1995 letter to the Air Force and a subsequent letter to DOD⁶ in June 1995, GAO has recognized that disbursing officers can rely on a system of internal controls to fulfill their responsibilities. GAO’s Title 7⁷ discusses this concept and the disbursing officer’s responsibilities to ensure that an adequate internal control system is used and the system is properly implemented. In addition, our February 1995 report to the Air Force outlined our understanding of how the Air Force’s approach would help disbursing officers to properly discharge their responsibilities.

Although we did not review the system of controls that you plan to use at these sites, we were requested by your staff to provide our views on whether the internal control system could allow the traveler to retain the original travel voucher. As we understand this concept, the traveler would retain the travel voucher and all supporting documentation, using

⁵It is our understanding that in cases where the electronic signature system cannot be used by the traveler, the current process of requiring the traveler to sign a paper voucher will be retained. Electronic signatures will be used by all approving officials.

⁶Employees’ Travel Claims (DOD) (GAO/AIMD-95-171R, June 26, 1995).

⁷“Fiscal Guidance,” GAO’s Policy and Procedures Manual for Guidance of Federal Agencies.

procedures similar to those we have previously reviewed for DOD and Air Force that allow travelers to retain their receipts. For the reasons stated below, we do not believe that DOD should allow the traveler to retain all official travel records.

A key concept in internal control systems is the separation of critical duties.⁸ For example, the authorizing, processing, recording, and reviewing of transactions should be separated among individuals. Since these sites do not yet use techniques that ensure the integrity of the electronic data, the travel order and voucher are part of the agency's official records. Allowing the traveler to retain the official travel voucher would not provide an adequate separation of duties since the traveler would have sole control over all documents and systems that would be used to resolve any disputes or claims. For example, if a traveler's automated claim was questioned, the traveler would be the individual who would be in a position to provide the official records and could easily claim that the automated system did not reflect the actual records. As noted above in this letter, system improvements are underway that should improve travel information data integrity and, if properly implemented, eliminate the need for paper documents such as travel orders and vouchers.

As we noted in the DOD and Air Force letters, we support the concept of a traveler retaining the receipts necessary to support the voucher. We can support this concept because (1) a federal agency retains the official records that represent the travel authorization and voucher and (2) the traveler only retains records that support the claims shown on his or her voucher.

Seven Sites Not Yet Using Fortezza Will Be Monitored

Based on information provided by your staff and discussions with your staff, our original understanding was that seven pilot sites would use Fortezza to provide the necessary data integrity. However, in a March 4, 1996, meeting with your staff and the Fortezza program officials from the National Security Agency, it was determined that the travel applications at these seven sites have not been designed to properly interface with Fortezza and cannot use its security services. Therefore, we are unable to determine whether adequate data integrity can be maintained. We have agreed to monitor the efforts to implement Fortezza into these pilot systems and determine at a later date whether it provides the necessary data integrity. It is our understanding that, until that time, these seven sites will use the procedures outlined earlier in this letter for transmitting travel

⁸Standards for Internal Controls in the Federal Government (GAO, 1983).

data electronically to disbursing officers and retaining travel documentation at the traveler's location.

We have been assured that the controls discussed in this letter, those outlined in the February 1995 letter to the Air Force, and those described to us will be implemented properly. We also understand that additional control improvements will be incorporated as experience is gained. This letter does not constitute GAO approval of your financial management system, as defined by 31 U.S.C. 3512(f)(2).

We recognize the challenges that your agency faces in automating its administrative systems and appreciate the opportunity to comment on your travel system. We hope that our comments will assist your efforts. Should you have any questions, please contact Mr. Chris Martin, Assistant Director, at (202) 512-9481.

Sincerely yours,



Dr. Rona B. Stillman
Chief Scientist for Computers
and Telecommunications

Enclosures

Sites Planning to Use an Air Force Automated Travel System

Location	Test population
11th Support Wing, Headquarters, U.S. Air Force (Pentagon)	5,500
11th Support Wing, Bolling Air Force Base (Washington, D.C.)	2,375
Langley Air Force Base (Langley Air Force Base, Virginia)	9,500
Army Europe, Headquarters 6th Area Support Group (Stuttgart, Germany)	159
Army Training and Doctrine Command (Ft. Leavenworth, Kansas)	2,200
Naval Command, Control, and Ocean Surveillance Center; Research, Development, Test and Evaluation Division (San Diego, California)	150
Naval Undersea Warfare Center (Newport, Rhode Island)	251
Headquarters, Commander In Chief, Pacific Fleet (Pearl Harbor, Hawaii)	61
Naval Post Graduate School (Monterey, California)	175
Commander In Chief, Atlantic Fleet (Norfolk, Virginia)	150
Personnel Support Activity (Norfolk, Virginia)	80
USS Eisenhower, (Norfolk, Virginia)	300
Marine Forces Reserve (New Orleans, Louisiana)	700
Marine Corps Air Station (Beaufort, South Carolina)	532
Defense Mapping Agency (various locations)	1,140
The Joint Staff (Pentagon)	1,500
Defense Finance and Accounting Service (Kansas City, Missouri)	73
Headquarters, Naval Air Systems Command, (Arlington, Virginia)	265

Source: Department of Defense.

Sites to Rely on a System of Internal Controls Rather Than a Disbursing Officer's Review of Paper Documents

Location	Test population
Corps of Engineers, Ohio River Division (Cincinnati, Ohio)	4,340
Headquarters, Army Forces Command (Ft. McPherson, Georgia)	1,300
Headquarters, Army Audit Agency (Alexandria, Virginia)	157
Army Missile Command (Redstone Arsenal, Alabama)	875
Defense Commissary Agency (Alexandria, Virginia)	810
Randolph Air Force Base ^a (Randolph Air Force Base, Texas)	438
Dover Air Force Base ^a (Dover Air Force Base, Delaware)	1,024
Defense Logistics Agency ^a (Ft. Belvoir, Virginia)	3,671
Washington Headquarter Services ^a (Pentagon)	5,562
National Security Agency ^a (Ft. Meade, Maryland)	9,500
Peterson Air Force Base ^a (Peterson Air Force Base, Colorado)	96
Defense Nuclear Agency ^a (Alexandria, Virginia)	170

^aLocation plans to use Fortezza, when available, to help ensure data integrity.

Source: Department of Defense.

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