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United States Government Accountability Office  
Washington, DC 20548

May 27, 2008

The Honorable Van Zeck  
Commissioner, Bureau of the Public Debt

Subject: *Bureau of the Public Debt: Areas for Improvement in Information Security Controls*

Dear Mr. Zeck:

In connection with fulfilling our requirement to audit the financial statements of the U.S. government,<sup>1</sup> we audited and reported on the Schedules of Federal Debt Managed by the Bureau of the Public Debt (BPD) for the fiscal years ended September 30, 2007 and 2006.<sup>2</sup> As part of these audits, we performed a review of the general and application information security controls over key BPD financial systems.

In our audit report on the Schedules of Federal Debt for the fiscal years ended September 30, 2007 and 2006, we concluded that BPD maintained, in all material respects, effective internal control relevant to the Schedule of Federal Debt related to financial reporting and compliance with applicable laws and regulations as of September 30, 2007, that provided reasonable assurance that misstatements, losses, or noncompliance material in relation to the Schedule of Federal Debt would be prevented or detected on a timely basis. However, we found matters involving information security controls that we do not consider to be significant deficiencies.<sup>3</sup> As it relates to controls over financial reporting and compliance with applicable laws and regulations, BPD mitigated the potential effect of such control deficiencies with physical security measures, a program of monitoring user and system activity, and compensating management and reconciliation controls. Nevertheless, these matters warrant BPD management's attention and action.

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<sup>1</sup>31 U.S.C. § 331(e).

<sup>2</sup>GAO, *Financial Audit: Bureau of the Public Debt's Fiscal Years 2007 and 2006 Schedules of Federal Debt*, [GAO-08-168](#) (Washington, D.C.: Nov. 7, 2007).

<sup>3</sup>A significant deficiency is a control deficiency, or combination of control deficiencies, that adversely affects the entity's ability to initiate, authorize, record, process, or report financial data reliably in accordance with U.S. generally accepted accounting principles such that there is more than a remote likelihood that a misstatement of the entity's financial statements that is more than inconsequential will not be prevented or detected. A control deficiency exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions to prevent or detect misstatements on a timely basis.

This report presents the control deficiencies identified during our fiscal year 2007 testing of the general and application information security controls that support key BPD automated financial systems relevant to BPD's Schedule of Federal Debt. This report also includes the results of our follow-up on the status of BPD's corrective actions to address recommendations that were contained in our prior years' audit reports and open as of September 30, 2006. In a separately issued Limited Official Use Only report, we communicated detailed information regarding our findings to BPD management. We also assessed the general and application information security controls over key BPD financial systems that the Federal Reserve Banks (FRBs) maintain and operate on behalf of BPD. We will issue a separate report to the Board of Governors of the Federal Reserve System on the results from that assessment.

## **Results in Brief**

Our fiscal year 2007 audit procedures identified 10 new information security control deficiencies, all of which relate to general controls. Specifically, the control deficiencies identified were in the areas of system software, and application software development and change control. In the Limited Official Use Only report, we made 11 recommendations to address these control deficiencies.

None of our findings pose significant risks to the BPD financial systems. As it relates to controls over financial reporting and compliance with applicable laws and regulations, BPD mitigated the potential effect of these control deficiencies with physical security measures and a program of monitoring user and system activity. Further, BPD has compensating management and reconciliation controls that are designed to detect potential irregularities or improprieties in financial data or transactions.

During our follow-up on the status of BPD's corrective actions to address 11 open recommendations related to general information security control deficiencies identified in prior years' audits for which actions were not complete as of September 30, 2006, we found the following:

- As of September 30, 2007, corrective action on 9 of the 11 recommendations was completed.
- Corrective action was in progress as of September 30, 2007, on the two remaining open recommendations, one of which relates to access control and the other to application software development and change control.

BPD provided comments on the detailed findings and recommendations in the separately issued Limited Official Use Only report. In those comments, the Commissioner of the Bureau of Public Debt stated that of the 12 findings, which include 2 from prior years, 8 have been completely resolved, and corrective actions for the remaining 4 are in progress. The Commissioner also stated that BPD intends to implement corrective actions for the remaining findings by September 2008.

## Background

The Department of the Treasury (Treasury) is authorized by Congress to borrow money on the credit of the United States to fund federal operations. Treasury is responsible for prescribing the debt instruments and otherwise limiting and restricting the amount and composition of the debt. BPD, an organizational entity within the Fiscal Service of the Treasury, is responsible for issuing and redeeming debt instruments, paying interest to investors, and accounting for the resulting debt. In addition, BPD has been given the responsibility for issuing Treasury securities to trust funds for trust fund receipts not needed for current benefits and expenses.

As of September 30, 2007 and 2006, federal debt managed by BPD totaled about \$9.0 trillion and \$8.5 trillion, respectively, for moneys borrowed to fund the government's operations. These balances consisted of approximately (1) \$5.1 trillion and \$4.8 trillion of debt held by the public as of September 30, 2007 and 2006, respectively, and (2) \$3.9 trillion and \$3.7 trillion of intragovernmental debt holdings as of September 30, 2007 and 2006, respectively. Total interest expense on federal debt managed by BPD for fiscal years 2007 and 2006 was about \$433 billion and \$404 billion, respectively.

BPD relies on a number of interconnected financial systems and electronic data to process and track the money that is borrowed and to account for the securities it issues. Many of the FRBs provide fiscal agent services on behalf of BPD, which primarily consist of issuing, servicing, and redeeming Treasury securities held by the public and handling the related transfers of funds. FRBs use a number of financial systems to process debt-related transactions. Detailed data initially processed at the FRBs are summarized and then forwarded electronically to BPD's data center for matching, verification, and posting to the general ledger.

## Objectives, Scope, and Methodology

Our objectives were to evaluate the general and application information security controls over key financial management systems maintained and operated by BPD relevant to the Schedule of Federal Debt and to determine the status of corrective actions taken in response to the recommendations in our prior years' reports for which actions were not complete as of September 30, 2006. We use a risk-based, rotation approach for testing general information security controls. Each general information security control area is subjected to a review, including testing, at least every 3 years. The general information security control areas we review are defined in the *Federal Information System Controls Audit Manual*.<sup>4</sup> Areas considered to be of higher risk are subject to more frequent review. Each key application is subjected to a review every year.

To evaluate general and application information security controls, we identified and reviewed BPD's information system general and application information security control policies and procedures, observed controls in operation, conducted tests of

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<sup>4</sup>GAO, *Federal Information System Controls Audit Manual*, [GAO/AIMD-12.19.6](#) (Washington, D.C.: Jan. 1999).

controls, and held discussions with officials at the BPD data center to determine whether controls were adequately designed, implemented, and operating effectively.

The scope of our work for fiscal year 2007 as it relates to general information security controls included following up on open recommendations from our prior years' reports and reviewing access control, system software, and application software development and change control. In addition, we performed security diagnostics and vulnerability assessment testing of BPD's internal and external information system environment.

Application information security control reviews were performed on six key BPD applications to determine whether the applications are designed to provide reasonable assurance that

- access privileges (1) establish individual accountability and proper segregation of duties, (2) limit the processing privileges of individuals, and (3) prevent and detect inappropriate or unauthorized activities;
- data are authorized, converted to an automated form, and entered into the application accurately, completely, and promptly;
- data are properly processed by the computer and files are updated correctly;
- erroneous data are captured, reported, investigated, and corrected; and
- files and reports generated by the application represent transactions that actually occur and accurately reflect the results of processing, and reports are controlled and distributed only to authorized users.

We also reviewed the application information security control audit documentation from the work performed by the Treasury Office of Inspector General's contractor on another key BPD application.

Because the FRBs are integral to the operations of BPD, we assessed the general information security controls over financial systems that the FRBs maintain and operate relevant to the Schedule of Federal Debt. We also evaluated application information security controls over six key financial applications maintained and operated by the FRBs.

The evaluation and testing of certain information security controls, including the follow-up on the status of BPD corrective actions to address open recommendations in our fiscal year 2006 report, were performed by the independent public accounting (IPA) firm of Cotton and Company, LLP. We agreed on the scope of the audit work, monitored the IPA firm's progress, and reviewed the related audit documentation to determine that the findings were adequately supported.

During the course of our work, we communicated our findings to BPD management, who informed us that BPD has taken or plans to take corrective action to address the control deficiencies identified. We plan to follow up on these matters during our audit of the fiscal year 2008 Schedule of Federal Debt.

We performed our work at the BPD data center from March 2007 through October 2007. Our work was performed in accordance with U.S. generally accepted government auditing standards. As noted above, we obtained agency comments on the detailed findings and recommendations in a draft of the separately issued Limited Official Use Only report. BPD's comments are summarized in the Agency Comments section of this report.

### **Assessment of BPD's Information Security Controls**

General information security controls are the structure, policies, and procedures that apply to an entity's overall computer operations. General information security controls establish the environment in which application systems and controls operate. They include an entitywide security management program, access controls, system software controls, application software development and change controls, segregation of duties, and service continuity. An effective general information security control environment helps (1) ensure that an adequate entitywide security management program is in place; (2) protect data, files, and programs from unauthorized access, modification, disclosure, and destruction; (3) limit and monitor access to programs and files that control computer hardware and secure applications; (4) prevent the introduction of unauthorized changes to systems and applications software; (5) prevent any one individual from controlling key aspects of computer-related operations; and (6) ensure the recovery of computer processing operations in the event of a disaster or other unexpected interruption.

Our fiscal year 2007 testing identified opportunities to strengthen certain information security controls that support key BPD automated financial systems relevant to BPD's Schedule of Federal Debt. Specifically, our audit procedures identified 10 new general information security control deficiencies. This included three control deficiencies related to system software and seven control deficiencies related to application software development and change control.

System software coordinates and helps control the input, processing, output, and data storage associated with all of the applications that run on a system. System software includes operating system software, system utilities, file maintenance software, security software, data communications systems, and data management systems. Controls over access to and modifications of system software are essential to protect the overall integrity and reliability of information systems.

Application software development and change controls help ensure that only authorized programs and authorized modifications are implemented. This is accomplished by instituting policies, procedures, and techniques to provide reasonable assurance that all programs and program modifications are properly authorized, tested, and approved and that access to and distribution of programs is carefully controlled. Without proper application software development and change controls, there is a risk that security features could be inadvertently or deliberately omitted or "turned off" or that processing irregularities or malicious code could be introduced.

In a separately issued Limited Official Use Only report, we communicated detailed information regarding our findings to BPD management and made 11 detailed recommendations.

During our follow-up on the status of BPD's corrective actions to address 11 open recommendations related to information security control deficiencies identified in prior years' audits for which actions were not complete as of September 30, 2006, we found the following:

- As of September 30, 2007, corrective action on 9 of the 11 recommendations was completed.
- Corrective action was in progress as of September 30, 2007, on the two remaining open recommendations, one of which relates to access control and the other to application software development and change control. As such, we are reaffirming our two previous recommendations.

None of our findings pose significant risks to the BPD financial systems. As it relates to controls over financial reporting and compliance with applicable laws and regulations, BPD mitigated the potential effect of these control deficiencies with physical security measures and a program of monitoring user and system activity. Further, BPD has compensating management and reconciliation controls that are designed to detect potential irregularities or improprieties in financial data or transactions. Nevertheless, these findings warrant management's attention and action to limit the risk of unauthorized access, disclosure, loss, or impairment; modification of sensitive data and programs; and disruption of critical operations.

### **Assessment of FRB Information Security Controls**

Because the FRBs are integral to the operations of BPD, we assessed the general and application information security controls over key financial systems maintained and operated by the FRBs on behalf of BPD. We will issue a separate report to the Board of Governors of the Federal Reserve System on the results from that assessment.

### **Conclusion**

BPD has made significant progress in addressing open information security control recommendations from our prior years' audits and is taking corrective action to address the two remaining unresolved control deficiencies. We therefore reaffirm our two recommendations related to these open control deficiencies.

Our fiscal year 2007 audit identified 10 new information security control deficiencies, all of which relate to general controls. For these identified control deficiencies, we are making 11 recommendations. BPD informed us that it has taken or plans to take corrective action to address all the control deficiencies we identified. We plan to follow up on the status of BPD's actions to address the identified control deficiencies as part of our fiscal year 2008 Schedule of Federal Debt audit.

## **Recommendation for Executive Action**

We recommend that the Commissioner of the Bureau of the Public Debt direct the appropriate BPD officials to implement the 11 new detailed recommendations set forth in the separately issued Limited Official Use Only version of this report.

## **Agency Comments**

BPD provided comments on the detailed findings and recommendations in the Limited Official Use Only version. In those comments, the Commissioner of the Bureau of the Public Debt stated that of the 12 findings, which include 2 from prior years, 8 have been completely resolved, and corrective actions for the remaining 4 are in progress. The Commissioner also stated that BPD intends to implement corrective actions for the remaining findings by September 2008. We plan to follow up on these matters during our audit of the fiscal year 2008 Schedule of Federal Debt.

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In the separately issued Limited Official Use Only report, we noted that the head of a federal agency is required by 31 U.S.C. 720 to submit a written statement on actions taken on our recommendations to the Senate Committee on Homeland Security and Governmental Affairs and to the House Committee on Oversight and Government Reform not later than 60 days after the date of the Limited Official Use Only report. A written statement must also be sent to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of that report. In the Limited Official Use Only report, we also requested a copy of your responses.

We are sending copies of this report to the Chairmen and Ranking Members of the Senate Committee on Homeland Security and Governmental Affairs; the Subcommittee on Financial Services and General Government, Senate Committee on Appropriations; the Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security, Senate Committee on Homeland Security and Governmental Affairs; the House Committee on Oversight and Government Reform; the Subcommittee on Financial Services and General Government, House Committee on Appropriations; and the Subcommittee on Government Management, Organization, and Procurement, House Committee on Oversight and Government Reform. We are also sending copies of this report to the Secretary of the Treasury, the Acting Inspector General of the Department of the Treasury, and the Director of the Office of Management and Budget. Copies will also be made available to others upon request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you have any questions regarding this report, please contact me at (202) 512-3406 or [engelg@gao.gov](mailto:engelg@gao.gov). Other key contributors to this assignment were Jeffrey L. Knott and Dawn B. Simpson, Assistant Directors; Dean D. Carpenter; Mary T. Marshall; and Zsaroq R. Powe.

Sincerely yours,

A handwritten signature in black ink that reads "Gary T. Engel". The signature is written in a cursive style with a large initial "G".

Gary T. Engel  
Director  
Financial Management and Assurance

(198517)



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