

Audit Report

**WORK REMAINS IN IMPLEMENTING A
FULLY INTEGRATED PEGASYS
FINANCIAL MANAGEMENT SYSTEM
REPORT NUMBER A070094/B/T/F08009**

June 23, 2008

**Office of Inspector General
General Services Administration**



Office of Audits



U.S. GENERAL SERVICES ADMINISTRATION
Office of Inspector General

Date: June 23, 2008

Reply to: Gwendolyn A. McGowan
Deputy Assistant Inspector General for Information Technology
Audits (JA-T)

To: Kathleen M. Turco
Chief Financial Officer (B)

Subject: Work Remains in Implementing a Fully Integrated Pegasys Financial
Management System, Report Number A070094/B/T/F08009

This report presents the results of our review of the General Services Administration's (GSA) financial management system of record, Pegasys. The Chief Financial Officers (CFO) Act of 1990 requires Chief Financial Officers to develop and maintain an integrated agency accounting and financial management system including reporting and internal controls. In October 2002, the GSA Office of the Chief Financial Officer (OCFO) implemented Pegasys, a Commercial-off-the-Shelf (COTS) product based on CGI Momentum Financials, as the Agency's financial management system of record. Our overall audit objective was to gather information on the status of Pegasys and evaluate risks and potential improvements in two main areas: (1) development and maintenance of an integrated accounting and financial management system, and (2) system operations and response to management and user needs.

Our review found that, while the OCFO has made progress in developing a financial management architecture and with migrating functionality from GSA's legacy mainframe based National Electronic Accounting and Reporting (NEAR) system, several key steps remain in developing a fully integrated financial management system. Improved management controls, including development of an implementation plan to guide migration of legacy functionality in the NEAR system and to integrate Service/Staff Office/Region (S/SO/R) systems would help in transitioning to the target financial management architecture and meeting strategic goals for the OCFO. Enhancing the implementation review process for Pegasys could provide management with critical information on system changes that may be needed and whether Pegasys is meeting GSA and customer needs in a cost-effective manner. Further, consistent tracking of Pegasys costs within the financial management system of record is needed to independently verify life cycle costs. Finally, within GSA's fragmented financial systems environment, the OCFO faces obstacles with ensuring the security and privacy of Pegasys data and transactions that are often scattered in multiple Agency systems. Significant access control weaknesses with web applications that interface with, or process system information, have put sensitive Pegasys data, including Personally Identifiable Information (PII), and the integrity of certain transactions, at risk. Taking steps to (1) develop an implementation plan for the NEAR migration and systems integration effort;

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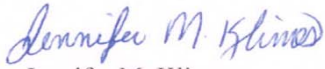
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(2) enhance system implementation review processes; (3) consistently track Pegasys life cycle costs within the financial management system of record; and (4) address security control weaknesses for sensitive system data and transactions could help the OCFO meet strategic goals and develop an integrated financial management system.

I wish to express my appreciation to you and your staff for your cooperation during the audit. If you have any questions, please contact me or Gwen McGowan, Deputy Assistant Inspector General for IT Audits, on 703-308-1223.



Jennifer M. Klimes
Audit Manager, Information Technology Audit Office (JA-T)

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EXECUTIVE SUMMARY

Purpose

The Chief Financial Officers (CFO) Act of 1990 requires Chief Financial Officers to develop and maintain an integrated agency accounting and financial management system including reporting and internal controls. In October 2002, the General Services Administration (GSA), Office of the Chief Financial Officer (OCFO) implemented Pegasys, a Commercial-off-the-Shelf (COTS) product based on CGI Momentum Financials, as the Agency's financial management system of record. Our overall audit objective was to gather information on the status of Pegasys and evaluate risks and potential improvements in two main areas: (1) development and maintenance of an integrated accounting and financial management system, and (2) system operations and response to management and user needs. Appendix A describes our objectives, scope, and methodology for the audit.

Background

OMB Circular A-127, "Financial Management Systems," directs agencies to establish and maintain a single integrated financial management system and ongoing financial system improvement processes. In October 2002, GSA began to move to an integrated financial management system with the migration of accounts payable, general ledger, and cash management functions from the National Electronic Accounting and Reporting (NEAR) system, GSA's legacy mainframe based accounting system, to Pegasys. The OCFO had decided to replace NEAR because it recognized that the system had become increasingly burdensome and costly to maintain; did not conform to regulatory requirements; required development of many custom "bolt on" solutions to enable it to meet the Agency's financial needs; and was technically complex due to the number of files, data structures, and interfaces that were required to operate the system. As of Fiscal Year (FY) 2005, NEAR contained over a quarter million lines of COBOL source code, 60 subsystems/modules, over 50 interfaces with various applications, approximately 4,000 data files, and over 300 reports. CGI Momentum Financials, on which Pegasys is based, is a Financial Systems Integration Office certified COTS product designed to meet Federal financial system requirements and is used by over 100 Federal organizations, including GSA. Pegasys performs over 40 million general ledger transactions a year, processes over \$50 billion in business volume, and supports about 3,800 system users. Pegasys is used by the OCFO to cross service all GSA Services/Staff Offices/Regions (S/SO/Rs) and more than 40 external organizations.

Results-in-Brief

With the implementation of Pegasys in October 2002, and subsequent efforts undertaken to migrate functionality from GSA's legacy National Electronic Accounting and Reporting (NEAR) system, the Office of the Chief Financial Officer (OCFO) has made progress in modernizing the Agency's financial systems environment to meet regulatory requirements and provide enhanced services to GSA and external customers. The OCFO has also undertaken several efforts to better ensure Pegasys' success, such as analyzing current business processes and developing a target financial systems environment. However, several key steps remain in completing the development of an integrated financial management system. GSA's fragmented financial systems environment, with duplicate systems and nonstandard business processes, has complicated and delayed OCFO efforts to migrate remaining NEAR functionality, integrate feeder systems, and meet strategic goals with the system. Within this financial systems environment, the OCFO also faces obstacles with ensuring the security and privacy of Pegasys data and transactions that are often scattered in multiple Agency systems. Significant access control weaknesses with web applications that interface with, or process system information, have put sensitive Pegasys data, including Personally Identifiable Information (PII), and the integrity of certain transactions, at risk. While implementation reviews have been conducted for the system to provide management with information on changes that may be needed and to assist with migration and integration, opportunities exist to provide a broader review of whether Pegasys is meeting GSA and customer needs in a cost-effective manner. Reported total costs to develop, operate, and maintain the system have reached approximately \$209 million. However, costs are not consistently classified and recorded within Pegasys itself, making it difficult to independently verify reported cost figures. With increasing system costs, and important procurement activities underway to migrate NEAR system functionality to Pegasys, it is important that the OCFO ensure that project costs are consistently tracked within the financial management system of record and reported to decision makers.

Recommendations

To successfully transition to the target financial management architecture and meet strategic goals related to timely and accurate financial reporting and analysis, reliable financial management systems, and delivery of world class financial management services to GSA and external customers, we recommend that the Chief Financial Officer:

1. Coordinate with GSA Services/Staff Offices/Regions (S/SO/Rs) to develop a detailed plan for migration of remaining NEAR functionality and integration of S/SO/R systems with Pegasys. This plan should:
 - a. Include milestones, performance measures, and key activities for migration and integration.
 - b. Address identified challenges and critical success factors with moving to the target financial management architecture.
 - c. Identify steps that need to be taken by GSA S/SO/R to assist in the migration of NEAR, including for the review and modification of system interfaces and business processes to ensure an integrated financial management system.
2. Ensure that system implementation review processes comprehensively consider how Pegasys is meeting Agency and customer needs, including:
 - a. Determining whether Pegasys can meet future GSA needs for remaining functionality in NEAR, including accounts receivable and billing.
 - b. Assessing the total cost of ownership for Pegasys and the OCFO's use of performance measures to determine how the system is meeting cost, quality, and schedule goals.
 - c. Analyzing previously reported lessons learned to determine the ongoing improvement and benefits gained from changes made to system operations, procedures, and/or management practices.
3. Work with GSA S/SO/Rs to improve security and privacy controls for sensitive Pegasys data, including:
 - a. Assessing whether the use of web-based applications in support of Pegasys is aligned with the OCFO's goals for the system and the financial management architecture.
 - b. Strengthening system certification and accreditation processes to ensure that risks with and controls for system interfaces, data criticality and sensitivity, and information sharing are addressed.
 - c. Defining and identifying sensitive Agency, customer, and vendor data maintained in Pegasys and related web applications and feeder systems.
 - d. Considering the use of encryption and/or masking of sensitive data that resides, or is transmitted to, web applications.
 - e. Establishing appropriate access controls for web applications that interface with and/or process Pegasys data.

- f. Performing a thorough assessment of the need to utilize social security numbers for vendor identification purposes in Pegasys.
 - g. Evaluating whether unauthorized access to sensitive Pegasys data, including PII residing on financial web applications, was obtained as a result of weaknesses in security and privacy controls. If so, determine if there is a need to notify GSA customers or vendors.
 - h. Providing guidance to GSA customers, vendors, and clients as to what sensitive information should/should not be submitted to the agency as part of transaction processing.
4. Ensure that Pegasys costs are appropriately classified, identifiable, and tracked within the Agency's financial accounting system of record, including:
- a. Analysis of system expenditures and obligations to ensure that recorded amounts are accurately classified and identifiable.
 - b. Review of expenditures incurred to date to ensure that reported life cycle costs are accurate.
 - c. Development of procedures to ensure appropriate classification and reporting of Pegasys costs.

Management Comments

The CFO concurred with all audit findings and recommendations. A copy of the CFOs comments are provided in their entirety as Appendix G.

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INTRODUCTION

In October 2002, the General Services Administration (GSA), Office of the Chief Financial Officer (OCFO) implemented Pegasys, a Commercial-off-the-Shelf (COTS) product based on CGI Momentum Financials, as the Agency's financial management system of record. With the implementation of Pegasys, several accounting functions, including accounts payable, general ledger, and cash management were migrated from the National Electronic Accounting and Reporting (NEAR) system to Pegasys. The OCFO has since made progress in migrating additional accounting functions to Pegasys, including cost allocation. In July 2006, the OCFO implemented a web-based version of Pegasys that provided several additional system enhancements. The NEAR system continues to perform key accounting processes, including those for accounts receivables and billing, asset accounting, credit cards accounts payable, and inventory control. Appendix B provides a timeline of key events and milestones for Pegasys since implementation.

The Office of Inspector General (OIG) Information Technology (IT) Audit Office has previously issued audit reports highlighting development and implementation challenges faced by the OCFO with Pegasys.¹ Among other things, we have reported that: (1) coordination of GSA Service and Staff Office integration efforts is key to successful implementation of Pegasys, (2) a vision for a fully integrated financial management system is needed, (3) the OCFO needed to ensure that it was following structured development and integration practices when implementing the Pegasys COTS product, and (4) the Pegasys development effort lacked project plans containing measurable milestones and other control mechanisms to effectively monitor and track project progress and accurately estimate the scope and costs of remaining development work. We recently reported the need to strengthen specific security controls for Pegasys related to awareness and training, configuration management, system services and acquisition, systems and communications protection, and web applications.²

¹ GSA-OIG Alert Report on GSA's Implementation of the New Pegasys Financial Management System, Report Number A000995/B/T/W00004, dated September 29, 2000, was issued to bring urgent matters regarding Pegasys cost and development to the attention of the OCFO. GSA-OIG audit report, GSA Faces Significant Challenges in Deploying a Fully Integrated Financial Management System Solution, Report Number A010023/B/T/F02005, dated January 17, 2002, noted that while GSA had successfully deployed selected portions of initially envisioned Pegasys functionality, several concurrent challenges must be overcome before it could complete development of a fully integrated financial management system and ensure the completed system meets all requirements.

² GSA-OIG Pegasys Security Controls Interim Audit Report, Report Number A070094/B/T/F08001, dated October 2007, conveyed results of our independent assessment of specific IT security controls for FISMA, which was conducted as part of this operational audit.

RESULTS OF AUDIT

With the implementation of Pegasys in October 2002 and subsequent efforts undertaken to migrate remaining accounting functionality from GSA's legacy mainframe based NEAR system, the OCFO has taken steps to implement an integrated financial management system of record. The OCFO has also undertaken a significant effort to develop a financial management architecture, including an analysis of current business processes and development of a target financial systems environment. However, additional steps need to be taken to develop a fully integrated financial management system of record and for the OCFO to meet strategic goals with Pegasys. While an OCFO original goal with the Pegasys implementation was to replace all accounting functionality in NEAR, the system continues to perform key accounting tasks, including accounts receivables and billing, asset accounting, credit cards accounts payable, and inventory control. Migration of remaining functionality from NEAR to Pegasys will be a complex undertaking since: (1) financial business processes across the Agency are not standardized, and (2) multiple existing financial systems must be integrated with Pegasys.

GSA's fragmented financial systems environment has led to significant weaknesses in security and privacy controls for certain Pegasys data and transactions. Security control weaknesses with several web applications that support Pegasys transaction processing have put sensitive system data, including Personally Identifiable Information (PII), credit card numbers, and bank account information on GSA employees, Agency customers, and vendors at an increased risk for disclosure. These control weaknesses have also potentially impacted the confidentiality and integrity of certain Pegasys transactions. Further, continuing costs for requirements, especially with regards to privacy and security, have contributed to a rise in project costs. Reported costs for Pegasys from 1998 to 2007 are about \$209 million and do not include approximately eight million dollars a year that is incurred to maintain the NEAR system. Also, estimated costs reported for Pegasys in future periods do not include costs associated with migration of all remaining functionality from NEAR to Pegasys and associated activities. Further, system costs are not consistently classified and recorded within Pegasys, making it difficult to independently verify reported cost figures. Finally, while efforts have been undertaken to assess the Pegasys implementation and provide management with information on changes needed with the system, a broader review of whether the system is meeting GSA and customer needs in a cost-effective manner is needed. This includes addressing two key questions: (1) whether Pegasys can support remaining functionality in NEAR, such as accounts receivable and billing, and (2) whether it is feasible to meet all remaining requirements, including interfacing with existing or planned financial systems.

Opportunities Exist for the OCFO to Enhance Its Management Decision-Making Process

With the implementation of Pegasys as GSA's financial management system of record in October 2002, the Office of the Chief Financial Officer (OCFO) began migration from an aging legacy accounting system to a Financial Systems Integration Office (FSIO) compliant system. The OCFO has made significant progress in deploying the majority of financial management functions intended for Pegasys. Several obstacles, however, must be resolved to migrate remaining accounting/financial functionality from the National Electronic Accounting and Reporting (NEAR) system and for GSA to operate a fully integrated financial management system, as intended. NEAR continues to perform key core financial functions, including asset management and complex accounts receivable and billing, and the OCFO is in the early planning stages to migrate this functionality from NEAR. The OCFO has made significant progress in developing a target financial management architecture, however, several obstacles to move toward that architecture must be overcome. These include integrating GSA Service/Staff Office/Region (S/SO/R) systems with Pegasys, and reducing duplicate data entry and time-consuming data reconciliation efforts. To ensure success with Pegasys, it is important that the OCFO develop a comprehensive plan that includes milestones and performance measures for migrating remaining functionality from NEAR and for fully integrating S/SO/R systems with Pegasys. It is also important for S/SO/Rs to assist the OCFO with NEAR migration activities, including for the review and modification of system interfaces and business processes. Better long-term planning and coordination will facilitate transition to the target financial management architecture and enable the OCFO to meet strategic goals.

Completion of NEAR Migration Is Necessary for GSA to Implement an Integrated Financial Management System

The OCFO originally intended to replace its aging NEAR mainframe based system, which did not comply with regulatory requirements and was costly to maintain, with Pegasys. However, the OCFO encountered difficulties in deploying Pegasys as originally planned, recognized the need to re-scope the development effort and planned milestones, and decided to implement Pegasys using a phased approach. In June 2000, the OCFO implemented budget execution, funds management, and purchasing functionality with Pegasys. When the system became the GSA official financial management system of record in October 2002, Pegasys was performing additional financial functions, including credit card transactions, general ledger functionality, and disbursements. In 2006, Pegasys began to perform cost allocation functionality; however, as of December 2007, NEAR continues to perform key financial functions, including credit card accounts payable, inventory control, asset management, and accounts receivable and billing. These four areas of functionality must be migrated in order to decommission NEAR and for the OCFO to implement an integrated financial management system. Appendix B provides a timeline of key activities and milestones for the Pegasys system since implementation. While the OCFO has made a significant effort to document its current

and target financial architectures, the OCFO is still in the initial planning stages to determine how to replace remaining NEAR functionality.

A Significant Effort Has Been Made to Document the Current and Target Financial Architecture

To develop an understanding of the business processes and technology supported by NEAR and specifications to help support migration activities, the OCFO contracted with the Logistics Management Institute (LMI) for the Financial Management Enterprise Architecture (FMEA) project. The FMEA report included an analysis of current financial processes within GSA, a top-down analysis and design component,³ and an analysis of the existing systems environment, including an examination of the relationship between financial functions performed in NEAR and other related S/SO/R applications. This last component was termed the Architecture-Driven Modernization (ADM) portion of the FMEA project and was completed in August 2005. The ADM identified the complex functional, data, and interface architecture in which NEAR was developed, highlighting major obstacles that GSA faces in achieving its goal to completely replace the system. For example, the ADM report noted that because NEAR employs non-standard technology, contains a large number of data elements and files, and has undergone decades of modification, the system is not adaptable to current standard accounting requirements. Further, core financial accounting functions performed by NEAR are also dispersed across multiple GSA applications, and various Agency S/SO/Rs perform the same or overlapping functions. GSA S/SO/Rs have requirements for billing and related processing that NEAR does not meet. This has led to the need for S/SO/Rs to build and maintain additional systems, processes, spreadsheets, and user-based systems around NEAR to support critical requirements. For example, 23 GSA applications support billing functionality, but only eight of those applications are part of NEAR. The remaining applications are spread across non-NEAR systems in various S/SO/Rs. Similarly, while 29 GSA applications support accounts receivable functionality, only nine of these applications are in NEAR.

NEAR is a highly complex system that contains over a quarter million lines of COBOL source code, 60 subsystems/modules, over 50 interfaces with various applications, and over 300 reports. There are roughly 750 NEAR programs that send and receive almost 4,000 file structures to each other and to external systems and agencies, as GSA has unique data requirements for each S/SO/R. This requires NEAR to employ a variety of overlapping and redundant data structures. Adding to the complexity of replacing NEAR is the highly intertwined relationship between NEAR and Pegasys. For example, NEAR feeds data to Pegasys that must first be converted to the Standard General Ledger (SGL)

³ The top-down analysis and design effort focused on creating a set of specifications for a NEAR replacement architecture. This included creation of rules that the new system would need to include so that it could functionally fulfill the requirements of a replacement accounting environment for NEAR.

format. Pegasys data, however, is then loaded back into NEAR and this same accounting data must be converted back to the NEAR General Ledger format. Additional weaknesses identified with the current financial architecture include:

- The need for significant staff resources for reconciliation and research purposes to ensure that data entered into various systems is accurate.
- Redundant definition of financial data across GSA functional units, which impacts internal control over data accuracy, standardization, and integrity.
- Integration of S/SO/R systems with Pegasys.

The OCFO also tasked LMI to help develop a target financial architecture. To accomplish this task, LMI analyzed the current financial architecture, focusing on the following four areas identified by the OCFO: (1) business processes supported by NEAR; (2) data structure; (3) technical environment, specifically information technology (IT) interfaces; and (4) internal controls. The LMI study, issued in January 2006, considered the impact of the current financial architecture on users and recommended data structure and financial process standardization across GSA to enhance interoperability between systems and financial reporting and to remove data and functional redundancy in order to promote consistency across Agency S/SO/Rs. LMI also developed a roadmap to help guide GSA in migrating remaining NEAR functions, suggesting a mixed solution to replace NEAR. The roadmap included recommendations to build a custom solution for asset accounting, implement accounts receivable functionality that already exists in Pegasys, and utilize a separate Commercial-off-the-Shelf (COTS) product to replace NEAR billing functionality. As part of the report, LMI identified several key success factors to implement the identified target financial architecture and fully replace NEAR, including:

- Senior management buy-in and ongoing involvement.
- Vigilant governance of the IT portfolio, including alignment of IT investments to a well-structured set of business rules.
- Proper training and investment in the workforce.
- Accurate costing and budgeting.
- Enterprise architecture compatibility.
- Alignment with the GSA acquisition/procurement system.
- Rigorous change management and risk management programs.

One of the primary challenges in completing this migration may be convincing S/SO/Rs to reengineer their business processes to remove duplication of accounting functionality, promote data standardization, and facilitate the implementation of the target architecture. Therefore, demonstrating the feasibility and benefits of implementing the target financial architecture should be approached as a priority for the OCFO. To ensure success with replacing NEAR and moving to the target financial architecture, the OCFO should address each of the challenges and success factors identified by LMI and develop a detailed plan to guide a successful migration process.

Much Work Remains to Completely Migrate Remaining NEAR Functionality

Pegasys became GSA's financial management system of record in October 2002. However, NEAR continues to perform key financial functions, including credit card accounts payable, inventory control, asset management, and accounts receivable and billing. Further, the OCFO is still in the initial stages of planning migration for most of these remaining functions.

- The Credit Card Accounts Payable Project. The OCFO is in the initial planning stages for the Credit Card Accounts Payable project and is looking into how this functionality might be handled within the existing Pegasys infrastructure.
- The Inventory Control Project. The OCFO is in the initial planning stages for the Inventory Control project and is looking into how this functionality might be handled within the existing Pegasys infrastructure.
- The Asset Accounting Project. The goal of the Asset Accounting project is to move all asset accounting functionality that resides in NEAR to the Pegasys Fixed Assets Module. The project consists of two components – developing a Service Oriented Architecture (SOA) enabled interface to replace current interfaces in NEAR and enhancing, configuring, and implementing the Pegasys Fixed Assets Module. The contract to develop the SOA interface was awarded to Model Driven Solutions (MDS) in the spring of 2007. MDS provided the final deliverable for Phase 1 on March 4, 2008. After six weeks of unsuccessful testing, the OCFO conducted an independent review to determine if the solution, in its current state, warranted additional resources to proceed forward with implementation, or if other alternatives would need to be analyzed. Based on the results of the independent review, the OCFO decided to halt development and testing and to scale back and remove all non-asset accounting functionality. Currently, an acquisition plan for the SOA development has been prepared and the OCFO estimates that a contract will be awarded later this Fiscal Year (FY). Also, CGI-Federal was awarded the contract to enhance, configure, and implement the Pegasys Fixed Asset Module. The OCFO plans to implement this module in phases, with Phase I implementation scheduled for November 2008 and Phase II implementation scheduled during FY 2009.
- The Billing and Accounts Receivable (BAAR) Project. BAAR is the largest of the four projects to migrate NEAR functionality to Pegasys, and successful implementation is essential to the OCFO being able to migrate to the target financial architecture. The OCFO has indicated that they have identified specific activities to address risk mitigation, change management, and communications management, as suggested by LMI. These activities include coordination with S/SO/R and Finance Center staff in product demos and in requirements development, providing biweekly updates to the GSA CFO, working with S/SO/R appointed liaisons for the project, visiting Finance Centers to review current procedures and systems, developing a

preliminary risk management plan, and having a Request for Quotation (RFQ) reviewed by Finance Center and Office of Finance (BC) staff. The OCFO has also indentified future activities in these areas, including providing S/SO/Rs and Finance Centers with project status updates, developing Contract Line Item Numbers (CLINs) for communications management and training, including S/SO/Rs and Finance Center staff in contract evaluation panels, working with the Services to develop operational capabilities and demonstration scenarios, and discussing changes in processes with customers. However, the OCFO is still in planning stages for this project, and has recently drafted a RFQ as an initial step toward gathering information on how best to migrate this functionality from NEAR into Pegasys or another solution that would interface with Pegasys. The RFQ was posted on May 30, 2008 and is for a base period of three years and one two-year option period.

According to the NEAR Exhibit 300 developed for FY 2009, the OCFO currently plans to complete migration of remaining NEAR functionality by the end of FY 2010. However, much work remains to plan for and complete this migration in less than two years. Completing migration of the remaining functionality in NEAR, eliminating duplication of accounting functionality across GSA, and implementing standardized interfaces and data structures would provide the OCFO with more timely and accurate reporting on progress and enable GSA to make better management decisions regarding the Pegasys system.

Completing Integration of Service and Staff Office Finance-Related Systems Will Result in the OCFO Meeting an Original Goal of Implementing a Fully Integrated Financial Management System

Pegasys is based on CGI Momentum Financials, a COTS solution that has been certified to meet requirements established by the FSIO, which stipulates that all financial management systems must deliver specific capabilities, including demonstration of compliance with accounting standards and requirements; timely, reliable, and complete financial management information for decision-making at all levels of government; and “one-time” data entry and reuse of transaction data to support integration, interfacing, or business and reporting requirements. There are several S/SO/R finance-related systems that do not interface with Pegasys, resulting in time consuming manual reconciliation efforts and duplicate data entry. For example, there is no interface currently in place between the Public Building Services’ (PBS) Comprizon.Suite and Pegasys. OCFO officials informed us that due to design decisions that were made for Comprizon.Suite, the system does not meet OCFO requirements for interfacing with Pegasys. Consequently, financial information must be manually input into both systems, thereby increasing the chances for input error. Comprizon.Suite encompasses functions needed to manage a contract from date of award through close-out, including designs for buildings, payments for invoices, and closing of contracts. Information entered into both systems includes contract numbers, purchase order numbers, CLIN amounts, payment information (including full and partial payments), contract details, and financial information. Because an electronic interface between the two systems is not in place and

information is input into both systems, there is a significant reconciliation effort that must be undertaken to ensure that the information is accurate and consistent in both Comprizon.Suite and Pegasys.

The OCFO has begun working with PBS to develop real-time interface between Comprizon.Suite and Pegasys; however, they are still in the initial planning stages for this effort, in part because there is no standard acquisition process yet in place for PBS. PBS has been working to develop standardized business processes so that the OCFO would be able to provide them with the data formats that would be required for the interface. Additionally, there are numerous other financial systems across GSA that do not yet have a direct interface with Pegasys, including the Regional Business Applications (RBA), which includes the IT Solutions Shop (ITSS), Integrated Task Order Management System (ITOMS), and the Common Oracle Database (CODB); the Office of Integration Management System (OMIS)/Task Order System (TOS); the Network Services Ordering and Billing System (NSOBS); Federal Supply Service (FSS)-19; Requisitioning Ordering and Documentation System (ROADS); Customer Supply Center (CSC); Centralized Procurement Sourcing Application (CPSA); and GSA Advantage!TM Appendix C provides a graphical representation of GSA's financial systems environment, including Pegasys, NEAR, and feeder systems identified by the OCFO.

The annual cost for FY 2007 to maintain these systems, including Comprizon.Suite, was just over \$90 million. The OCFO recognizes that the cost of maintaining these legacy systems is steep and that GSA customers and vendors waste time and money as a result of multiple acquisition systems. As such, the OCFO completed an alternatives analysis to determine the best way to move towards a long-term solution to this challenge. Ultimately, the OCFO decided that there is a need to establish a standard, direct interface between the business feeder systems and Pegasys. Benefits of this approach include providing a standard interface for all Agency acquisition systems and reducing OCFO operational and IT systems costs. While we believe that it would help move the Agency towards a more fully integrated financial management system, this solution requires significant coordination with S/SO/Rs to get all needed enhancements made to feeder systems and to develop a standard interface with Pegasys. In order to meet its goal of implementing a fully integrated financial management system, we recommend that the OCFO coordinate with GSA S/SO/Rs to develop a detailed plan for migration of remaining NEAR functionality and integration of S/SO/R systems with Pegasys. This plan should: (1) include milestones, performance measures, and key activities for migration and integration; and (2) address identified challenges and critical success factors with moving to the target financial management architecture.

Assessment of Pegasys Implementation Efforts Lack Critical Information for Decision-Making and Potential Improvement

To implement an integrated financial management system, the OCFO must integrate remaining NEAR functionality and standardize processes, data, and interfaces within the financial management architecture. Analysis of Pegasys' implementation, and whether the system is meeting Agency and user needs, may help with future migration and integration efforts if lessons learned and recommendations for process and management improvement are captured and addressed. The OCFO has taken steps to evaluate the Pegasys implementation effort. In March 2003, as part of GSA's Independent Verification and Validation (IV&V) services, a Post Implementation Review (PIR) of Pegasys was initiated by the OCFO, and a draft report was issued in March 2004.⁴ Subsequently, in June 2007, the OCFO completed an updated PIR for Pegasys, covering versions 5.1.3 to 6.1.4 of the system.⁵ We found, however, that the PIR process for Pegasys has not fully addressed whether the system is meeting Agency and user needs related to security, cost effectiveness, and operations. For example, an analysis as to whether estimated and planned benefits and costs were being achieved with the system was not conducted. Additionally, the 2007 PIR did not address all previous findings identified in the draft 2004 implementation review. The lack of analysis for these key areas leaves management without critical information for decision making and improvement of project implementations in the future and to guide migration to the target financial management architecture. To help the OCFO achieve its strategic goal of providing world class financial management services to GSA and external customers, it is important to comprehensively assess how Pegasys is meeting all requirements, including security, cost effectiveness, and operational needs, of the Agency and its customers.

The GSA IT Capital Planning and Investment Control (CPIC) Guide⁶ states that the purpose of a PIR is to provide an assessment of the system, including an evaluation of the development process. PIRs are conducted to validate estimated and planned benefits and costs; ensure positive Return on Investment (ROI); and reassess the business case, technical compliance, and Enterprise Architecture (EA) compliance. A PIR is to be conducted three to six months after the system has become operational, with subsequent PIRs to be conducted every two years to ensure that the completed system is continuing to meet organizational and user needs. In addition, PIRs should include an analysis of previously identified issues. Figure 1 below describes key areas from the GSA IT CPIC Guide that should be covered with a PIR, including mission, change control, operation, systems description, security, outputs, documentation, and management.

⁴ GSA's IV&V Services for the Pegasys Project Maintenance Phase, Post-implementation Review Report, Review Draft, March 26, 2004, was not issued in final.

⁵ GSA's IV&V Services for the Pegasys Project Maintenance Phase, Second Post-implementation Review Report, June 29, 2007.

⁶ GSA Office of the Chief Information Officer, IT Capital Planning and Investment Control Guide, August 2002.

Figure 1. Key Evaluation Areas in Conducting a PIR.



A draft PIR report for Pegasys, produced in March 2004, consisted of a user survey and analysis of the Pegasys project history to date, including previously issued consulting reports. This initial PIR analyzed areas including Pegasys operations and maintenance costs, system testing, use of performance measures, system functionality, internal customer satisfaction, and release and configuration management. The draft report identified lessons learned and concerns related to: (1) total cost of development, operations, and maintenance of Pegasys; (2) the need for more comprehensive regression and acceptance testing; and (3) the need to track quality, schedule, and cost through an Earned Value Management System (EVMS) and performance measures. In management correspondence transmitted to the OCFO in 2006,⁷ the GSA-OIG reported that the OCFO had not developed an action plan to address this draft PIR. Actions were later taken to address specific areas of improvement identified in the draft review. Subsequently in 2006, Pegasys was upgraded to a web-based environment and a second PIR was completed in June 2007. This most recent PIR, however, consisted only of a user

⁷ Preliminary Observations on Review of GSA's Financial Management System of Record, Pegasys, Assignment Number A060091, October 26, 2006.

satisfaction survey and did not include a broader analysis of how the system is meeting OCFO and GSA strategic goals. The results of the user satisfaction survey highlighted: (1) the need for Pegasys to interface with other GSA systems, (2) the need for more comprehensive testing for major upgrades and releases, and (3) user difficulties with system functionality. Appendix D provides a detailed analysis of both PIRs completed for Pegasys.

One key area where additional information could help guide improvements to Pegasys is in evaluation of previously reported implementation findings and lessons learned from the initial 2004 PIR. While the OCFO has made progress in addressing previously identified findings and lessons learned with the draft 2004 PIR, key issues related to performance measures, cost, and system operations were not fully addressed by the 2007 review. The most current PIR makes baseline comparisons with the initial draft PIR in regards to user satisfaction measures, however, it does not track and analyze the previous findings and lessons learned to assess improvements made to the system. This recently completed PIR highlights progress that the OCFO has made in some areas since 2004. For example, an earlier recommendation was made to the OCFO to conduct more comprehensive testing to reduce costly maintenance and patching with system operations. In response, the OCFO introduced more detailed testing, test readiness reviews, release readiness reviews, upgrade and major release test policies, and test plans and procedures. The 2007 PIR noted that the percentage of incidents⁸ found in production had been reduced from 65 percent in 2004 to 41 percent in 2007.

Additionally, the 2007 PIR was primarily based on comments and satisfaction ratings of GSA's internal customers, but did not address key areas identified in GSA's IT CPIC guide. For example, per GSA's IT CPIC guide, the PIR should have assessed the challenges and successes the OCFO faced in implementing the latest web-based upgrade to Pegasys and the changes that were needed. This would include an assessment of whether Pegasys is continuing to meet Agency and user goals for cost, reporting, interfaces, and security. Specifically, the PIR did not evaluate: (1) the use of system performance measures related to the effectiveness of Pegasys in achieving OCFOs goals, including those with cost; (2) the reporting capability of Pegasys; (3) how effectively Pegasys is meeting OCFO's mission; and (4) whether appropriate security requirements are documented and enforced. A comprehensive PIR for the Pegasys system could help in identifying issues with current system operations and guide future enhancements, including migration to the target financial management architecture.

Increased focus is also needed on other issues previously identified in the 2004 draft PIR. For example, the 2004 draft PIR noted that the OCFO should determine the total cost of ownership for Pegasys based on factors outside of acquisitions, such as costs associated with operations and maintenance, future upgrades, test and integration, changes to custom interfaces, and license fees. In addition, the review noted the need to control Pegasys

⁸ Incidents in this case refer to software errors or defects.

operations and maintenance expenditures. However, an assessment of whether Pegasys is meeting Agency and user requirements in a cost effective manner was not conducted as part of the 2007 PIR. Given the significant investment and increasing costs associated with Pegasys, we believe that a concerted effort is needed in this area. The review also noted that the OCFO should develop metrics to determine how Pegasys is meeting cost, quality, and schedule goals. Development of a metrics plan was recommended to enable the project team to manage quality and provide a basis for improving systems development processes. Also highlighted was the importance of using performance measures to control and guide achievement in business and organizational goals. The 2007 PIR, however, did not assess the OCFOs use of metrics to determine how the system is meeting Agency and user requirements related to cost, quality, and schedule goals. In the previously mentioned management correspondence transmitted to the OCFO in 2006, we communicated the need for system specific performance measures for Pegasys and believe this area requires management attention. Further, the effectiveness of the PIR process as a management tool to provide an assessment of system performance is limited when past observations, such as lessons learned, are not re-evaluated, as they can be leveraged to improve future enhancements. In addition, decision-makers may not be provided with useful information to assess the overall system improvement effort and for developing an action plan to close identified gaps.

Addressing Security and Privacy Risks with Sensitive Data Is Critical to Pegasys' Success

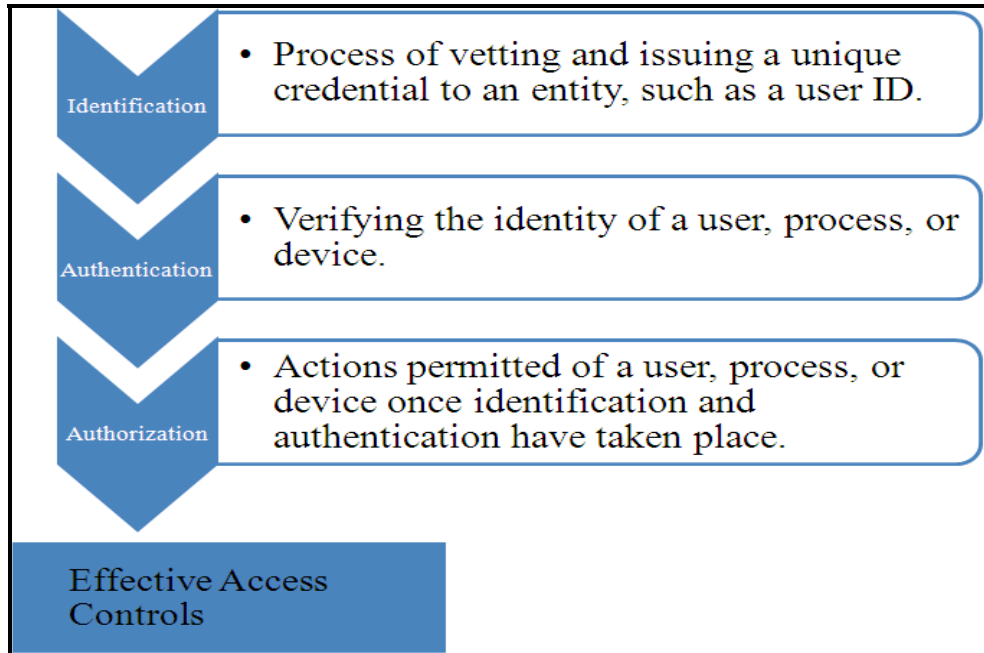
The GSA-OCFO relies on over 45 web-based applications to support financial analysis, operations, and reporting needs. These applications often duplicate functionality and capabilities provided with Pegasys and are needed, because: (1) financial business processes vary across GSA S/SO/Rs, and (2) Pegasys does not yet completely integrate with the all Agency financial systems. Appendix E provides background information for select web applications supporting Pegasys, including functionality and the type of access provided. We found systematic access control weaknesses with these applications that have put sensitive Pegasys data, including Personally Identifiable Information (PII) on GSA customers and vendors, at increased risk for disclosure. These weaknesses call for a detailed evaluation of the confidentiality and integrity of financial information and transactions processed in the system. The lack of encryption of sensitive financial information and PII residing on web applications could result in unauthorized individuals gaining access to Pegasys information. In addition, opportunities exist to strengthen the Certification and Accreditation (C&A) process for Pegasys to help ensure that risks with and controls for all Pegasys interfaces and sensitive data are comprehensively addressed. The OCFO has identified timely and accurate financial analysis and reporting and reliable financial management systems as key strategic goals. Achieving these goals for Pegasys requires the OCFO to address security and privacy risks for sensitive data, including those with access controls, encryption, and C&A.

Access Controls Improvements Are Needed to Better Enable the OCFO to Meet Data Quality, Financial Analysis, and Reporting Goals with Pegasys

Systematic weaknesses in access controls related to user identification, authentication, and authorization for web-based applications supporting Pegasys have put sensitive information, including PII on GSA customers and vendors, at increased risk for disclosure, and highlight the need for a detailed evaluation of the quality and integrity of Pegasys data. We found that access to several of these applications was available to anyone in GSA with a Lotus Notes e-mail account, approximately 15,000 Associates and contractors. Access to other financial applications was restricted only by information on GSA Associates and contractors available through the Agency's phone directory, while in other instances, access was provided through GSA InSite, the Agency's Intranet site. As a result of these access control deficiencies, sensitive information, including PII on GSA customers and vendors, credit card numbers and expiration dates, and bank account and routing numbers, has been placed at an increased risk for disclosure. In addition, several of these weaknesses would allow anyone with a GSA e-mail account to reject invoices back to GSA vendors, submit receiving reports and payment amounts, and enter expense accruals for certain transactions. Such access could impact the ability of the OCFO to provide timely and accurate financial analysis and reporting with Pegasys and could also affect the quality of data in the system. The OCFO notified us that additional, manual based controls implemented at GSA Finance Centers help ensure that changes made through web applications are validated prior to being processed in Pegasys. Appendix F provides detailed results from our testing of select financial web applications supporting Pegasys, including weaknesses in access controls and the resulting information and functionality that was placed at undue risk.

Access controls refer to the ability to selectively allow or deny a user's access to information and serve as the foundation of system security. Figure 2 below highlights three key elements of effective access controls: (1) identification, (2) authentication, and (3) authorization. Implementation of effective access controls begins with identification, the process of vetting and issuing a unique credential to an entity, such as a user ID. Authentication is the process of verifying the claimed identity of a user or device. Together, identification and authentication form the basis for restricting access to system functionality and information. Authorization focuses on the actions permitted of a user once identification and authentication have taken place. We found weaknesses in all three of these key elements with access controls for several financial web applications that store and process sensitive Pegasys data.

Figure 2. Three Key Elements of Effective Access Controls.



Identification. Identification refers to the process of vetting and issuing a unique credential to an entity,⁹ such as a user ID. It is generally considered to be the first component of an effective access control system. Several internal financial web applications supporting Pegasys that we tested did not require identification (or authentication) of users. These applications were available to anyone with access to GSA’s Intranet website. For example, as noted in Appendix F, the Reimbursable Work Authorization (RWA) search application was available through GSA’s Intranet site without the requirement for identification (or authentication), and we were able to obtain credit card numbers, expiration dates, and summary level building security weaknesses for several of GSA’s customers. Access to web applications to request the deletion of Pegasys forms and enter and/or modify expense accruals was restricted only by information commonly available on the Agency’s phone directory, including name, phone number, office symbol, and the assignment of a role in Pegasys. We were able to find an internal web page listing individuals across GSA by their Pegasys role, including administrators that perform all system administration functions including registering users, defining roles, and establishing approval types. Combining the information available on Pegasys users by their roles and information in the GSA phone directory could be used to circumvent the identification scheme used for these web applications. In particular, the inability to distinguish one user from another or link activities performed to specific users could impact the integrity of financial data as well as the OCFOs ability to meet data quality, analysis, and reporting goals with Pegasys.

⁹GSA-CIO-IT Security-01-07, IT Security Procedural Guide: Access Control, Revision 2, January 20, 2008.

Authentication. Authentication, the process of validating a claimed identity,¹⁰ represents the second critical component of an effective access control system. Several internal financial web applications storing and processing sensitive Pegasys information, including PII, utilized users' Lotus Notes e-mail passwords for authentication purposes. We found that anyone with a Lotus Notes e-mail account in GSA, including approximately 15,000 Associates and contractors, could access these applications. The GSA-CIO manages the Agency's Lotus Notes infrastructure, and has established agencywide settings for e-mail passwords, such that they are: (1) not required to be changed every 90 days, and (2) do not conform to requirements for password complexity, as required by GSA's IT Security Policy. The use of weak Lotus Notes based passwords could lead to a breakdown of authentication controls with web applications that store and process sensitive Pegasys data. As a result, anyone in the Agency with an e-mail account has had access to sensitive information, including PII, credit card numbers and expiration dates, and bank account and routing numbers for GSA customers and vendors. We found that this information was available on travel vouchers, invoices, and forms that were provided through the applications.

Authorization. The final major component of an effective access control system is authorization, or the actions permitted of a user once identification and authentication have occurred.¹¹ We tested seven of 47 web applications managed by the OCFO and found that authorization controls were not implemented to limit the actions of users to information and functionality based on the concept of least privilege, as required by GSA's IT Security Policy.¹² Least privilege refers to limiting user access only to needed information required to perform specific job functions/responsibilities. The majority of financial web applications we tested provided to each individual in GSA with a Lotus Notes e-mail account, or with access to the Agency's Intranet site, the same level of user permissions. For example, through the Pegasys Invoice Search application, any user in GSA with a Lotus Notes e-mail account could reject certain vendor invoices, submit receiving reports and vendor payment amounts, and obtain access to sensitive banking information and PII on GSA vendors and customers.

Sensitive Pegasys data has been placed at undue risk for disclosure through these access control weaknesses primarily because the OCFO, at the time of our review, had not evaluated the risks or necessary controls for web applications supporting Pegasys. Further, the OCFO has not identified what it considers to be sensitive data or the need for GSA S/SO/Rs and Agency customers to access such data in support of their financial management needs. GSA's IT Security Policy requires information systems to be operated in such a way that they run with the least amount of system privilege needed to perform a specific function and that system access be granted on a "need to know" basis. The policy notes that information systems must utilize proper identification and

¹⁰ GSA CIO-IT Security-01-07, IT Security Procedural Guide: Access Control, January 30, 2008.

¹¹ OMB M-04-04, "E-Authentication Guidance for Federal Agencies," December 16, 2003.

¹² GSA CIO P 2100.1D, GSA Information Technology (IT) Security Policy, June 21, 2007.

authentication protocols and access to PII shall be made available only to those individuals with a valid “need to know.” Further, OMB A-130, Appendix III, Security of Federal Automated Resources, requires that, for major applications (such as Pegasys), information that is shared must be protected appropriately, comparable to the protection provided when information is within the application. Significant weaknesses in identification, authentication, and authorization controls with financial web applications that store and process Pegasys data have impacted the OCFO’s ability to meet important data quality, financial analysis, and reporting goals with Pegasys.

Sensitive Pegasys Data Residing in Financial Web Applications Is Not Encrypted

Pegasys employs encryption to protect the confidentiality and integrity of sensitive information and transactions exchanged between users and the system. However, the majority of internal and external financial web applications that we tested were not employing encryption to prevent unauthorized individuals from accessing sensitive Pegasys data. Our testing of select financial web applications, as indicated in Appendix F, found that sensitive Pegasys information, including PII, was not always encrypted when being transferred within or outside of the GSA network. In addition, user IDs and passwords used to gain access to the web applications were not encrypted within GSA’s network. As a result, a third party could potentially review the traffic traversing GSA’s network and gain access to sensitive Pegasys information, including user IDs and passwords for web applications

Cryptography provides an important control mechanism to protect against intentional and accidental compromise or alteration of data. Cryptography is implemented using encryption, which can provide added confidentiality and integrity for sensitive data in addition to that offered by access controls by transforming sensitive information into an intelligible format for someone who is not authenticated or authorized to view such data. The GSA-CIO’s web application security guide¹³ recommends that web applications employ encryption for transmission of information wherever possible. The guide notes that sensitive information should not be stored in web applications without the use of encryption. Further, the National Security Agency recommends disabling protocols that do not encrypt information, such as user ID and password combinations, transmitted across the network. As noted earlier, a primary cause of weaknesses we have observed in financial web applications to which Pegasys shares information is that the OCFO had not, at the time of our review, carefully considered the risks with and necessary controls applicable to web applications as part of the certification and accreditation process for Pegasys. We believe that the OCFO should carefully consider the use of encryption to enhance confidentiality and integrity protections for sensitive Pegasys data.

¹³ GSA CIO-IT Security-07-35, IT Security Procedural Guide: Web Application Security, January 16, 2008.

Improvements Are Needed in the Pegasys Certification and Accreditation Process to Ensure that Risks and Controls for All System Interfaces and Sensitive Data Are Addressed

The C&A process for Pegasys has not ensured that risks with sensitive data and system interfaces have been assessed and necessary controls implemented. As a result, weaknesses in access controls and the lack of use of encryption for financial web-based applications supporting Pegasys, as previously discussed, have not been flagged. Specifically, while a C&A was completed for Pegasys in July of 2006, it did not include an assessment of risks or controls for web applications that interface with the system and that store sensitive financial and customer information.

Security certification and accreditation are important activities that support a risk management process and are integral parts in ensuring the implementation of necessary controls. Security certification is intended to determine the extent to which security controls are implemented correctly and operating as intended. Accreditation represents management's official decision to authorize operation of an information system and to explicitly accept the risk to agency operations based on the implementation of necessary controls. GSA's IT Security Policy requires that all systems be certified and accredited every three years and include a risk assessment and security plan completed in accordance with National Institute of Standards and Technology (NIST) guidance. NIST guidance notes that a risk assessment should analyze system interfaces and data criticality and sensitivity, and a security plan should address vulnerabilities with system interconnections and information sharing. The Pegasys risk assessment did not evaluate the threats and vulnerabilities associated with web applications that interface with Pegasys. The system security plan did not include processes and controls to ensure that Pegasys data shared with other web applications is appropriately protected. Improvements in the C&A process for Pegasys would help identify controls to ensure that risks with sensitive system data and functionality are mitigated.

We have kept the OCFO informed of information security weaknesses as part of this audit, and actions have been taken to strengthen specific security controls. Specifically, the OCFO has: (1) issued a statement of work to procure IT services to help secure its web-based and other financial applications/systems containing financially sensitive data and PII; (2) performed a review of PII information stored on web applications located at the Fort Worth, Texas Finance Center; (3) strengthened specific access controls; (4) begun encrypting sensitive information that is transmitted via web applications; and (5) completed a C&A of the CFO General Support System Local Area Network (LAN), which included certain web applications. While these actions by the OCFO represent a positive step forward, we believe that additional steps need to be taken to: (1) assess whether the use of web-based applications to support financial management services are aligned with OCFO's goals for Pegasys and the financial management architecture; (2) evaluate whether unauthorized access to sensitive data, including PII residing on financial web applications was obtained, and if so, the need to notify GSA customers accordingly; (3) work with GSA vendors and clients to define and identify sensitive data that needs to

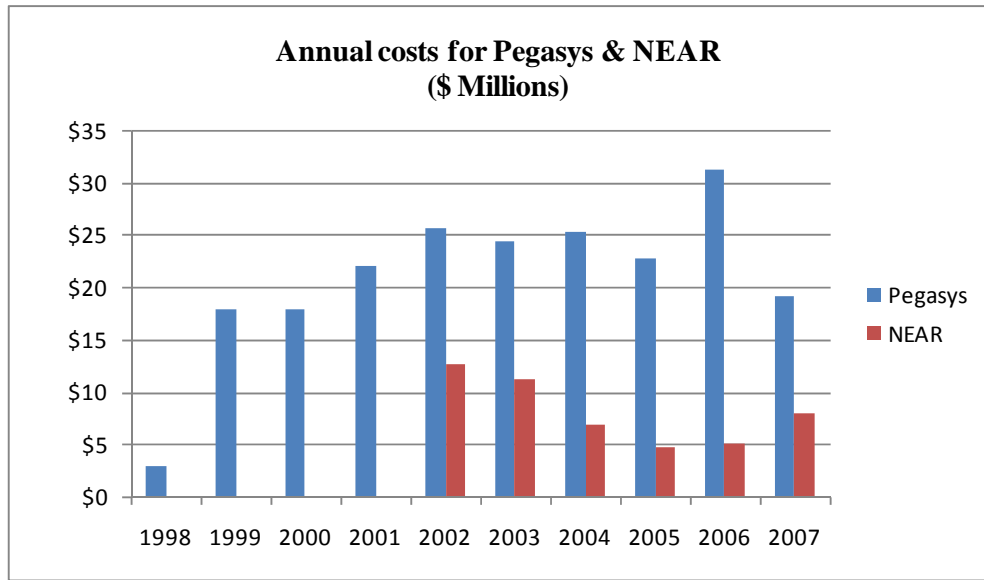
be protected; and (4) provide guidance to GSA vendors and clients as to what sensitive information should/should not be submitted to the Agency as part of transaction processing. Addressing security and privacy risks with sensitive data is critical to Pegasys' success and these steps, in conjunction with ongoing actions being taken to address our findings, will help the OCFO achieve its goals of reliable financial management services and timely and accurate financial analysis and reporting.

Consistent Use of Accounting Codes Is Needed to Record and Classify System Costs for Pegasys

The OCFO has established an accounting classification structure for coding transactions that provides for accumulation of cost expenditures at various levels of detail required for GSA management and for budget submission purposes. However, we found inconsistent use of accounting codes to record and classify system costs related to contractor support, hardware, and software. As a result, it is difficult to independently verify and account for reported lifecycle costs for Pegasys within the system itself. With total system lifecycle costs of approximately \$209 million, and important procurement activities underway to implement an integrated financial management system, it is important for the OCFO to ensure that Pegasys costs are appropriately recorded and classified through consistent use of the Agency's accounting classification structure. Since we reported this issue, the OCFO has taken actions to evaluate the classification and recording of Pegasys transactions and is in the process of taking corrective actions. Further, the OCFO has informed us that they have verified the accuracy of reported life cycle costs for Pegasys. To help ensure consistency in recording and classifying Pegasys costs, we recommend that the CFO: (1) periodically review system expenditures to ensure that recorded amounts are appropriately classified, (2) perform a thorough analysis of expenditures incurred to date to ensure that reported life cycle costs are accurate, and (3) develop procedures to ensure consistent recording and classification of Pegasys costs.

Pegasys is GSA's financial management system of record, and reported system costs incurred to date since project inception in 1998 are approximately \$209 million. As noted previously, significant financial management functionality remains in GSA's legacy mainframe based NEAR system, and since 2002, GSA has spent approximately \$48 million to maintain the system. Figure 3 below depicts reported annual costs for Pegasys since 1998 and costs to maintain NEAR since 2002. To ensure appropriate reporting and tracking of Pegasys costs, the OCFO has implemented an Earned Value Management System (EVMS) for Pegasys. The EVMS for Pegasys includes completion of "surveillance reviews" to ensure that project expenditures are in-line with cost and schedule performance tables as outlined in the OMB Exhibit 300. The effective use of EVMS for Pegasys, however, relies on accumulation of all system costs through consistent use of accounting codes to record and classify transactions.

Figure 3. Reported Annual Costs for Pegasys and NEAR*



*Annual dollar amounts shown for Pegasys include development and maintenance costs. Annual amounts for NEAR consist of only maintenance costs.

To accumulate system costs for Pegasys, the OCFO utilizes accounting classifications, which represent a system of coding financial transactions to accumulate expenditure data for use by GSA management and for budget submission purposes. To record system obligations and expenditures¹⁴ in Pegasys, several accounting data elements can be used, including the cost element, function code, and project code. The cost element is a further classification of an object class that identifies the items or services purchased by the Federal government. GSA and OMB object classes (rollups of cost element) can further define a type of expenditure. A function code is a five digit code that describes processes and projects to deliver goods and services within a business line. The OCFO has established function codes for such areas as software, hardware, systems development, and IT security. Project codes are alpha-numeric codes representing a means of collecting costs relative to a specific accounting purpose. The Pegasys system has a specific project code which, in conjunction with other codes, is used by the OCFO as a means to track system costs.

Our review of a sample of FY 2006 and FY 2007 Pegasys expenditures and obligations found inconsistent use of project and function codes to record and classify certain Pegasys costs for a subset of transactions we reviewed. Specifically, we identified expenditures for the Pegasys project that were not directly associated with the system through use of the correct Pegasys project code (B04). These costs were, instead,

¹⁴ An obligation is a legal liability of the government for the payment of goods and services rendered. An expenditure or outlay is a payment to liquidate an obligation and is generally equal to cash disbursements.

recorded under the B09 project code, which corresponds to “Indirect IT Costs.” Subsequently, the OCFO undertook a further analysis of life cycle costs associated with Pegasys, and found that approximately nine million dollars had not been correctly recorded and classified into the project code for the system. We also identified several instances, in our review of a sample of Pegasys transactions, where there was inconsistent use of function codes to record and classify Pegasys costs. Inconsistencies in recording and classifying Pegasys costs hinders the ability to independently verify reported system life cycle costs, and results in time consuming efforts to determine which costs are associated with the Pegasys project.

One primary cause of inconsistent use of project and function codes is that standard procedures to classify and record Pegasys costs, in accordance with GSA’s accounting classification structure, have not been developed. Pegasys was implemented in June 2000, and prior to FY 2003, system costs were recorded in NEAR. In FY 2003, Pegasys became GSA’s accounting system of record, and system costs since that time have been recorded in Pegasys. As a result of this transition, the OCFO configured the accounting classification structure used to record and classify Pegasys costs. While the OCFO has developed a crosswalk that enables verification of life cycle costs for Pegasys, standard procedures for recording and classifying system costs could provide for consistency and greater visibility of project costs.

OMB Circular A-123, Management Accountability and Control, states that: (1) transactions should be promptly recorded, properly classified and accounted for in order to prepare timely accounts and reliable financial and other reports, and (2) documentation for transactions, management controls, and other significant events must be clear and readily available for examination. OMB Circular A-127, Financial Management Systems, notes that Agency financial management systems shall be able to capture and produce financial information required to measure program performance, financial performance, and financial management performance as needed to support budgeting, program management, and financial statement presentation. In addition, the Government Accountability Office’s (GAO) Standards for Internal Control in the Federal Government stipulates that reliability of financial reporting, including reports on budget execution, financial statements, and other reports for internal and external, use is an integral component of an organization’s management that provides reasonable assurance that the objectives of the agency are being achieved. Consistent use of accounting codes to record and classify Pegasys costs could facilitate independent verification of reported life cycle costs, and help ensure that Pegasys is producing accurate information to measure system performance and benefits.

As the OCFO undertakes important procurements to migrate remaining NEAR functionality to Pegasys, such as accounts receivable and billing, it is important to consistently record and classify system expenditures within the Agency’s financial system of record. Subsequent to discussions with Pegasys officials on our preliminary findings, steps have been taken by the OCFO to verify reported life cycle costs for the system, including a detailed review of the recording and classification of system

transactions. To help ensure consistency in recording and classifying Pegasys costs, we recommend that the CFO: (1) periodically review system expenditures to ensure that recorded amounts are appropriately classified, (2) perform a thorough review of expenditures incurred to date to ensure that reported life cycle costs are accurate, and (3) develop procedures to ensure consistent recording and classification of Pegasys costs.

Conclusion

With the implementation of Pegasys in October 2002 and subsequent efforts undertaken to migrate functionality from GSA's legacy NEAR system, the OCFO has made progress in modernizing the Agency's financial systems environment to meet regulatory requirements and provide enhanced services to GSA and external customers. However, several steps remain to complete development of an integrated financial management system. GSA's fragmented financial systems environment, with duplicative systems and nonstandard business processes, has complicated and delayed OCFO efforts to integrate feeder systems, migrate remaining NEAR functionality to Pegasys, and meet strategic goals with the system. While efforts have been undertaken to assess the Pegasys implementation and provide management with information on changes that may be needed with the system, a broader review of whether the system is meeting all GSA and customer needs in a cost effective manner, or whether Pegasys can support remaining functionality in NEAR, such as accounts receivable and billing, has not been completed. Within this financial systems environment, the OCFO must address challenges to ensure the security and privacy of Pegasys data and transactions that are often scattered in multiple agency systems. Significant access control weaknesses with web applications that interface with, or process system information, have put sensitive Pegasys data, including personally identifiable information, at undue risk. Because costs are not consistently classified and recorded within Pegasys, the Agency's financial management system of record, it is difficult to independently verify reported life cycle cost figures of approximately \$209 million. With increasing system costs, and important procurement activities underway to migrate remaining NEAR functionality to the system, it is important that the OCFO ensure that project costs are consistently classified and recorded within the financial management system of record and reported to decision makers.

Recommendations

To successfully transition to the target financial management architecture and meet strategic goals related to timely and accurate financial reporting and analysis, reliable financial management systems, and delivery of world class financial management services to GSA and external customers, we recommend that the Chief Financial Officer:

1. Coordinate with GSA Services/Staff Offices/Regions (S/SO/Rs) to develop a detailed plan for migration of remaining NEAR functionality and integration of S/SO/R systems with Pegasys. This plan should:
 - a. Include milestones, performance measures, and key activities for migration and integration.
 - b. Address identified challenges and critical success factors with moving to the target financial management architecture.
 - c. Identify steps that need to be taken by GSA S/SO/R to assist in the migration of NEAR, including for the review and modification of system interfaces and business processes to ensure an integrated financial management system.
2. Ensure that system implementation review processes comprehensively consider how Pegasys is meeting Agency and customer needs, including:
 - a. Determining whether Pegasys can meet future GSA needs for remaining functionality in NEAR, including accounts receivable and billing.
 - b. Assessing the total cost of ownership for Pegasys and the OCFO's use of performance measures to determine how the system is meeting cost, quality, and schedule goals.
 - c. Analyzing previously reported lessons learned to determine the ongoing improvement and benefits gained from changes made to system operations, procedures, and/or management practices.
3. Work with GSA S/SO/Rs to improve security and privacy controls for sensitive Pegasys data, including:
 - a. Assessing whether the use of web-based applications in support of Pegasys is aligned with the OCFO's goals for the system and the financial management architecture.
 - b. Strengthening system certification and accreditation processes to ensure that risks with and controls for system interfaces, data criticality and sensitivity, and information sharing are addressed.
 - c. Defining and identifying sensitive Agency, customer, and vendor data maintained in Pegasys and related web applications and feeder systems.
 - d. Considering the use of encryption and/or masking of sensitive data that resides, or is transmitted to, web applications.

- e. Establishing appropriate access controls for web applications that interface with and/or process Pegasys data.
 - f. Performing a thorough assessment of the need to utilize social security numbers for vendor identification purposes in Pegasys.
 - g. Evaluating whether unauthorized access to sensitive Pegasys data, including PII residing on financial web applications, was obtained as a result of weaknesses in security and privacy controls. If so, determine if there is a need to notify GSA customers or vendors.
 - h. Providing guidance to GSA customers, vendors, and clients as to what sensitive information should/should not be submitted to the agency as part of transaction processing.
4. Ensure that Pegasys costs are appropriately classified, identifiable, and tracked within the Agency's financial accounting system of record, including:
- a. Analysis of system expenditures and obligations to ensure that recorded amounts are accurately classified and identifiable.
 - b. Review of expenditures incurred to date to ensure that reported life cycle costs are accurate.
 - c. Development of procedures to ensure appropriate classification and reporting of Pegasys costs.

Management Comments

The CFO concurred with all audit findings and recommendations. A copy of the CFOs comments are provided in their entirety as Appendix G.

Internal Controls

As discussed in the Objectives, Scope, and Methodology section of this report (Appendix A), our objectives were to gather information on the status of Pegasys and evaluate risks and potential improvements in two main areas: (1) development and maintenance of an integrated accounting and financial management system, and (2) system operations and response to management and user needs. We focused our review on steps taken by the OCFO to migrate functionality from NEAR to Pegasys; development of the financial management architecture; and challenges the OCFO faces with system development, operations, and maintenance efforts. Our review did not include a detailed analysis of all controls or capabilities within Pegasys or of the OCFO's contractual practices used in procuring, and making enhancements to, the system. We did not perform a detailed analysis of all financial web applications or review the accuracy and integrity of data in Pegasys and related Agency feeder systems.

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APPENDIX A - OBJECTIVES, SCOPE, AND METHODOLOGY

The objective of our review was to gather information on the status of Pegasys and evaluate risks and potential improvements in two main areas: (1) development and maintenance of an integrated accounting and financial management system, and (2) system operations and response to management and user needs. To accomplish our audit objective, we focused our review on progress made by the Office of the Chief Financial Officer (OCFO) in migrating functionality from the General Services Administration's (GSA's) legacy mainframe based National Electronic Accounting and Reporting (NEAR) system; development of a financial management architecture; and challenges faced by management with ongoing development and maintenance efforts and system operations. We met with various GSA officials from the OCFO including the Chief Financial Officer, the Director of Financial Management Systems, the Pegasys Project Manager, the Pegasys Information Systems Security Manager and other security officials, and Finance Center Staff from Regions 6 and 7. We also met with the PBS Chief Information Officer (CIO) and with Pegasys contractor staff responsible for help desk administration, system hosting, and operations and maintenance. Pegasys was also included with the Office of Inspector General's Fiscal Year 2007 annual Federal Information Security Management Act (FISMA) review. We issued an interim audit report on October 3, 2007 conveying the results of our FISMA review, including our assessment of implementation of managerial, operational, and technical controls established with GSA's Information Technology Security Program to address FISMA requirements for Pegasys.¹⁵

We reviewed key system documentation, including the Pegasys and OCFO financial system architecture; system integration and interface plans; test results; system performance measures; assessments of upgrade implementation; and Office of Management and Budget (OMB) exhibit 300's for Pegasys, NEAR, and NEAR migration. Additionally, we reviewed financial statement audits and electronic data processing testing performed by PriceWaterhouseCoopers, certification and accreditation documentation, SAS-70 reports, and the current and target architectures and transition plans. We performed queries of Pegasys and the Financial Management Information System (FMIS) to obtain system cost information and reviewed a sample of obligations and expenditures to determine whether transactions are appropriately identified, classified, and tracked. We also tested access controls for select financial web applications that interface with or process Pegasys data. We did not, however, perform a detailed analysis of all financial web applications nor review the accuracy and integrity of data in Pegasys and related Agency feeder systems.

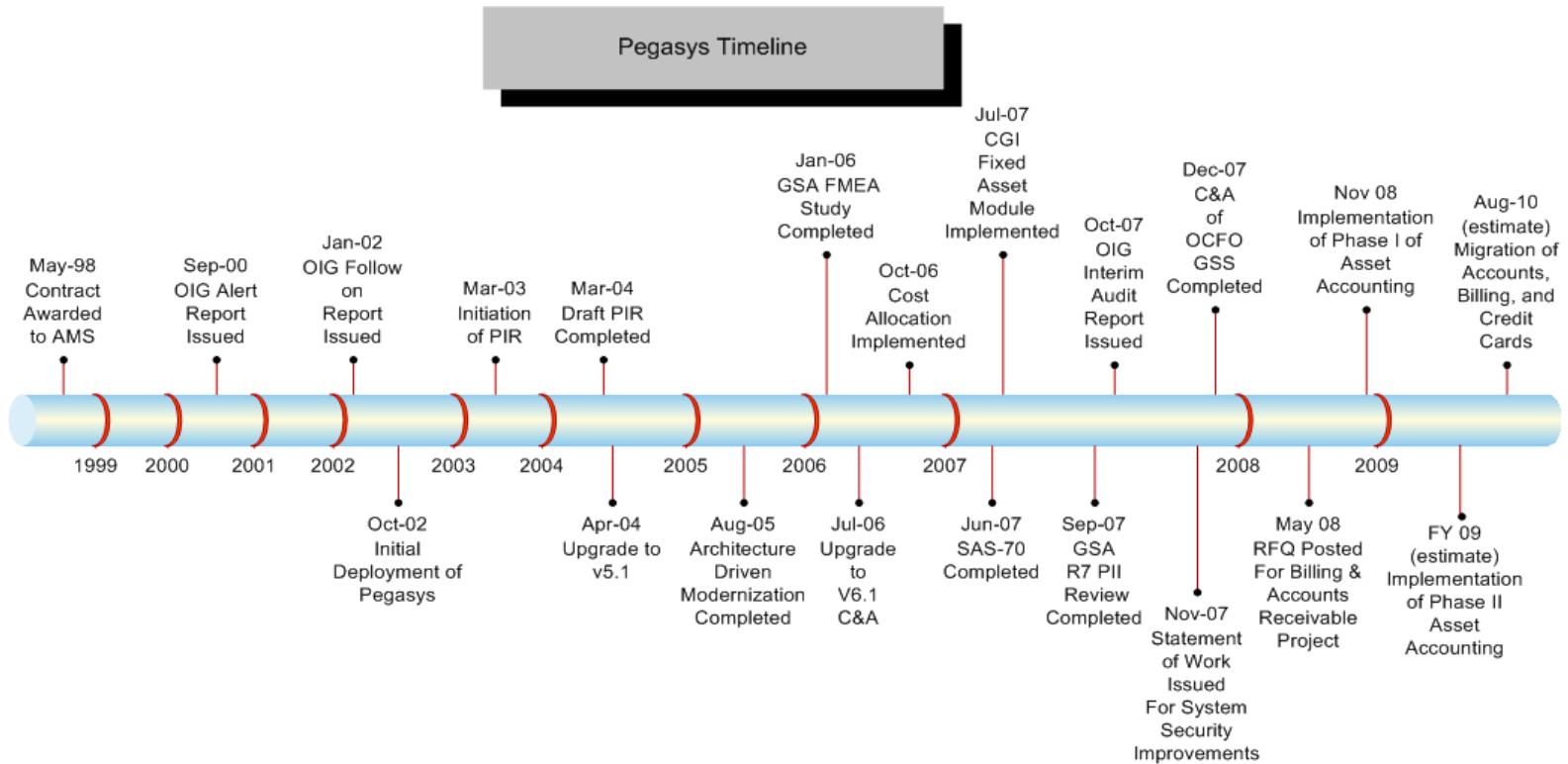
¹⁵ GSA-OIG Pegasys Security Controls Interim Audit Report, Report Number A070094/B/T/F08001, October 3, 2007.

We reviewed applicable statutes, regulations, policies and criteria such as: the Federal Managers Financial Integrity Act of 1982, September 8, 1982; the Chief Financial Officers Act of 1990; the Federal Financial Management Improvement Act of 1996; the Clinger-Cohen Act of 1996; OMB Circular A-123, Management Accountability and Control, Revised June 21, 1995; OMB Circular A-127, Financial Management Systems, Revised July 23, 1993; OMB Circular A-11, Preparation, Submission and Execution of the Budget, Revised November 2, 2005; OMB Circular A-130, Appendix III, Security of Federal Automated Information Resources, Revised November 2000; the Government Accountability Office's (GAO) Standards for Internal Control in the Federal Government, GAO/AIMD-00-21.3.1, November 1999; the Office of Federal Financial Management, Core Financial System Requirements, January 2006; GSA Order, CIO P 2100.1D, GSA Information Technology (IT) Security Policy, June 21, 2007; GSA Order, CIO 2135.2, IT Capital Planning and Investment Control, August 2004; GSA IT Capital Planning and Investment Control Guide, August 2002; OMB Capital Programming Guide, June 2006; and the National Institute of Standards and Technology Federal Information Processing Standards Publications and Special Publication 800 Series security guidelines.

We conducted this performance audit work in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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APPENDIX B - TIMELINE OF KEY EVENTS AND MILESTONES FOR PEGASYS



Detailed Timeline of Key Events and Milestones for Pegasys

Date	Event	Description
May 1998	Contract to procure Pegasys Awarded to American Management Systems, Inc.	The Office of the Chief Financial Officer (OCFO) contracted with CGI American Management Systems, Inc. (CGI-AMS) to procure its commercial-off-the-shelf (COTS) product, CGI Momentum Financials (Momentum), to be used as the basis for the General Services Administration's (GSA) new enterprise-wide accounting and financial management system, Pegasys.
September 2000	Office of Inspector General Alert Report on the Pegasys Development Effort	The Office of Inspector General (OIG) issued an alert report on the Pegasys development effort finding that (1) only a portion of one of four planned deployment phases had been completed and the work necessary to complete the entire software modification and systems integration effort was still being defined; (2) the OCFO was reassessing the development tasks needed to incorporate unique GSA requirements into the modified Momentum product and re-scoping its strategy for developing core financial management functions that could not be provided by Momentum; (3) since 1999, the Pegasys development schedule had grown from 3 to 6 years, and estimated total development and life cycle costs had increased from \$34 million to \$134 million; (4) the OCFO needed to ensure it was following structured development and integration practices even when implementing a COTS product as significant modifications to that product were being made; (5) the current development effort lacked project plans containing measurable milestones and other control mechanisms to effectively monitor and track project progress and accurately estimate the scope and cost of remaining developmental work; and (6) the OCFO needed to ensure that the modifications would meet federal financial management system requirements.
January 2002	Office of Inspector General Follow on Report on the Pegasys Development Effort	The OIG conducted a follow on review of Pegasys focusing on the current development effort and technical challenges GSA faces in implementing the system. The report highlighted that: (1) NEAR would continue to perform key accounting functions and many of Pegasys' original goals may be unattainable; (2) a vision for a fully integrated financial management system was needed and gaps in system functionality remained largely undefined; (3) key financial functions were not supported by the current design; and (4) coordination of GSA Service and Staff Office integration efforts was key to successful implementation of Pegasys.

Date	Event	Description
October 2002	Deployment of Pegasys	Pegasys became GSA's financial system of record with the transfer of budgeting, procurement, accounts payable, disbursements, and standard general ledger functions from NEAR. Billing, accounts receivables, cost allocation, and asset management were still being performed by NEAR.
March 2003	Initiation of a Post Implementation Review (PIR)	As part of GSA's Independent Verification and Validation (IV&V) services for Pegasys, the Office of the Chief Financial Officer initiated a PIR to provide an assessment of the system's implementation.
May 2003	Certification & Accreditation (C&A)	C&A was first completed for the Pegasys system.
March 2004	Draft PIR Completed	The findings from the PIR initiated in 2003 were issued in a draft report and included the following: (1) NEAR continues to perform financial functionality related to cost allocation, billings, and accounts receivables; (2) the scope of the Pegasys project was initially underestimated; (3) there is a need for comprehensive testing and tracking of cost, schedule, and quality through metrics; and (4) there is a need to improve release and configuration management.
April 2004	Pegasys Upgraded to Version 5.1	Pegasys was upgraded to version 5.1, which provided numerous enhancements including improved functional capabilities (e.g., accounts receivable functions that included an automated Intra-Governmental Payment and Collection (IPAC) system interface, cost allocation improvements and enhancements), support for external reports, and self-service modules for external vendors.
August 2005	Completion of Architecture Driven Modernization (ADM) Report	As part of OCFO's Financial Management Enterprise Architecture (FMEA) project, the ADM report included an analysis of the OCFO's existing financial systems environment, including a technical and functional analysis of NEAR. The ADM report noted that several GSA units perform overlapping functions, which are implemented in systems that are spread across these business units.

Date	Event	Description
January 2006	Completion of GSA FMEA study	The Logistics Management Institute (LMI) completed its FMEA report which included development of the current and target OCFO architecture. Included in the report was an implementation road map for the OCFO to fully migrate from NEAR to Pegasys. The report highlighted issues with the current financial systems architecture including: (1) both the data and business process architecture are redundantly defined and fragmented across Pegasys, NEAR, and various feeder systems; (2) data are reentered multiple times, increasing the risk and costs of data inconsistencies; (3) reconciliation is done manually and reporting is not standard; and (5) the OCFO system portfolio is rigid and contains “bolt-on” solutions, or modules, built around the original NEAR system, thus making integration with Pegasys difficult.
July 2006	Upgrade to Version 6.1.2	Pegasys was upgraded to version 6.1.2, which transitioned the system to a web-based platform. The upgrade provided new cost allocation functionality and enhanced external reporting and user query capabilities.
	Pegasys Certification & Accreditation (C&A)	An updated C&A, including a risk assessment, security plan, and security test and evaluation report, was completed for the Pegasys system.
October 2006	Cost Allocation Project Completed.	The OCFO completed the migration of Cost Allocation from NEAR to Pegasys.
June 2007	Completion of a SAS-70 for Pegasys	PriceWaterHouseCoopers (PWC) completed a SAS-70 review of Pegasys, which included a review of control objectives identified by the OCFO in the following areas: (1) entity-wide security program planning and management; (2) access controls; (3) application software development and change control; (4) systems software; (5) segregation of duties, authorization controls; (6) completeness controls; (7) accuracy controls; and (8) service continuity. PWC noted “no relevant exceptions” in these eight areas and also that, in their opinion, the controls that were tested were operating with sufficient effectiveness to provide reasonable, but not absolute, assurance that the control objectives were achieved during the period from July 1, 2006 to June 30, 2007.

Date	Event	Description
June 2007	Second Post Implementation Review Report Issued	The OCFO completed an updated PIR for Pegasys covering versions 5.1.3 to 6.1.4. The PIR was primarily based on a user survey and key findings included (1) the need for Pegasys to interface with other critical systems, such as the Central Contract Registration (CCR) system, Comprizon.Suite, and Federal Procurement Data System-Next Generation (FPDS-NG) system; (2) overall user satisfaction was down slightly from 2004; and (3) many users find Pegasys functions and features to be complicated.
	First Stage of Requirements Gathering for Migration of Accounts Receivable and Billing from NEAR Completed	The OCFO worked with GSA's Finance Centers, the Office of Finance, and interfacing system owners to complete the first phase of requirements gathering for the migration of accounts receivable and billing functionality from NEAR.
	Accounts Receivable/Billing Gap Analysis Awarded to CGI-AMS	The OCFO awarded a contract to CGI-AMS to compare GSA's accounts receivable/billing requirements against the capabilities offered by various COTS packages. This analysis is to serve as a baseline for determining future contracting actions to acquire an accounts receivable and billing solution.
July 2007	Contract Awarded to CGI-AMS for Implementation of the Fixed Assets Module	The OCFO awarded a contract to CGI-AMS to implement asset accounting, currently performed in NEAR, with Pegasys' fixed assets module.
September 2007	GSA Greater Southwest Finance Center (Region 7) Personally Identifiable Information (PII) Review	OCFO initiates a PII review of several web applications in Region 7 that support Pegasys. The review confirmed OIG findings regarding weaknesses with access controls, including authentication and authorization.

Date	Event	Description
October 2007	Office of Inspector General, <u>Interim Audit Report on Pegasys Security Controls</u> Issued	Pegasys was selected for review as part of the OIG's FY 2007 Federal Information Security Management Act Review, and this interim audit report included results from the OIGs assessment of management, operational, and technical controls for Pegasys, including controls established with GSA's IT Security Program. The report identified instances where controls could be strengthened in five of eighteen control areas tested including (1) awareness and training, (2) configuration management, (3) system and services acquisition, (4) systems and communications protection, and (5) web application security.
November 2007	Statement of Work (SOW) for the Financial Systems Security Improvement Project Issued	Based on OIG findings and PII review completed in September 2007, the OCFO issued a SOW to procure to procure information technology (IT) security services to improve the security of its web-based and other financial applications/systems containing financially sensitive data and PII.
December 2007	Certification and Accreditation (C&A) of OCFO General Support System	An updated C&A was performed for the OCFO general support system, including an analysis of risks and controls for several web applications supporting Pegasys.
May 2008	Request for Quotation (RFQ) for Billing and Accounts Receivable (BAAR) Project	The OCFO posted a RFQ to gather information on migrating billing and accounts receivable functionality from NEAR.
November 2008	Implementation of Phase I of Asset Accounting	Implementation of Phase I of Asset Accounting is scheduled for November 2008.
FY 2009 (est.)	Implementation of Phase II of Asset Accounting in Pegasys	The goal of the Asset Accounting project is to migrate all asset accounting functionality that resides in NEAR, which includes the Real Property Accounting and Depreciation System (RPADS), and the Transportation Interface and Reporting System (TIRES). The OCFO plan to accomplish this in two phases. Phase I includes the building of a Service Oriented Architecture interface to replace the interfaces with NEAR. Phase II involves enhancement, configuration, and implementation of the Pegasys Fixed Assets Module.
August 2010 (est.)	Migration of Accounts Receivable, Billing, credit cards accounts payable, and inventory control from NEAR to Pegasys.	The OCFO has identified 2010 as the year in which remaining NEAR functionality will be transitioned to Pegasys.

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APPENDIX C - FINANCIAL SYSTEMS ENVIRONMENT

Due to the sensitive nature of information contained in this appendix, only reports provided to system officials in the Office of the Chief Financial Officer and Office of the Chief Information Officer contain a detailed diagram of GSA's financial systems environment. Requests for details of the financial systems environment should be referred to Jennifer Klimes, Audit Manager, or Gwendolyn McGowan, Deputy Assistant Inspector General for IT Audits.

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**APPENDIX D - SUMMARY OF RESULTS FROM POST IMPLEMENTATION
REVIEWS CONDUCTED FOR PEGASYS**

March 2004 Draft Post Implementation Review Report¹⁶

Issues Identified	Recommended Action
Post-implementation O&M costs Need to be Managed: Project costs during fiscal year 2003 (FY03), the first year of O&M, exceeded estimates made in February 2001 by 16%, primary cause appears to be excessive corrective maintenance.	Track cost and schedule, but manage quality, develop a plan to reduce O&M costs and effort by reducing the amount of corrective maintenance.
Need for comprehensive testing: Testing of commercial off-the shelf (COTS) upgrades and major releases could be more effective. During FY03, approximately 65% of all Pegasys incidents reports were discovered in production, which results in additional cost to find and fix.	1 – Use comprehensive acceptance and regression testing to find and resolve problems before all Pegasys builds, releases, and upgrades. Develop a detailed test plan. 2 – Track open, closed, and fixed incidents reports. Set goals for quality and develop a plan to achieve those goals.
Track cost, schedule, and quality through Earned Value and metrics: Pegasys is virtually 100% schedule driven estimates are often exceeded (or re-baselined) and product quality is not well defined or measured by the project.	1 – Establish an Earned Value Management System (EVMS), including criteria for work performed. 2 – Use metrics to track and manage process improvement and product quality. 3 – Conduct root-cause analysis to find cause of cost or schedule overruns.
Improved release management and configuration management (CM): Frequent software builds and patches necessitate the need for strong CM and release management to control changes to the production environment.	1 – Implement more effective CM and release management for all Pegasys COTS upgrades, releases, builds, and patches. 2 – Implement more effective CM and releases management across all OCFO projects.
Plan early for independent verification and validation (IV&V) in the NEAR Replacement effort: An IV&V program needs to be established during the planning phase, not after design and development are already underway. Pegasys did not start an IV&V program until Phase 1 and the first COTS upgrade were already implemented.	1 – Include IV&V processes in the planning and acquisition phase of all projects. 2 – Use a cost-benefit model to determine the amount of funding needed for the optimum level of IV&V and calculate the return on investment (ROI).
Sufficiency of Pegasys features: About 61 percent of all users surveyed found all or most of the features they need to be present on Pegasys. About 7 percent of users surveyed indicate that many features they need are missing.	The Pegasys Users Survey asked which additional feature would be useful and which features were expected. Use the comments in a Appendix D to develop a plan to evaluates the Pegasys features.

¹⁶ GSA's IV&V Services for the Pegasys Project Maintenance Phase, Post-implementation Review Report, Review Draft, March 26, 2004.

June 2007 Post Implementation Review Report¹⁷

Issues Identified	Recommended Actions
Experienced, frequent users with financial backgrounds and roles find Pegasys is easier to use than new users, occasional users, and those without financial roles or backgrounds.	Tailor training to focus on the needs of the new user, occasional user, and those who have non-financial roles (for example, Contracting Officers).
Although 70% of the respondents view the Help Desk as being helpful, users express a need for more 'live' and 'up-to-date' support.	Ensure Help Desk personnel all have up-to-date information and are available to take phone calls. Note that implementation of some of the other findings may lessen the dependency on the Help Desk.
Users see many of the Pegasys functions and features as being overly complicated.	Develop "workflows" to see if processes and procedures needed to complete tasks can be streamlined.
Pegasys quality attributes, while generally good, still need improvement in the areas of look-and-feel, response time, and error handling.	Develop a plan to improve look-and-feel, response time, and error handling.
Overall Pegasys user satisfaction is down slightly from 2004 and upgrades show mixed improvements.	Provide better communication to the users as to what will be changed in upgrades and major releases.
Pegasys needs to interface with other critical systems, such as the Central Contract Registration (CCR) system, Comprizon.Suite, and the Federal Procurement Data System-Next Generation (FPDS-NG).	Determine interface needs.
User comments show the need for more comprehensive testing, especially for upgrades and other major releases.	Develop a more comprehensive test plan to supplement the existing procedures when performing acceptance and regression testing on each upgrade and major release.

¹⁷ GSA's IV&V Services for the Pegasys Project Maintenance Phase, Second Post-implementation Review Report, June 29, 2007.

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APPENDIX E - SELECT WEB APPLICATIONS SUPPORTING PEGASYS

The table below provides a description of 11 of 47 web applications managed by the OCFO. “Internal” access refers to web applications that are accessible only within GSA’s internal network, whereas, “external” web applications are available to GSA customers via the Internet.

Financial Web Application	Description	Type of Access	
		Internal	External
Pegasys Open Items Review	Allows GSA Services and Staff Offices to perform a quarterly review of open items via the web to verify that the obligations reported to the Department of Treasury and OMB agree with supporting agency records.	<input checked="" type="checkbox"/>	
Pegasys Payment Search ¹⁸	Allows individuals to see the status of past and pending Pegasys payments including check/EFT dates.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pegasys Forms Delete	This application allows authorized Pegasys users to request the deletion of forms in Pegasys.	<input checked="" type="checkbox"/>	
Pegasys Online	Used to post and make available Pegasys reports to users.	<input checked="" type="checkbox"/>	
RWA Customer Search	Allows client agencies to search for Reimbursable Work Authorizations and view the actual documents.		<input checked="" type="checkbox"/>
Invoice Search	This application enables users to view a current list of outstanding and paid invoices in the VITAP and Pegasys systems, prepare and submit electronic receiving reports, view images of invoices, and reject invalid invoices.	<input checked="" type="checkbox"/>	
Purchase Order (PO) Search	This application allows authorized GSA associates to search to search Purchase Orders in VITAP and Pegasys.	<input checked="" type="checkbox"/>	
BART Accounts Receivable Search	Allows users to search for Billed Accounts Receivable Tracking (BART) information via the web.	<input checked="" type="checkbox"/>	
Lease Year End Accruals	Allows authorized GSA field offices to enter year end lease accruals.	<input checked="" type="checkbox"/>	
FTS Expense Accruals	Allows authorized GSA field offices to enter expense accruals for FTS documents.	<input checked="" type="checkbox"/>	
BillView	Allows users to view statements and invoices generated by GSA billings via the web.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

¹⁸ At the time of our testing, Pegasys Payment Search was available externally from the Internet. The OCFO has since taken actions to block access to Pegasys Payment Search from the Internet.

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**APPENDIX F - ACCESS CONTROL WEAKNESSES WITH SELECTED
WEB APPLICATIONS SUPPORTING PEGASYS**

Due to the sensitive nature of information contained in this appendix, only reports provided to system officials in the Office of the Chief Financial Officer and Office of the Chief Information Officer contain detailed results of our testing of access controls for selected web applications supporting Pegasys. Requests for details of test results should be referred to Jennifer Klimes, Audit Manager, or Gwendolyn McGowan, Deputy Assistant Inspector General for IT Audits.

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APPENDIX G - GSA CFO'S RESPONSE TO THE DRAFT REPORT



GSA Office of the Chief Financial Officer

June 18, 2008

MEMORANDUM FOR GWENDOLYN A. MCGOWAN
DEPUTY ASSISTANT INSPECTOR GENERAL FOR
INFORMATION TECHNOLOGY AUDITS (JA-T)

FROM: KATHLEEN M. TURCO *Kathleen M. Turco*
CHIEF FINANCIAL OFFICER (B)

SUBJECT: Comments Re: Draft OIG Audit Report Number A070094-
Work Remains In Implementing A Fully Integrated
Pegasys Financial Management System

Thank you for the opportunity to review the subject draft audit report on Pegasys. We concur with all audit findings and recommendations regarding this audit. Attached is the final OCFO response regarding these findings and recommendations. We respectfully request that our attached comments be included fully within the "Management Comments" section of the final audit report.

We appreciate the efforts of your staff in conducting this audit and wish to commend them for their efforts. We plan on developing a more detailed set of action plans for each final audit report recommendations subsequent to the issuance of the final audit report.

Thanks again for working with my staff to provide a comprehensive review of the Pegasys financial management system.

Attachment

U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405-0002
www.gsa.gov

Office of the Chief Financial Officer
Response to OIG Draft Audit Report No. A070094/--
Work Remains in Implementing a Fully Integrated Pegasys Financial
Management System
June 13, 2008

The CFO extends its appreciation to the OIG staff for conducting a thorough and complete audit of the Pegasys Financial Management System. The Office of Financial Management Systems is particularly appreciative of the OIG's extensive efforts to revise its preliminary draft audit report to more fully reflect and encapsulate our comments regarding the report's contents and recommendations. As a result of the OIG's efforts, we believe the draft report is more fully "balanced", objective, and relevant. We remain strongly committed to working more closely with the OIG for the benefit of the agency and its various stakeholders. The following comments address our responses and additional comments regarding each draft report recommendation.

Recommendation 1: Need for Detailed NEAR Migration Plan and Additional Coordination with the Services and Staff Offices.

Response: We concur fully with this recommendation and each of its three sub-parts. As noted in the draft report, we are working with PBS to develop a real-time interface between Comprizon.Suite and Pegasys and we are seeking to work with others within GSA to develop appropriate interfaces between their systems and Pegasys, as well. We believe that the Services and Staff Offices (S/SOs) need to be more fully and actively engaged with the OCFO and held accountable to support the OCFO's ongoing efforts to improve these interfaces. We also would like to see an additional recommendation added to this report that recommends an increased commitment on the part of the S/SOs to help the OCFO achieve the increased standardization of business processes across GSA and the GSA-wide Financial Management Enterprise Architecture. We continue to believe the OCFO should not be the only organization that is held responsible for accomplishing this task. Rather, NEAR Replacement will require considerable actions and engagement by GSA's Services and Staff Offices, who should also be held accountable for achieving progress in this area.

With regard to NEAR migration, The OCFO has already sought to directly engage the S/SOs in planning for the eventual replacement of the NEAR system and its remaining functionality. Accordingly, the OCFO is implementing an Integrated Master Plan (IMP) to more fully address this recommendation. The OCFO has also base-lined 6 IT projects, prepared a financial systems strategic plan, and will develop project plans to migrate the billing, accounts receivable, asset accounting, CAPS (credit card accounts payable) and FAIM (inventory control) functionalities off of the NEAR system.

We also wish to provide your Office with the following updates regarding the asset accounting and billing and accounts receivable project discussed on pages 6 and 7 of the draft audit report. We suggest that the following changes be incorporated within the final audit report.

The Asset Accounting Project

The goal of the asset accounting project is to move all asset accounting functionality that resides in the National Electronic Accounting and Reporting (NEAR) system to the Pegasys Fixed Assets Module. The project consists of two main components – developing a Service Oriented Architecture (SOA) enabled interface to replace current interfaces residing in NEAR and enhancing, configuring, and implementing the Pegasys Fixed Assets Module. The contract to develop the SOA interface was originally awarded to Model Driven Solutions (MDS) in the spring of 2007. MDS delivered the final deliverable for Phase 1 on March 4, 2008. After six weeks of unsuccessful testing, the OCFO conducted an independent review to determine if the solution, in its current state, warrants additional resources to proceed forward with implementation or should be redirected based upon other alternatives. Based on that review's findings and recommendations, the OCFO has elected to halt development and testing of the current FMEA-C solution, and to accept the review's recommendation to scale back and remove all non-asset accounting functionality. Currently, an acquisition plan for SOA development has been written and is undergoing a "peer review" before it is sent to the contracting officer. It is anticipated that a contract will be awarded later this fiscal year. Also, CGI-Federal was awarded the contract to enhance, configure, and implement the Pegasys Fixed Asset Module and the OCFO plans to implement this module in phases, with Phase I implementation scheduled for November 2008 and Phase II implementation scheduled during Fiscal Year 2009.

The Billing and Accounts Receivable Project

The Billing and Accounts Receivable Project (BAAR) is the largest of the four projects to migrate NEAR functionality to Pegasys, and successful implementation is essential to the OCFO being able to migrate to the target financial architecture. The OCFO has indicated that they have identified specific activities to address risk mitigation, change management, and communications management. These activities include coordination with S/SO/R and Finance Center staff in product demos and in requirements development, providing biweekly updates to the GSA CFO, working with S/SO/R appointed liaisons for the project, visiting Finance Centers to review current procedures and systems, developing a preliminary risk management plan, and having a Request for Quotation (RFQ) reviewed by Finance Center and Office of Finance (BC) staff. The OCFO has also identified future activities in these areas, including providing the S/SO/R and Finance Centers with project status updates, developing Contract Line Item Numbers (CLINs) for communications management and training, including S/SO/Rs and Finance Center staff in contract evaluation panels, working with the services to develop the operational capabilities

demonstration scenarios, and discussing changes in processes with customers. The OCFO has drafted a RFQ as an initial step toward gathering information on how best to migrate this functionality from NEAR into Pegasys or another solution that would interface with Pegasys. The RFQ was posted on May 30, 2008 and is for a base period of three years and one two-year option period.

Recommendation 2: Improve Post-Implementation Review Processes to Consider How Pegasys is Meeting Agency and Customer Needs.

Response: We concur fully with this recommendation and each of its three sub-parts. We will take appropriate actions to include the scope and extent of these recommendations in planning and conducting future Pegasys post-implementation reviews. In addition, the OCFO has formed a new Executive Control Board to provide a formal mechanism for Pegasys customers to express their needs. We also plan to utilize the results of the FISC/FISIO customer survey to improve the Pegasys systems, as appropriate. We will continue to focus on building quality into the requirements stage of the system development life cycle process, institute more disciplined project management planning and monitoring practices, and leverage the latter practices to improve OCFO systems development and implementation efforts. By placing more attention on the front-end of the systems development life-cycle, we plan to address systems issues in a more cost-effective and proactive manner, as opposed to relying solely on trying to address such issues on a more costly, after-the-fact basis.

Recommendation 3: Improve Security and Privacy Controls for Sensitive Pegasys Data

Response: We concur with this recommendation and all of its eight sub-parts. As recommended, we will perform an assessment to determine whether the use of web-based applications in support of Pegasys aligns with OCFO goals and the targeted financial management enterprise architecture for GSA. We will also endeavor to strengthen our Certification and Accreditation review process, and have already taken action to identify sensitive data maintained in Pegasys and related web applications and feeder systems and initiated actions to better protect this information. Specific actions in this regard include: 1) engaging the services of a highly specialized contractor to define and identify personally identifiable information and financially sensitive information in OCFO applications, 2) identifying a list of needed system control improvements; 3) evaluating the most cost-effective automated system solution to improve data access controls; and 4) developing a set of prioritized actions that will address all security issues identified in action 2) above. We also concur with the needs to: 1) conduct an analysis to assess the need to continue using social security numbers for some vendors within the Pegasys system; and 2) provide guidance to GSA customers, vendors, and clients as to what sensitive information should

and should not be submitted to the agency as part of financial transaction processing. We will take future corrective actions in these areas.

Due to certain control weaknesses involving some of our web-based applications, we have taken several short-term actions to better protect PII and sensitive financial information. These actions included: 1) implementing interim authentication controls requiring users to logon to access certain applications; 2) masking of PII; 3) removing access to scanned images containing PII; and 4) adding encryption for the communication link between the user and applications. We also promptly notified GSA's Privacy Act Committee after the web application-related control weaknesses were identified to determine whether any unauthorized breaches occurred. The Committee concluded that no PII breach had occurred at that time. Since last year, no known breaches involving PII have been identified or reported to this Office. Because we lack the resources to meaningfully evaluate whether unauthorized access to sensitive Pegasys data has ever occurred, we would welcome any assistance the OIG can offer in this area. We believe that our resources should remain devoted toward improving our overall IT security posture for the particular web-based applications at this time.

For the longer term, our contractor has already completed a thorough review of IT security controls for our web-based applications in Kansas City, Fort Worth and Central Office and has identified a list of needed system control improvements. The contractor is currently evaluating alternative solutions to effect these improvements and has preliminarily concluded that the OCFO should implement a common user account management, authentication, and access control infrastructure. This new infrastructure would offer the advantages of standardizing and strengthening IT security controls for all web-based OCFO applications. The contractor is currently researching and evaluating alternative technical solutions to accomplish these goals, and is planning to recommend a specific technical solution for GSA in July. The contractor is also tasked to help us implement the solution of our choice, following a comprehensive cost-benefit analysis of the most feasible and cost-effective alternative solution. We believe that the final technical solution, once implemented, will measurably improve the IT security controls for our web-based applications and fully address the primary security-related recommendations contained in this audit report.

Recommendation 4: Need to Improve the Classification and Reporting of Pegasys Obligations and Expenditures

Response: We concur fully with this recommendation and its three sub-parts. We have already taken action to conduct an independent analysis of Pegasys system expenditures and obligations and identified some additional coding and classification errors. We initiated appropriate actions to correct all errors noted. We have also reviewed all Pegasys expenditures incurred to date to ensure the accuracy of system life cycle costs. To minimize future errors of this sort, our

Office of the Controller, working with representatives from the Office of Financial Management Systems, will develop and issue better procedures to ensure appropriate classification and reporting of Pegasys costs and the Office of the Controller has been tasked by the CFO to review such classifications and reporting for Pegasys, effective immediately. We anticipate that these actions will minimize future instances of the sort identified in this audit report.

Conclusion

Again, we wish to commend the Office of Inspector General for a well-written draft report that fairly presents the results of a comprehensive audit on the Pegasys system. On our part, we pledge to continue the hard work of addressing the issues raised by the audit and working toward a more fully integrated, effective, and secure system that addresses the needs of our customers and GSA. We will also endeavor to more effectively classify and report Pegasys-related costs in accordance with best practices.

WORK REMAINS IN IMPLEMENTING
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FINANCIAL MANAGEMENT SYSTEM
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APPENDIX H – REPORT DISTRIBUTION

With Appendices C and F

Chief Financial Officer, Office of the Chief Financial Officer (B)3
Chief Information Officer, Office of the Chief Information Officer (I)2

Without Appendices C and F

Chief Human Capital Officer, Office of the Chief Human Capital Officer (C)1
GSA Privacy Officer (CIB)1
Commissioner, Federal Acquisition Service (Q)1
Commissioner, Public Buildings Service (P).....1
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Administration and Data Systems Staff (JA-S)1
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Deputy Assistant Inspector General for Real Property Audits (JA-R)1
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