Final Audit Report No. 105-2010

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NATIONAL RAILROAD PASSENGER CORPORATION OFFICE OF INSPECTOR GENERAL 10 G STREET, N.E. WASHINGTON, DC 20002 Memo

Date January 14, 2011
To DJ Stadtler, CFO

Ed Trainor, CIO

From David R. Warren, Assistant IG, Audit

Department Office of Inspector General

Strategic Asset Management Program

Controls Design Is Generally Sound, But

Subject Improvements Can Be Made

Report No. 105-2010

cc Jeff Martin, Chief Logistics Officer

Frank Vacca, Chief Engineer

Mario Bergeron, CMO

Kay Duggan, GIO-ERP

Don Ford, Senior ERP Director

Jessica Scritchfield, Internal Controls Officer

Enclosed is our final report on control design issues that came to our attention while we were conducting the audit of Strategic Asset Management (SAM) program's implementation efforts. Our audit objective was to review SAM program's internal controls design to determine whether it adequately identified and mitigated internal control risks.

Management's response from the Amtrak Chief Financial Officer to our draft report is in the attached Exhibit E. Management agreed with all our recommendations and provided planned actions to implement our recommendations.

Thank you for your cooperation during the course of this audit. If you have any questions, you can contact Vipul Doshi, Senior Director, at (202) 906-4619 or by email at doshiv@amtrak.com, or me at (202) 906-4742 or by email at david.warren@amtrak.com.

David R. Warren

Assistant Inspector General for Audit

Attachment

Report No. 105-2010

EXECUTIVE SUMMARY

WHY WE CONDUCTED THIS AUDIT

Amtrak's Strategic Asset Management (SAM) program is estimated to cost as much as \$380 million. The goal is to transform key business operations such as finance and logistics. SAM will replace or enhance many manual and automated systems.

Given SAM's cost and impact on business operations, the OIG reviewed the SAM program's internal controls design to determine whether it adequately identified and mitigated internal control risks.

What OIG Found

The design of the automated controls to mitigate financial risks in the first SAM segment (R1a) to be implemented is generally sound. However, we found gaps in the design of the controls that do not fully mitigate the financial and operational risks. These gaps put Amtrak at risk of not fully realizing the potential benefits from SAM. In particular, a lack of adequate controls can lead to inaccurate financial reporting, vulnerability to fraud, and inefficient business operations.

We reviewed the controls design that had been developed for 24 out of 139 business processes. Overall, our work showed that the controls design for the 24 business processes was generally sound. However, we found 22 areas where there were opportunities to make improvements within those 24 business processes. For example,

- Journal entries will be processed manually leaving the process vulnerable to the risk of error and rework.
- Controls were not documented to avoid risk of unauthorized purchases.
- Controls over certain physical inventory were not in place leaving the inventory vulnerable to undetected loss or theft.
- Controls over requisitions related to closed or cancelled work orders were not in place to mitigate the risk of

unnecessary purchases.

• Controls to identify an alternate supply source before removing a working part from one piece of equipment to repair nonworking piece of equipment were not in place thereby increasing the risk of delay in bringing the equipment back in service.

We also found that the scope of the controls design work was limited to automated controls in the finance and materials management business areas, and it did not cover other SAM impacted business areas of procurement, mechanical, and engineering. In addition, we found that the manual control designs and controls designs to address operational risks have not been fully developed for all SAM impacted business areas. Reliable financial and operational controls are

needed in all affected business areas to ensure reliable financial reporting and efficient business operations; and to prevent fraud.

In summary, we are recommending that Amtrak: 1) complete certain automated control design tasks before the April 2011 R1a implementation, and 2) expand the scope of the control design process to include controls that fully address financial and operational risks in all affected business areas.

In commenting on a draft of this report, management agreed with all our recommendations and has assigned responsibilities to appropriate individuals to take timely actions to address our recommendations. While management has expressed some concern about resource constraints, they are exploring various options to implement our recommendations. We are encouraged by management's planned actions, and commitment to improve internal controls. If properly implemented, the actions identified by management address our recommendations.

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BACKGROUND

In 2008, Amtrak launched a company-wide, multi-year effort called the Strategic Asset Management (SAM) program to transform key operational, financial, supply chain, and human resource processes by replacing or enhancing many of its manual and automated systems with new systems and business processes. The critical automated systems in the new environment will be SAP Enterprise Resource Planning (ERP)¹, Maximo Asset Management², and Ariba³ software. The Enterprise Strategic Systems Steering Committee (ESSSC) consisting of senior executives provides strategic guidance to the SAM program, and key program decisions are guided by the three Sponsors, i.e. Chief Financial Officer (CFO), Chief Operating Officer (COO)⁴ and Chief Information Officer (CIO). Amtrak officials estimate that the SAM program will cost up to \$380 million.

The program's overall objective is to transform key operations and systems of the company; to implement best practices; integrate business processes; and provide timely information for financial reporting, management decision-making, and optimum operations performance. The program is anticipated to also help Amtrak meet the accounting requirements mandated by the Passenger Rail Investment and Improvement Act of 2008 (PRIIA)⁵. Another envisioned benefit from SAM is improving the information flow and provide better information for decision-making by breaking down information-sharing barriers among departments.

Amtrak program documents show that the SAM program is divided into three distinct implementation segments. SAM is currently in the first segment, generally referred to as Release 1a or R1a. The R1a segment will reengineer business processes and provide new automated capabilities for most finance and materials management business processes using SAP and

¹ SAP (ERP) software can process enterprise-wide data from various business areas such as finance, procurement, payroll, and sales and distribution. Amtrak's human resources and payroll functions are currently processed in SAP. SAM Release 1a will add most of the finance and materials management functions in SAP.

² Maximo Asset Management software unifies comprehensive asset life cycle and maintenance management on a single automated database. Amtrak's Engineering department is using Maximo to manage Amtrak's rail infrastructure.

³ *Ariba* software specializes in many procurement business functions, such as spend management, contract management and supplier management. Amtrak is currently using Ariba for purchase requisitioning, travel and expense, procurement cards, and payment requests.

⁴ Amtrak abolished the position of Chief Operating Officer (COO) effective October 22, 2010.

⁵ Public Law No. 110-432, Division B, enacted on October 16, 2008.

PowerPlant⁶ software. These are critical business activities for Amtrak. In FY 2009, Amtrak financial activities included \$3.5 billion in expenses and \$2.35 billion in revenues. These systems will control financial reporting of revenues and expenses. On September 30, 2009, Materials Management was responsible for \$184 million in materials and supplies. Likewise these systems will be controlling reporting and management of this inventory. The R1a segment will also enhance procurement work process capabilities using existing Ariba software. The SAM R1a segment is scheduled to be implemented in April 2011.

In July 2008, Amtrak contracted with Accenture LLP ("Accenture") to support the SAM R1a implementation⁷. With Accenture's support, Amtrak developed Business Process Definition (BPD) documents for all business processes impacted by the SAM R1a segment. The purpose of a BPD is to document existing or reengineered business processes so that manual and automated systems can be designed and configured accordingly. Among other things, each BPD provides flowcharts, risk and control objectives, and Key Performance Indicators (KPIs)⁸. Accenture subcontracted the internal controls design work to Protiviti Inc. ("Protiviti") to review BPDs, identify risks in the process design, and develop controls to mitigate the risks. The purpose of the internal controls design work is to help ensure that financial reporting is accurate; and efficient and effective business operations are achieved.

System controls are typically described as financial that ensure the accuracy of financial data, or operational that ensure the efficiency and effectiveness of business operations. This audit focuses on the adequacy of the process for designing financial and operational controls for the SAM program.

In early 2011, we will report the results of our overall audit of SAM strategic planning and program management.

Objective

The reporting objective for this report is to review the SAM program's internal controls design to determine whether it adequately identified and mitigated internal control risks. To review the adequacy of controls design, we reviewed the list of BPDs that were developed for SAM R1a

⁶ *PowerPlant* software will record and manage transactions related to Amtrak's assets. Amtrak bought PowerPlant software because of its capability in group depreciation. PowerPlant will apply depreciation to Amtrak's assets and pass asset valuation to SAP for recording.

⁷ The contract between Amtrak and Accenture LLP was signed on July 8, 2008.

⁸ Key Performance Indicators (KPIs) are different performance metrics to help evaluate the performance of a process.

and assessed their criticality based on the business processes being addressed. For our detailed analysis, we selected a judgmental sample of 24 out of the 139 critical business processes, as of November 8, 2010. We made this judgment based on our discussions with the process owners and SAM subject matter experts (SMEs), our professional knowledge, and opportunities to implement industry best practices.

For a detailed discussion of the audit scope and methodology, see *Exhibit A*. For OIG analysis of SAM R1a control weaknesses and recommendations, see *Exhibit B*. For a list of acronyms used, see *Exhibit C*. For the audit team members, see *Exhibit D*. For management response, see *Exhibit E*. For the Amtrak OIG Mission and Contact Information, see *Exhibit F*.

RESULTS OF AUDIT

OPPORTUNITIES EXIST TO IMPROVE THE CONTROLS DESIGN PROCESS

The design of the automated controls to cover financial risk related to the R1a segment, which involves implementing SAP and PowerPlant, is generally sound. However, certain gaps in the design process will prevent Amtrak from fully realizing the potential benefits from improving the efficiency and effectiveness of business operations. Further, unaddressed control weaknesses leave Amtrak vulnerable to business operation breakdowns that could adversely affect operating expenses and revenues. We identified opportunities to improve existing controls, and expand the scope of the control design process to include manual controls and controls to address operational risks in all affected business areas. If effectively implemented, these control recommendations should improve data reliability and integrity, and help reduce operating costs.

Most Control Designs Reviewed Were Sound, But Some Can Be Improved.

Overall, our work showed that the controls design for the 24 BPDs we reviewed was generally sound. However, we found instances where the review could have been more comprehensive. We identified opportunities to improve controls in 22 areas within these 24 business processes. These areas for improvement address both financial and operational risks. We categorized 5 of the areas as high risk and 17 as medium risk. We categorized the risk based on the likelihood and impact of a control failure on business operations.

Specifically, control failures could potentially leave Amtrak vulnerable to inaccurate financial reporting and business operation interruptions that could adversely affect operating expenses and revenues.

The five high-risk control weaknesses identified include:

- Manual journal entries (Financial Risk). In one case, the manual processing of financial journal entries does not provide adequate accountability and reliability over the creation, approval, and accuracy of journal entries. Currently, journal entries are created on paper and approved using emails before they are entered into the existing financial system, the Financial Information System (FIS). This process will continue to be the same except that the journal entries will be manually entered into SAP. Manual entries increase the risk of unauthorized entries. Automated approval and posting of journal entries is a best practice to reduce the risk of error and rework.
- Controls were not documented for certain procurement activities (Financial Risk). In three cases, controls were not documented to ensure that the approval hierarchy in Ariba for new or modified procurement contracts and purchase orders was correctly configured. Also, controls were not documented to ensure that only authorized personnel can have access to create and maintain purchase orders. If such controls are not documented and tested, the approval hierarchy may not be correctly configured to ensure that purchase orders are approved according to Amtrak's "Purchase, Expenditure, and Control Approval Authorizations policy 11.39.0." This creates a risk of unauthorized purchases.
- Control was not documented related to periodic review of physical inventory (Financial Risk). In one case, control was not documented to ensure periodic review of the physical inventory list to identify locations where inventory counting was not performed. The value of the physical inventory held by the business may be misstated if there is a difference between the book and the physical inventory values. Inaccurate records also leave the inventory vulnerable to undetected loss or theft.

The seventeen medium-risk control weaknesses identified include:

Physical and book inventory may not be reconciled in a reasonable time (Financial Risk).
 Untimely reconciliation increases the risk of undetected inventory loss or theft, and may result in inappropriate modification of recorded counts of physical inventory and

incorrect inventory valuation. We previously reported on this issue in Amtrak OIG Audit Report, #217-2008 "Annual Maintenance of Way Inventory" dated December 23, 2008.

- Requisitions corresponding to closed or cancelled work orders are not being deleted in Spear⁹ (Operational Risk). If requisitions are not deleted in a timely manner, Amtrak could make unnecessary purchases.
- Completed work orders in Maximo may not be closed in a timely manner (Operational Risk). Open, completed work orders reserve unused inventory that can be used on other work orders. This may cause Amtrak to procure unnecessary materials.
- No requirement exists to periodically review reports so that a sufficient quantity of
 materials is available when needed (Operational Risk). Without this control, cars and
 locomotives can remain out of service for extended time, thus reducing operating
 efficiency and effectiveness.
- There is no established timeframe for quality inspection of materials received into inventory (Operational Risk). Materials remaining in quality inspection for unnecessarily long periods of time can delay maintenance.
- Repair and return transactions may not be appropriately configured (Financial Risk). Inventory value in the General Ledger will be misstated if inventory is not recorded or is recorded incorrectly.
- Before removing a working part from one piece of equipment to repair another, alternate
 sources of inventory parts may not be identified and work orders may not be created to
 replenish the removed part (Operational Risk). Removing parts is a more costly process
 than using inventory stock, and increases maintenance personnel costs. It can result in
 breakage during the removal process, and can cause delays in bringing the originally
 working equipment back in service.
- Problematic invoices that are held for payment may not be processed in a timely manner (Operational Risk). Late payment of invoices will result in penalties.

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⁹ Spear is the asset management software to help manage maintenance of train cars and locomotives. Amtrak's Mechanical department is using Spear to record maintenance of train equipments.

- Controls to help identify duplicate and fictitious vendors and vendor invoices are weak (Financial Risk). A weak control in this area leaves the company vulnerable to duplicate payments and undetected fraud.
- Control is not documented to ensure that invoices for service purchase orders over \$10,000 will not be paid until approved (Financial Risk). If business process design documents are not written clearly and consistently, the desired controls may not be implemented or implemented incorrectly.

Table 1 below summarizes the 22 control weaknesses we identified by type, business area, high (H) and medium (M) risk level, and financial (F) and operational (O) impact. During the audit, we discussed the results of our work with responsible Amtrak officials. As a result, SAM implementation team members have either taken or are taking actions to address some of the concerns we raised.

Table 1 – Control Weaknesses by Control Type, Business Area, and Risk

	Business Areas *													
Control Type	FI		MM		PR		ME		EN		Total by risk level		Total by impact	
Automated	H	M	H	M	H	M	H	M	H	M	H	M	F	О
Configuration 10	1	5	0	1	2	0	0	2	0	0	3	8	8	3
Sensitive Access ¹¹	0	0	0	0	1	0	0	0	0	0	1	0	1	0
Manual														
Detective ¹²	0	1	1	2	0	0	0	1	0	1	1	5	2	4
Process ¹³	0	0	0	2	0	1	0	1	0	0	0	4	1	3
Total	1	6	1	5	3	1	0	4	0	1	5	17	12	10
									22	2	2			

^{*} FI=Finance, MM=Materials Management, PR=Procurement, ME=Mechanical, EN=Engineering, H=High Risk, M=Medium Risk, F=Financial Risk, O=Operational Risk

Source: OIG analysis of Amtrak data

¹⁰ Configuration controls ensure that the application is set up appropriately to achieve the required capability.

¹¹ Sensitive Access controls ensure that sensitive transactions are accessed only by authorized individuals.

¹² Detective controls detect errors and irregularities that could not be prevented but can be rectified.

¹³ Process controls ensure that manual business processes are designed correctly to provide desired outputs.

For details on the 22 control weaknesses we found and our specific recommendations to address them, see *Exhibit B*.

The Scope Of The SAM Controls Design Process Effort Is Not Comprehensive.

We also analyzed the overall scope of the SAM R1a internal controls design work for all business processes impacted by SAM. We found that the scope of the SAM Controls team was limited to designing automated controls to address financial risks in the business areas of finance and materials management, and it did not include designing controls for the other impacted business areas of procurement, mechanical and engineering. In addition, we found that the manual control designs (detective and process controls) and controls designs to address operational risks have not been fully developed for all impacted business areas, i.e. finance, materials management, procurement, mechanical and engineering.

While there are 38 systems that will interface with SAP as part of the SAM R1a segment, the following are key systems for the impacted business areas:

- SAP and PowerPlant for finance
- SAP for materials management
- Ariba for procurement
- Spear for mechanical
- Maximo for engineering

The weaknesses we identified are described below and summarized in *Table 2* on page 9:

Controls Coverage to Address Financial Risks

• Automated controls are designed to address financial risks in SAP, Maximo, and PowerPlant. SAM is adding or changing the business processes in Ariba, Maximo, and Spear. However, no plans exist to document and test automated controls to address financial risks in Ariba and Spear for the new processes created by SAM. Integrity of information in multiple software programs cannot be ensured if controls within all impacted software are not documented and tested. For example, SAM is developing an automated approval workflow in Ariba for procurement contracts and purchase orders, which are currently approved manually. Inappropriate configuration of approval hierarchy in the Ariba software can result in costly unauthorized purchases and can create vulnerability to fraud.

• While manual detective controls have been designed, manual process controls have not been designed for finance and materials management business areas. Also, both manual detective and manual process controls have not been designed for the new processes developed in procurement, engineering and mechanical business areas.

Controls Coverage to Address Operational Risks

• Neither automated nor manual controls have been designed to cover operational risks in any of the systems impacted by SAM. Such controls help to ensure the efficiency and effectiveness of business operations. For example, controls were designed to ensure that invoices are paid accurately; however, no control was designed to ensure that materials do not remain in quality inspection for extended periods delaying maintenance activities. Designing controls to ensure management action on Key Performance Indicators (KPIs)¹⁴ listed in the BPDs to monitor operational efficiency were not in the scope of the SAM Controls team. Such controls are key tools in helping to control and reduce operating costs.

Controls Coverage of Current Capability in Existing Systems

• Current business processes in the existing systems were not reviewed to ensure that adequate automated and manual controls are in place to maintain data integrity and reliability across SAM impacted business areas. Existing systems may already have the desired controls in place; however, no review has been made to determine the extent to which controls have been documented.

Table 2 below shows the areas not covered by the SAM internal controls design process.

¹⁴ For example, On Time Delivery/Cycle Time is a ratio of the number of deliveries that arrived on or before the delivery date compared to the number of deliveries for a given period.

Table 2 – Analysis of the extent to which controls have been designed or reviewed

Controls	New Systems	Existing Systems (i.e. Procurement, Mechanical, Engineering)							
Controls	(Finance, Materials Management)	New capability added by SAM	Current capability ⁺						
Automated Controls (Configuration, Sensitive Access, Segregation of Duties)									
Financial Risk	Designed	Not Designed ++	Not Reviewed						
Operational Risk	Not Designed	Not Designed	Not Reviewed						
Manual Controls (D	etective and Process)								
Financial Risk	Only Detective Controls Designed	Not Designed	Not Reviewed						
Operational Risk	Not Designed	Not Designed	Not Reviewed						

⁺ The SAM Controls team was not tasked to review the controls. Existing systems may already have the desired controls in place; however, controls may not be consistently documented.

Source: OIG analysis of Amtrak data

Last, we noted that although controls to avoid segregation of duties issue will be built in SAP, there are no plans to ensure that users' combined access permissions in SAP, Ariba, Maximo, and other systems do not give them the ability to process inappropriate transactions. For example, a user can potentially have access to receive non-inventory items in Ariba and enter an invoice for payment in SAP.

CONCLUSION

Design of automated controls in SAP and PowerPlant to cover financial risk is generally sound. However, certain gaps in the design process leave Amtrak vulnerable to not fully realizing the potential benefits from SAM to provide for efficient and effective business operations. Further, control failures could potentially leave Amtrak vulnerable to business operation deficiencies that could adversely affect operating expenses and revenues. Opportunities exist to improve existing controls and expand the scope of control design efforts to other systems. These opportunities, if effectively implemented, should improve data reliability and integrity, and help reduce operating costs.

⁺⁺ The SAM Controls team identified some risks. Business process owners were responsible for controls, but have not designed them. Automated controls to address financial risks in Maximo are being developed.

RECOMMENDATIONS

The OIG recommends that the SAM program sponsors take the following actions:

- 1. Prior to the April 2011 SAM R1a implementation:
 - a) Address the control weaknesses to mitigate financial and operational risks identified in this report related to the SAM R1a implementation (See *Exhibit B*).
 - b) Reevaluate the other 115 BPDs to determine and implement the <u>automated controls</u> to address financial and operational risks similar to the issues we identified that need to be addressed in SAP, PowerPlant, Maximo, Ariba, and Spear.

2. After SAM R1a is implemented:

- a) <u>For new capability</u>: Evaluate all 139 BPDs to determine and implement the manual controls to address financial and operational risks in SAP, PowerPlant, Maximo, Ariba, and Spear.
- b) For current capability: Review automated and manual controls in i) key systems impacted by SAM, i.e. SAP, Ariba, Spear, and Maximo and ii) other relevant existing systems such as SupplyPro¹⁵ and Labor Management System(LMS)¹⁶ that interface with SAP. Identify gaps; and develop and document the missing controls to ensure that critical financial and operational risks are addressed.
- c) Build a comprehensive Risk and Controls matrix to ensure segregation of duties between multiple applications, such as SAP, Maximo, and Ariba.

¹⁵ SupplyPro is an automated material vending machine system used for self-service by mechanics.

¹⁶ Labor Management System (LMS) is used for scheduling and time management of train crew.

MANAGEMENT COMMENTS AND AUDIT RESPONSE

In commenting on a draft of this report, management agreed with all our recommendations and has assigned responsibilities to appropriate individuals to take timely actions to address our recommendations. While management has expressed some concern about resource constraints, they are exploring various options to implement our recommendations. We are encouraged by management's planned actions, and commitment to improve internal controls. If properly implemented, the actions identified by management address our recommendations.

EXHIBIT A Scope and Methodology

We conducted this performance audit in accordance with the generally accepted government auditing standards (GAGAS). These 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.

We started our fieldwork in May 2010 and completed our review in September 2010. We used the following scope and methodology in conducting this audit.

We reviewed the internal controls design for manual and automated systems being developed in SAM R1a implementation segment. To evaluate the control design process used to develop controls for the business processes affected by SAM R1a implementation, we used the following methodology:

We judgmentally selected 24 Business Process Definition (BPD) documents for detailed review. Our objective was to determine the adequacy of the control design for these BPDs. Specific review steps included:

- We reviewed the list of BPDs¹⁷ that were developed for SAM R1a and judged their criticality by the business processes addressed in the BPDs.
- We requested SAM subject matter experts (SMEs) and business owners to suggest BPDs that should be reviewed based on their criticality to business operations and financial impact.
- Using the above information and our professional judgment, we selected a sample of 24 critical business processes out of 139 (as of November 8, 2010) for detailed review.

SAM R1a implementation is primarily impacting finance and materials management processes; and as a result, our review focused on the processes in these business areas. We reviewed procurement, mechanical, and engineering process BPDs for risks introduced due to the changes brought about by SAM. The BPDs we reviewed are listed below, and the weaknesses we identified are presented in *Exhibit B*.

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¹⁷ Most of the BPDs we reviewed were completed and well documented; however, some were still in draft form even though the project had moved from the design to build phase.

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Finance

- 1. Maintain Asset Adjust, Transfer, Add, Edit
- 2. Create and Maintain Vendor Master
- 3. Mange Returned Payments
- 4. Process Journal Entry
- 5. Manage Blocked Invoices

Procurement

- 12. Planning for Sourcing
- 13. Create Purchase Order
- 14. Create Contract
- 15. Contract Administration
- 16. Goods Receipt of Non-Inventory
- 17. Purchase Requisition Processing
- 18. P-Card Payment Request
- 19. Automatic Generation of Purchase Orders

Engineering

- 22. Work Order Completion
- 23. Time Compliance
- 24. Work Actuals

Materials Management

- 6. Repair and Return
- 7. Physical Inventory and Cycle Count
- 8. Manage Material Requisition
- 9. Goods Receipt
- 10. Picking and Issue
- 11. Manage Replenishment/Forecast Demand

Mechanical

- 20. Distribute and Apply Materials
- 21. Record Resource Consumption

We evaluated the overall scope of the internal controls design work by:

- interviewing business process owners, SAM SMEs, and the SAM Controls team.
- comparing the scope of control work performed by the SAM Controls team with the business areas impacted by SAM.

We reviewed prior OIG audit reports to verify whether audit recommendations and management's commitments to implement audit recommendations are being addressed, to the extent possible, during SAM R1a implementation. We reviewed the following applicable audit reports issued by the OIG:

- Improvements Needed in Vendor Repair and Return Process, Audit Report No. 104-2008, 03/23/2010
- Annual Maintenance of Way Inventory, Audit Report No. 217-2008, 12/23/2008
- Procurement Card Review, Audit Report No. 206-2008, 09/30/2008
- eTrax Application Review, Audit Report No. 104-2004, 02/23/2006

Last, we interviewed the SAM Technical team, SAM Controls team, and SAM Program Management team to identify plans to build controls to avoid segregation of duties between multiple applications.

Use of Computer-processed Data

We did not use computer-processed data for the review of SAM R1a internal controls design.

Internal Controls

The objective of this audit was to review SAM program's internal controls design to determine whether it adequately identified and mitigated internal control risks.

	5					
#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
1	Finance	Perform GL Accounting	Control weakness: Journal Entry Attestation forms and corresponding supporting documents are processed manually, approved via emails, and stored outside SAP. This process provides less reliability and accountability to the posted Journal Entries and spotty audit trail. Recommendation: After SAM R1a Implementation - Develop journal entry form and approval workflow for electronic approval of journal entries in Ariba. Maintain supporting documentation for all journal entries in Ariba and develop interface between Ariba and SAP to automatically post approved journal entries in SAP; or - Develop approval workflow in SAP and use SAP for creation, approval and documentation of journal entries. Potential adverse effect: Unauthorized journal entries are posted. Also, manual journal entries increase the risk	High	Configuration	Financial
2	Materials Management	Manage Warehouse	Control weakness: No control documented to periodically review the Physical Inventory list to identify locations where inventory counting has not been performed. Recommendation: Document the control, and identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect: When the physical inventory is not counted on a cyclical basis, the value of physical inventory held by the business may be misstated if there is a difference between the book inventory and the physical inventory. Inaccurate records also leave the inventory vulnerable to undetected loss or theft.	High	Detective	Financial

	Business					
#	Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
3	Procurement	Manage Award	Control weakness: No control activity documented to ensure that the approval hierarchy is configured in compliance with Amtrak's "Purchase, Expenditure, and Control Approval Authorizations policy 11.39.0" for procurement contracts and purchase orders. Recommendation:	High	Configuration	Financial
			Document and test the control. Potential adverse effect: Inappropriate approval levels can result in unauthorized purchases violating Amtrak's policy.			
4	Procurement	Manage Award	Control weakness: No control activity documented to ensure that Purchase Orders (PO) go through the reapproval process whenever approved POs are modified due to (a) change in commodity or (b) increase in PO amount above the PO modifier's authority limit. Recommendation: Document and test the control. Potential adverse effect: Inappropriate approval levels can result in unauthorized purchases violating Amtrak's policy.	High	Configuration	Financial

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
5	Procurement	Manage Award	Control weakness: While the SAM program is building user security to restrict access, control to ensure that the access to create and maintain Purchase Orders in Ariba is restricted to authorized personnel is not documented.	High	Sensitive Access	Financial
			Recommendation: Implement, document and test the control.			
			Potential adverse effect: Amtrak can buy unnecessary or inappropriate materials and services if purchase orders are entered or modified by unauthorized personnel.			
6	Finance	Manage Master Data	Control weakness: Control to identify duplicate vendors using fields Vendor Name and City is weak because these two fields will not detect unique cases of duplicate vendors.	Medium	Configuration	Financial
			Recommendation: Change the search criteria to include fields such as Social Security Number (SSN), Tax ID number, and Bank numbers (bank routing and account number) to detect duplicate vendors.			
			Potential adverse effect: Duplicate vendors may potentially result in duplicate payment of invoices.			

	Business					
#	Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
7	Finance	Manage Master Data	Control weakness: Control to review all changes to vendor master accounts needs to be strengthened. The review of vendor master accounts does not include detecting vendors with the PO Box number listed as their only address to determine if the vendors are not fictitious.	Medium	Detective	Financial
			Recommendation: Strengthen the existing control, and identify the frequency of the review and the user role responsible for performing the review.			
			Potential adverse effect: Amtrak can potentially make payment to fictitious vendors.			
8	Finance	Manage AP	Control weakness: Vendor Invoice Management (VIM) tool will scan the vendor invoices and detect invoice exceptions such as invalid data, duplicate invoices, vendor name issues, and Purchase Order issues. If exceptions are found, invoices will be blocked for payment until the users responsible for resolving the block reason take appropriate actions to unblock the invoices. We did not find a control to ensure that blocked invoices approaching payment due dates are proactively reviewed by the users to prevent penalties for late payment. Recommendation: Implement, document and test the control to ensure that VIM sends automatic	Medium	Configuration	Operational
			reminders to the users responsible for resolving issues with blocked invoices, at defined intervals before the invoice due date. Potential adverse effect: Late payment of invoices will result in penalties.			

	Business					
#	Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
9	Finance	Manage AP	Control weakness: Control to check for duplicate vendor invoices in SAP is too restrictive and may not identify all cases of duplicate invoices. The control will identify duplicate invoices only if all six fields - namely Vendor, Invoice Amount, Currency Code, Company Code, Invoice Reference Number and Invoice Date - match. Recommendation: Since VIM will provide three duplicate invoice checks with combination of different fields including Invoice Reference Number and Invoice Date, we recommend that the existing control to identify potential duplicate invoices in SAP be strengthened by setting the check only on Vendor, Invoice Amount, and Currency Code fields. Potential adverse effect: Duplicate invoices may not be detected.	Medium	Configuration	Financial
10	Finance	Manage AP	Control weakness: Control to ensure that the critical details on vendor invoices are entered in SAP needs strengthening. Currently documented control does not require Invoice Reference Number from vendor invoices to be present and entered in SAP. Recommendation: Strengthen the existing control to include Invoice Reference Number as required field during data entry of the vendor invoices in SAP. Potential adverse effect: VIM duplicate invoice check functionality uses Invoice Reference Number along with other fields to search for duplicate invoices. If Invoice Reference Number field has no value, VIM will not effectively detect all potential duplicate invoices.	Medium	Configuration	Financial

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
111	Finance	Manage AP	Control weakness: Per interviews with the SAM team, invoices for Service POs over \$10,000 will be blocked for payment until the service receiver approves the invoice; however, this control is not clearly and consistently documented in the Finance and Procurement BPDs, and is not documented in the Risk and Controls Index. Recommendation: Update all relevant Finance and Procurement BPDs, document the control in the Risk and Controls Index, and test the control. Potential adverse effect: Desired controls may not be implemented or implemented incorrectly if business process design documents are not written clearly and consistently.	Medium	Configuration	Financial
12	Materials Management	Manage Order	Control weakness: No control documented to periodically review the Core Tracking Report to monitor the return of damaged parts sent to Operations for repair. Recommendation: Document the control, and identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect: Inadequate monitoring of damaged parts sent to Operations for repair can cause Material Management to loose track of the parts and misstate the inventory balance.	Medium	Detective	Operational

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
13	Materials Management	Manage Order	Control weakness: No control documented to periodically review the Repair and Return Pool Stock Report to determine if sufficient quantities of materials are available for use. Recommendation: Document the control, and identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect: Inadequate monitoring of available materials can potentially result in excess inventory levels or shortage of inventory causing delay in critical repairs thereby putting equipments out-of-service.	Medium	Detective	Operational
14	Materials Management	Manage Order	Control weakness: While the SAM program is configuring the system to achieve desired functionality, the control to appropriately configure repair and return movement types is not documented. Recommendation: Document and test the control to ensure that movement types are appropriately configured to post inventory value to appropriate General Ledger account. Potential adverse effect: Inventory is not recorded or is recorded incorrectly, thereby misstating inventory value in the General Ledger.	Medium	Configuration	Financial

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
15	Materials Management/ Operations	Manage Warehouse	Control weakness: No control to ensure that reconciliation between physical and book inventory is completed within a defined time period, and the exceptions are supported by appropriate rationale. Recommendation: Implement and document the control, and identify the user role responsible for performing the review. Prior audit report # 217-2008 "Annual Maintenance of Way Inventory" issued by the OIG recommended that reconciliation between physical and book inventory be completed within 14 calendar days. Potential adverse effect: Keeping the reconciliation window open for an extended period of time may result in inappropriate modification of recorded counts of physical inventory and incorrect	Medium	Process	Financial
166	Materials Management/ Operations	Manage Warehouse	inventory valuation, and increases the risk of undetected inventory loss or theft. Control weakness: No control to ensure materials received from vendors do not remain in quality inspection status for extended period of time. Recommendation: Implement and document the control to periodically review the materials in quality inspection status. Identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect: Materials requiring quality assurance, if remained in quality inspection status for extended periods of time, can delay the maintenance work due to unavailability of inventory.	Medium	Process	Operational

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
17	Procurement	Manage Award	Control weakness: No control documented to periodically review the Purchase Orders that are open beyond the promised delivery date to help expedite the delivery of materials for business needs. Recommendation: Document the control, and identify the frequency of the review and the user role	Medium	Process	Operational
			responsible for performing the review. Potential adverse effect: Materials not available on timely basis can significantly disrupt business operations.			
18	Mechanical	Execute and Record Technical and Resource Data	Control weakness: The work order status is changed to 'Closed' in Spear after Mechanical project or repair work is completed and reviewed by the supervisor. Control is not defined to periodically review open purchase requisitions related to 'Closed' work orders in Spear to determine if they need to be kept open for other work orders or be deleted. Recommendation:	Medium	Detective	Operational
			Implement and document the control. Identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect: Amtrak may make unnecessary purchases on closed work orders if requisitions are not deleted on timely basis.			

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
19	Mechanical	Execute and Record Technical and Resource Data	Control weakness: Open work orders that are no longer needed and have no transaction activity associated with them are 'Cancelled' in Spear. Control is not defined to delete purchase requisitions related to 'Cancelled' work orders in Spear. Recommendation: Implement, document and test the control to automatically delete purchase requisitions related to 'Cancelled' work orders in Spear. Potential adverse effect: Amtrak may make unnecessary purchases on cancelled work orders if requisitions are not deleted on timely basis.	Medium	Configuration	Operational
20	Mechanical	Execute and Record Technical and Resource Data	Control weakness: Control is not defined to ensure that alternate source of supply is identified before working part from one equipment is removed to repair another equipment. Recommendation: Implement and document the control. Potential adverse effect: Removing parts is a more costly process than using inventory stock and increases maintenance personnel costs. It can result in breakage during the removal process, and cause delays in bringing the originally working equipment back in service.	Medium	Process	Operational

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#	Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
21	Mechanical	Execute and Record Technical and Resource Data	Control weakness: Control is not defined to create corrective work orders in Spear for the missing components that were taken out from the original equipment (cannibalized equipment) to repair another equipment.	Medium	Configuration	Operational
			Recommendation: Implement, document and test the control to automatically create corrective work orders in Spear.			
			Potential adverse effect: Working parts removed from one equipment to repair another equipment may result in costly procurements, increased maintenance personnel costs, breakage during removal process, and delays in bringing the originally working equipment back in service.			
22	Engineering	Feedback and Follow- up	Control weakness: The work order status is changed to 'Complete' (COMP) in Maximo after Engineering project or repair work is completed and reviewed by the supervisor. Work order status changes from 'WCOMP' to 'COMP' only after the work is completed and all pending transactions such as material and labor are entered in Maximo. Once work order is completed, all open material reservations on that work order are automatically canceled. However, no control exists to ensure that work orders in 'WCOMP' status are periodically reviewed and appropriate actions taken to move them to 'COMP' status in a reasonable time period.	Medium	Detective	Operational
			Recommendation: Identify the time period by which work orders in 'WCOMP' status should be moved to 'COMP' status. Implement and document the control. Identify the frequency of the review and the user role responsible for performing the review. Potential adverse effect:			
			Open, completed work orders reserve unused inventory that can be used on other work orders. This may cause Amtrak to procure unnecessary materials.			

#	Business Area	Business Process	Control Weakness / Recommendation / Potential Adverse Effect	Risk Level	Control Type	Impact
	Risk Level:	High Medium	Risk levels are determined based on the combined factor of likelihood and impact of con-	ntrol failure.		
	Type:	Configuration	Controls to ensure that the application is set up appropriately to achieve the required functionality.			
		Sensitive Access Detective Process	Controls to ensure that sensitive business transactions are accessed only by authorized individuals. Controls designed to detect errors and irregularities that could not be prevented, but can be rectified. Controls to ensure that manual business processes are designed correctly to provide desired outputs.			
	Impact:	Financial Operational	Adverse effect of control not in place will impact accuracy and completeness of financial statements. Adverse effect of control not in place will impact efficiency and effectiveness of business processes.			

Report No. 105-2010

EXHIBIT C Acronyms

Acronym

BPD Business Process Definition
DOT Department of Transportation
ERP Enterprise Resource Planning
FIS Financial Information System
KPI Key Performance Indicator
LMS Labor Management System

OIG Amtrak Office of Inspector General

PRIIA Passenger Rail Investment and Improvement Act

R1a Release 1a

SAM Strategic Asset Management

SAP Systems Applications and Products

SME Subject Matter Expert

EXHIBIT D Audit Team Members

This report was prepared and the review was conducted under the direction of Vipul Doshi, Senior Director, IT Audits.

The staff members who conducted the audit and contributed to the report include:

Vijay Chheda, IT Audit Manager Asha Sriramulu, Senior IT Audit Specialist Mike Baker, Senior IT Audit Specialist

EXHIBIT E Management Response

Memo



Date January 3, 2011

From DJ Stadtler, Chief Financial Officer

To David Warren, Assistant Inspector General, Audit

Department Finance

Subject Strategic Asset Management

Program Controls Design is

Generally Sound, But

Improvements Can Be Made

Report 105-2010

cc Jeff Martin, Chief Logistics Officer

Frank Vacca, Chief Engineer

Mario Bergeron, CMO

Kay Duggan, GIO-ERP

Don Ford, Senior ERP Director

Jessica Scritchfield, Principal Audit

/ Controls Officer

This letter is in response to the Office of Inspector General ("OIG") audit 105-2010 "Strategic Asset Management Program Controls Design Is Generally Sound, But Improvements Can Be Made", dated December 2, 2010.

Management agrees with the recommendations within this report and believes this report provides useful information on which Amtrak management can take action. Management has detailed a response to each of the OIG's recommendations below.

Recommendation 1a:

Prior to the April 2011 SAM R1a implementation, address the control weaknesses to mitigate financial and operational risk identified in the report related to the SAM R1a implementation (detailed in Exhibit B).

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Management Response:

Management agrees with the OIG's observation and recommendation. The Finance, Procurement, Materials Management, Mechanical, and Engineering departments will take action to reevaluate and update the business process documents to include controls that will mitigate financial and operational risks identified in the OIG report. Specifically, the individuals responsible and the date by which the documents will be updated are detailed below:

- Gordon Hutchinson, Controller, will be responsible for Finance business process documents by February 25, 2011.
- Bud Reynolds, Deputy Logistics Officer Procurement, will be responsible for Procurement business process documents by February 25, 2011.
- Bob Nanney, Deputy Materials Management, will be responsible for Materials Management business process documents by February 25, 2011.
- Tim Ziethen, Senior Subject Matter Expert Mechanical, will be responsible for Mechanical process documents by March 25, 2011.

The control weakness identified relating to the Engineering department has been remediated. Management forwarded an updated business process document reflecting this to the OIG on December 21, 2010.

Recommendation 1b:

Prior to the April 2011 SAM R1a implementation, reevaluate the other 115 business process documents to determine and implement the automated controls to address financial and operational risks similar to the issues we identified that need to be addressed in SAP, PowerPlant, Maximo, Ariba, and Spear.

Management Response:

Management agrees with the OIG's observation and recommendation. Management will reevaluate the other 115 business process documents for <u>automated</u> controls that address the financial and operational risks similar to the issues identified in Finding 1a that need to be addressed in SAP, PowerPlant, Maximo, Ariba, and Spear. Specifically, the individuals responsible and the date

by which the documents will be updated are detailed below:

- Gordon Hutchinson, Controller, will be responsible for the Finance business process documents and identification and documentation of controls relating to PowerPlant by March 25, 2011.
- Bud Reynolds, Deputy Logistics Officer Procurement, and John Venturella, Procurement IT Business Lead, will be responsible for the Procurement business process documents and identification and documentation of controls relating to Ariba by March 25, 2011.
- Bob Nanney, Deputy Materials Management, and Frank Hopkins, Materials Management IT Lead, will be responsible for the Materials Management business process documents by March 25, 2011.
- Tim Ziethen, Senior Subject Matter Expert Mechanical, will be responsible for the Mechanical business process documents and identification and documentation of controls relating to Spear by March 25, 2011.
- Ed Simons, Senior Director Budgeting and Planning, Willem Ebersöhn, Business Area Lead SAM, and Bill Broughton, Senior Program Director Engineering Systems, will be responsible for Engineering business process documents and identification and documentation of controls relating to Maximo by March 25, 2011.

Executive Committee members, in coordination with Finance's Internal Controls / Audit organization, will provide oversight to ensure project deadlines are met. Management does have some concerns about resource constraints, and is exploring various options, both internal and external, that may be leveraged to perform these evaluations and recommendations.

Recommendation 2a:

After SAM R1a is implemented, for new capability, evaluate all 139 business process documents to determine and implement the manual controls to address financial and operational risks in SAP, PowerPlant, Maximo, Ariba, and Spear.

Management Response:

Management agrees with the OIG's observation and recommendation. Management will reevaluate all 139 business process documents for all manual

controls that address the financial and operational risks in SAP, PowerPlant, Maximo, Ariba, and Spear. Specifically, the individuals responsible and the date by which the documents will be updated are detailed below:

- Gordon Hutchinson, Controller, will be responsible for the Finance business process documents and identification and documentation of controls relating to PowerPlant by September 23, 2011.
- Bud Reynolds, Deputy Logistics Officer Procurement, and John Venturella, Procurement IT Business Lead, will be responsible for the Procurement business process documents and identification and documentation of controls relating to Ariba by September 23, 2011.
- Bob Nanney, Deputy Materials Management, and Frank Hopkins, Materials Management IT Lead, will be responsible for the Materials Management business process documents by September 23, 2011.
- Tim Ziethen, Senior Subject Matter Expert Mechanical, will be responsible for the Mechanical business process documents and identification and documentation of controls relating to Spear by September 23, 2011.
- Ed Simons, Senior Director Budgeting and Planning, Willem Ebersöhn, Business Area Lead SAM, and Bill Broughton, Senior Program Director Engineering Systems, will be responsible for Engineering business process documents and identification and documentation of controls relating to Maximo by September 23, 2011.

Executive Committee members, with coordination from Finance's Internal Controls / Audit organization, will provide oversight to ensure project deadlines are met. As with recommendation 1b, management does have some concerns about resource constraints, and is exploring various options, both internal and external, that may be leveraged to perform these reviews and make recommendations.

Recommendation 2b:

After SAM R1a is implemented, for current capability, review automated and manual controls in i) key systems impacted by SAM; i.e. SAP, Ariba, Spear and Maximo and ii) other relevant existing systems such as SupplyPro and Labor Management System (LMS) that interface with SAP. Identify gaps and develop and document the missing controls to ensure that critical financial and

operational risks are addressed.

Management Response:

Management agrees with the OIG's observation and recommendation. Management will review the automated and manual controls in Ariba, Spear, Maximo, SupplyPro, and Labor Management System (LMS) that interface with SAP by September 23, 2011. Management will identify the gaps and develop and document missing controls to ensure critical financial and operational risks are addressed. Business process owners and the IT department will be responsible for determining that controls are in place for the systems that are impacted by the SAM program, with coordination by Finance's Internal Controls / Audit organization.

Recommendation 2c:

Build a comprehensive Risk and Control matrix to ensure segregation of duties between multiple applications, such as SAP, Maximo, and Ariba.

Management Response:

Management agrees with the OIG's observation and recommendation. Management is currently evaluating the alternatives available to ensure segregation of duties exist between multiple applications. DJ Stadtler, Chief Financial Officer, in collaboration with the Information Technology department will determine which systems should be in scope, review the alternatives, make a recommendation to resolve the risks, evaluate available funding sources, and commit to an implementation timeline by January 31, 2011.

EXHIBIT F OIG Mission and Contact Information

Amtrak OIG's Mission	The Amtrak OIG's goals and perceptions of how it can best		
	affect the OIG's mission, as spelled out in the Inspector		
	General Act of 1978, as amended:		
	 Conduct and supervise independent and objective audits inspections, evaluations, and investigations relating to agency programs and operations; Promote economy, effectiveness and efficiency within Amtrak and the OIG; Prevent and detect fraud, waste and abuse in Amtrak programs and operations; Review security and safety policies and programs; Make recommendations regarding existing and proposed legislation and regulations relating to Amtrak's programs and operations; and Keep the head of Amtrak and Congress fully and currently informed of problems in company programs and 		
	operations.		
Obtaining Copies of OIG Reports and Testimonies	To obtain copies of OIG documents at no cost, go to Amtrak OIG's Web site (www.amtrakoig.gov).		
To Report Fraud, Waste, and Abuse	Help prevent fraud, waste, and abuse by reporting suspicious or illegal activities to the OIG Hotline:		
	Web: https://www.amtrakoig.gov/hotline Phone: (800) 468 5469		
Congressional Affairs	E. Bret Coulson		
	Assistant Inspector General for Management and Policy		
	Mail: Amtrak OIG		
	10 G Street, N.E.		
	Drop Box: 3W-159		
	Washington, DC 20002		
	Phone: (202) 906 4134		
	Email: <u>coulsob@amtrak.com</u>		