

**ADEQUACY OF QUALITY ASSURANCE
OVERSIGHT OF THE LOAN MANAGEMENT
AND ACCOUNTING SYSTEM PROJECT**

**Report Number: 10-14
Date Issued: September 13, 2010**

**Prepared by the
Office of Inspector General
U. S. Small Business Administration**



U.S. Small Business Administration
Office Inspector General

Memorandum

To: David B. Robbins
Director, LMAS Modernization Program

Date: September 13, 2010

Paul T. Christy
Acting Chief Information Officer

/s/ Original Signed
From: Debra S. Ritt
Assistant Inspector General for Auditing

Subject: Report on the Adequacy of Quality Assurance Oversight of the Loan Management and Accounting System Project
Report No. 10-14

This report presents the results of our audit of the Small Business Administration's (SBA) Quality Assurance (QA) Oversight of the Loan Management and Accounting System (LMAS) Project. To guide QA activities, SBA developed a QA Plan identifying steps that it will take to evaluate overall performance of the LMAS project on a regular basis to ensure that it conforms to the Agency's quality standards and satisfies user needs. A major component of a QA plan is the Independent Verification and Validation (IV&V) of development products to ensure that design specifications are correctly implemented and that deliverables accomplish their intended purpose. SBA contracted with TestPros to develop and implement the QA plan, including conducting all IV&V activities.

The objectives of the audit were to determine the: (1) adequacy of SBA's QA Plan; (2) extent to which the QA Plan was being implemented; and (3) quality of IV&V activities. The audit was performed in response to language in the OIG's Fiscal Year (FY) 2010 appropriation, which directed the OIG to provide routine analysis and reporting on SBA's modernization of its loan management and accounting systems.

The OIG has issued three reports on the LMAS project since it was initiated in 2005 and, due to unresolved project risks, designated oversight of the LMAS project as a new management challenge in FY 2010.¹ Two of the most recent

¹ Management Challenge 9 - *SBA Needs to Modernize its Loan Accounting System and Migrate it off the Mainframe.*

reports² found that the Agency had not established either an effective enterprise-wide or project-level QA function to ensure that LMAS project deliverables meet SBA requirements and quality standards. The most recent audit found that the project-level QA process was not independent from project management staff and that the project lacked a defined process for accepting deliverables.

To assess the adequacy of LMAS QA Plans, we compared the LMAS QA Plan to *SBA's Systems Development Methodology* (SDM) issued by the Office of the Chief Information Officer and to the *Federal Acquisition Regulation*. We also reviewed the Quality Assurance Surveillance Plans (QASP) for each project task order to determine whether components of the QA plan had been incorporated.

To determine the extent to which the QA plan had been implemented, we reviewed all activities of TestPros, the QA/IV&V contractor, that were documented in project status reports and correspondence between TestPros and the LMAS project management staff. We also interviewed selected personnel from SBA's Office of the Chief Information Officer (OCIO), LMAS project management staff, and contractor personnel to gain an understanding of the QA process, staff roles and responsibilities for implementing the QA plan, and the project's status. Finally, to determine the adequacy of IV&V activities, we reviewed the solicitation and other documents related to SBA's contract for IV&V and compared the activities to work performed.

The OIG contracted with the Loch Harbour Group to assist the OIG in its audit of the LMAS QA process. We performed the audit work between October 2009 and April 2010 in accordance with *Government Auditing Standards* prescribed by the Comptroller General of the United States.

The audit disclosed that the QA plan does not address all key areas prescribed by the Agency's System Development Methodology (SDM), and that the QA contractor has not performed all of the QA activities stipulated in its contract, including the performance audits of the other LMAS contractors. Further, none of the LMAS task orders issued to date have undergone IV&V testing. These lapses in QA oversight of the project have made the Agency unduly reliant on the other LMAS contractors to ensure the quality of their products and increased the risk that the project will not perform as intended.

We recommended that SBA: revise the LMAS QA plan to incorporate all the components required by the enterprise-wide QA plan; take steps to hold TestPros

² OIG Report No. 08-13, *Planning for the Loan Management and Accounting System Modernization and Development Effort*, May 14, 2008; OIG Report No. 09-17, *Review of Allegations Concerning How the Loan Management and Accounting System Modernization Project is Being Managed*, July 30, 2009.

accountable for performing all the activities specified in its contract; and revise TestPros' statement of work to include the IV&V responsibilities previously deleted. Further, we recommended that SBA evaluate and make necessary adjustments to the QA manager's workload to ensure that he can devote adequate time to oversee complete implementation of the enterprise QA oversight function. SBA management expressed concurrence with our recommendations.

BACKGROUND

The LMAS project is one in a series of attempts by SBA during the past several years to upgrade existing financial software and application modules and to migrate them off the mainframe environment. LMAS remained in the planning phase until September 2008 when SBA awarded three blanket purchase agreements, which included a: (1) \$7.5 million award to TestPros to establish QA/IV&V monitoring and oversight; (2) \$5 million award to Data Networks Corporation (DNC) for project management support; and (3) \$250 million award to Systems Research Applications (SRA) for systems integration services.

SBA requires a QA plan, which incorporates all Federal requirements for system development efforts, for all of its major IT projects. The purpose of the QA plan is to define the approach that will be used to monitor and evaluate the performance of the project and the quality of the deliverables. A major component of the QA process is the QASP. A QASP is developed for each task order and specifies all work requiring surveillance and the method(s) of surveillance that will be used. Another key component of the QA plan is IV&V testing to evaluate whether the system being developed complies with the project's specifications and meets performance standards.

SBA contracted with TestPros for both the development and performance of the QA plan as well as the conduct of IV&V activities. As part of its IV&V responsibilities, TestPros is responsible for reviewing the quality of deliverables from both DNC and SRA. Originally, TestPros reported solely to the LMAS Program Manager and the Contracting Officer's Technical Representative. However, based on a prior IG report that disclosed the reporting arrangement did not ensure that QA/IV&V was independent of project management, SBA assigned a QA manager from the OCIO to provide independent project oversight and to review TestPros' work activities. While the LMAS Program Manager is responsible for ensuring that TestPros completes all activities identified in the LMAS QA plan, the QA manager is responsible for approving the QA plan and ultimately ensuring that the project meets the OCIO's quality standards.

In March 2010, SBA began revising its plans for the LMAS project and elevated governance of the project. The LMAS Program Manager position was eliminated

and replaced with a LMAS Project Director that directly reports to SBA's Chief Operating Officer. Also, at the request of the Office of Management and Budget, the Agency is reviewing the project's roll-out strategy with a focus on providing a defined return on investment and an incremental approach for building the system. An effective QA process will be integral to SBA in meeting these goals.

RESULTS

The QA Plan for the LMAS Project Has Significant Weaknesses

The LMAS QA Plan developed by TestPros, and accepted by SBA on December 2009, does not address all of the key areas required by SBA's SDM. The SDM requires that project QA plans identify the types of activities that will be performed in key areas to ensure that all IT projects are aligned with SBA's enterprise architecture³ and follow a consistent development process.

Despite this requirement, the QA plan developed by TestPros does not identify planned activities that would address SDM requirements for security planning, configuration management,⁴ user acceptance testing, risk analyses, and earned value management reporting. For example, the QA plan does not:

- Identify the security requirements for LMAS and controls to be implemented based on the level(s) of security needed. Federal regulations and SBA guidance require that systems be categorized as to their importance to the overall mission of the agency and that security controls be implemented based on their security categorization.⁵ However, the LMAS QA plan does not monitor whether an adequate level of security was established, or needed security controls were identified. Also, a system security plan was not developed for the project. To date, OCIO and LMAS project management have focused their oversight activities on the certification and accreditation process, rather than initiating security planning.

³ Enterprise architecture is a management practice to maximize the contribution of an agency's resources, IT investments, and system development activities to achieve its performance goals.

⁴ Configuration management is the means by which the content, change, or status of shared information within a project is managed and controlled.

⁵ NIST SP 800-64, *Security Considerations in the System Development Lifecycle*, requires that security categorization begin during the initiation phase of the system development life cycle, and that it identify the information that supports each government line of business, as defined by the enterprise architecture. It further requires that security controls be selected and documented in a system security plan during the acquisition/development phase of the system development life cycle. In addition, SBA's SDM requires that a system security plan be completed at the Define System phase of the system development life cycle.

- Address whether configuration audits will be performed to ensure that the system successfully fulfills its requirements and that technical documentation is complete, consistent, and accurate, as required by SBA's SDM. The SDM requires that these audits be performed and any deviations addressed prior to putting systems into production, performing periodic maintenance, and placing reliance on the technical documentation.
- Explain the steps that will be taken to ensure that changes made in the system hardware and software throughout the development effort will be tested, documented, and controlled.
- Contain steps to review the Program Management Office's compliance with the LMAS risk management plan to ensure that it is assessing and managing internal and external risks throughout the project's life cycle.
- Include steps to assess the completeness and accuracy of Earned Value Management reporting on the project. OMB Circular A-11, *Preparation, Submission and Execution of the Budget*, requires that agencies submit Earned Value Management reports for all major investments to ensure that project performance is being measured and that corrective actions are implemented to address any cost and schedule variances.

While a complete QA plan does not guarantee that a project will be successful, it does minimize a project's exposure to risk, and thus the likelihood that it will fall short of expectations. As a result of these gaps, management has no assurance that LMAS project deliverables will meet security requirements and the Agency's development standards.

The LMAS QA Plan Has Not Been Fully Implemented

The LMAS Program Manager did not ensure that TestPros performed all of the QA activities stipulated in its contract. For example, TestPros did not conduct any QA audits of the activities and work products of SRA and DNC to ensure that they were being implemented as specified, and that the resulting work products conformed to requisite standards, satisfied specified user requirements, and fulfilled their intended use. Further, while TestPros reviewed LMAS deliverables from SRA, it did not independently validate that they were created in accordance with SRA's standard processes or Agency requirements stipulated in the LMAS QA Plan. Rather, TestPros' reviews primarily addressed grammar and formatting of the work products and not the substance or quality of what was provided.

According to representatives from TestPros, it was unable to fully implement the QA plan because SRA, the systems integration contractor, would not grant

TestPros access to its development processes. TestPros reported to SBA that it tried for months, but was unable to obtain the required documentation from SRA and DNC needed to perform the audits. The Program Manager stated that the delay was due, in part, to SRA replacing the project manager with an individual who was unfamiliar with the contract provisions that allowed TestPros access. However, SBA was unable to make the two contractors comply with TestPros' requests until April 2010.

IV&V Activities Were Terminated

Finally, TestPros was originally required to conduct all IV&V of critical LMAS development processes and deliverables. IV&V is the process of checking that a system meets specifications and fulfills its intended purpose, and often involves user acceptance testing. IV&V is especially critical for complex projects, such as LMAS, which is expected to encompass 165 updated or new interfaces, 46 data conversions, and 74 extensions of functionality. Due to these complexities, SBA project management officials recognized the importance of IV&V and made it a critical component of the Agency's testing strategy throughout the system's development lifecycle. For example, plans for LMAS IV&V were outlined in the project's Office of Management and Budget (OMB) Exhibit 300⁶ and in solicitation and contract documents for the QA/IV&V contract.⁷ IV&V was also specified as a requirement in the QASPs for SRA's task orders.

However, as of April 2010, none of the task orders have undergone IV&V testing of the results by TestPros. For example, hosting of the Joint Accounting and Administrative Management System was migrated from IBM facilities to SAVVIS without completing IV&V testing. While SBA will perform user acceptance testing, it may not fully assess operational requirements. Without IV&V, management has no independent assurance that complex interfaces and extensions to commercial off-the-shelf software are performing in accordance with standards.

Further, in May 2009, SBA modified the contract with TestPros to eliminate IV&V activities. However, we noted that no adjustments were made to the cost of the contract, which was originally negotiated as a fix-priced contract. OCIO's Chief Technology Officer, who served as OCIO's technical advisor to the LMAS project, advised us that he was unaware that IV&V had been removed from the

⁶ The Exhibit 300 is a capital investment report to OMB that is designed to be used as a one-stop document for many IT management issues, such as the business case for investment, Clinger-Cohen Act implementation, E-Gov Act implementation, Government Paperwork Elimination Act implementation, an agency's modernization efforts, and the overall project (investment) management.

⁷ Since 2006, SBA has included IV&V in the LMAS project lifecycle and listed it in reports to OMB. In 2008, SBA contracted with a small business to perform this function. The request for proposal, contract, and technical proposal, all stated that the contractor would perform QA/IV&V.

project's QA activities. This occurred without the advisor's knowledge because at the time of the modification, OCIO had not assigned an independent Quality Manager to the LMAS project, and allowed the LMAS Program Manager to act in that capacity.

By eliminating IV&V testing for the LMAS project, SBA is at risk of deploying this mission-critical system with undetected errors and with limited assurance that all requirements are fully satisfied. Further, had SBA originally solicited only for QA services, more bidders may have submitted proposals at more competitive prices, since QA is less intensive and requires less technical expertise than IV&V.

OCIO's Delay in Designating a QA Manager Contributed to Quality Assurance Weaknesses

TestPros was allowed to proceed with an incomplete QA plan and without fulfilling all of its QA responsibilities, because OCIO had not acted timely in establishing a QA oversight function to ensure that the LMAS QA Plan was properly developed and fully implemented. The OIG had recommended in May 2008 that a QA function be established that fully addresses the risk and scope of the LMAS project. However, it was not until October 2009 that OCIO identified a QA manager for the project.

Further, although the QA manager was added to the project, he was unable to dedicate a sufficient amount of time to the project due to his other workload demands. In addition to performing QA oversight of LMAS, the manager is also the Acting Enterprise Architect, which requires him to support the Agency's governance structure and to promote the use of common technologies, standards and services. He also told us that he has not been given resources that would help him fulfill his oversight responsibilities to the LMAS project. As a result, the QA Manager was unable to monitor execution of the QA plan and his involvement in the project was limited.

The lack of a robust QA process has placed SBA in a position where it is unduly reliant on DNC and SRA to ensure the quality of their products. While we are encouraged that the governance structure and plans for the project itself are undergoing significant changes that will reduce project risks, SBA will still need to have an effective QA function to ensure that it is meeting its responsibilities to provide independent QA and oversight of its LMAS investment.

RECOMMENDATIONS

We recommend that the LMAS Project Director:

1. Revise the LMAS QA plan to incorporate all the components required by the enterprise-wide QA plan.
2. Take steps to hold TestPros accountable for performing the activities specified in its contract.
3. Revise the TestPros Performance Work Statement to include the IV&V responsibilities previously deleted.

We recommend that the Chief Information Officer:

4. Evaluate and make necessary adjustments to the QA Manager's workload to ensure that he can devote adequate time to oversee complete implementation of the enterprise QA oversight function.

AGENCY COMMENTS AND OFFICE OF INSPECTOR GENERAL RESPONSE

On August 6, 2010, we provided the LMAS Project Director and Acting Chief Information Officer with the draft report for comment. On September 7, 2010, the Associate Administrator for Management and Administration (formerly the LMAS Project Director) submitted a formal response, which is contained in its entirety in Appendix I. The response, which incorporated comments from the Acting CIO, expressed concurrence with all of the recommendations presented in this report.

Management agreed that the LMAS QA plan should be revised to conform completely to the requirements of SBA's enterprise-wide QA plan as stated in recommendation 1, and commented that a revised QA plan has been drafted that conforms to the April 2010 OCIO QA Plan template. In response to recommendations 2 and 3, management agreed that TestPros' IV&V activities should be robust and meaningful. Management stated that the TestPros contract has been modified to reflect that the OCIO QA Manager is now responsible for oversight of the TestPros activities. The LMAS Project Director is also working with the OCIO QA Manager to strengthen LMAS IV&V activities. Management stated that significant progress has been made in implementing the QA processes of the Agency as demonstrated by the QA/IV&V audits and reviews that have already been completed. Further, management stated it did not believe that further revisions to the TestPros Performance Work Statement are necessary to accomplish meaningful IV&V activities on behalf of LMAS, but to the extent that any revisions are necessary, it would be fully supportive of them.

Management concurred with recommendation 4 and stated that the Chief Information Officer has assigned a full-time IT QA manager, who is responsible

for the overall IT QA program operations, including establishing the relevant policy, processes and deliverables to ensure implementation of the IT QA function within SBA. Further, the QA manager has additional resources including contract support staff specific to the LMAS QA function.

Finally, management stated that the CIO has established an IT QA program to validate that information technology investments meet planned requirements and to ensure that LMAS managers and other internal SBA managers utilize consistent practices to manage the successful delivery of new or on-going IT initiatives across Agency programs.

ACTIONS REQUIRED

Please provide your management decision for each recommendation on the attached SBA forms 1824, Recommendation Action Sheet, within 30 days from the date of this report. Your decision should identify the specific action(s) taken or planned for each recommendation and the target date(s) for completion.

We appreciate the courtesies and cooperation of the OCIO, LMAS project staff, and LMAS contractor personnel during this audit. If you have any questions concerning this report, please call me at (202) 205-^[FOIA ex. 2] or Jeffrey Brindle, the Director, Information Technology and Financial Management Group at (202) 205-

[FOIA ex. 2]



U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

DATE: September 7, 2010
TO: Debra S. Ritt, Assistant Inspector General for Auditing
Jeffrey R. Brindle, Director, IT and Financial Management Group, OIG
FROM: David B. Robbins, Associate Administrator for Management and Administration
SUBJECT: Response to the Draft Report on the Adequacy of Quality Assurance Oversight
of the Loan Management And Accounting System Project, Project No. 10002
CC: Paul T. Christy, Acting Chief Information Officer

Thank you for the opportunity to comment on the draft report. My comments and those of the CIO follow the recitation of each recommendation, below.

Recommendation 1: *Revise the LMAS QA plan to incorporate all the components required by the enterprise-wide QA plan.*

Comment: I agree that the LMAS QA plan should be revised to conform completely to the requirements of the SBA enterprise-wide QA plan.

The SBA Chief Information Officer (CIO)

The IT QA function is documented and in the process of getting formal approval for the IT QA Standard Operating Procedures (SOP). This SOP, based on the IT QA Concept of Operations, will serve as required practice for LMAS and all SBA IT investments and projects.

The SBA CIO has assigned a full-time IT QA manager who is responsible for the overall IT QA program operations, including relevant policy, processes and deliverables to ensure implementation of the IT QA function within SBA. Additional resources include contracted support specific to the LMAS QA function.

The overarching goal of the SBA's IT QA program is for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met. Quality is determined by the intended users and stakeholders. The IT QA program has been added to the Audit Visibility Tracking System. This system is being deployed throughout SBA to ensure consistent tracking and monitoring of audit-related activities.

LMAS and any successor projects will implement QA processes that conform to SBA's Enterprise Quality Assurance Plan. LMAS already has drafted a revised QA plan that conforms to the April 2010 OCIO QA Plan template.

Recommendation 2: *Take steps to hold TestPros accountable for performing the activities specified in its contract.*

Comment: I agree that TestPros should be held accountable for performing the activities in its contract.

The TestPros contract has been modified such that TestPros activities are the responsibility of the OCIO QA Manager. That said, I am committed to seeing that the activities of TestPros are appropriately focused and managed and intend to cooperate fully with the OCIO QA Manager towards that end. Significant progress has been made in implementing the quality assurance processes of the agency as demonstrated by the QA/IV&V audits and reviews that have already been completed, as well as the initial follow-up and corrective actions that have begun as a result of those audits and reviews. Further, LMAS QA activities will conform to the IT QA Standard Operating Procedures in the process of being formally approved for SBA-wide use when that approval is given and the procedures become effective.

Recommendation 3: *Revise the TestPros Performance Work Statement to include the IV&V responsibilities previously deleted.*

Comment: I agree that TestPros activities should include robust and meaningful IV&V responsibilities. We have been working with the OCIO QA Manager to strengthen the LMAS IV&V activities. I am not aware that further revisions to the TestPros Performance Work Statement are necessary to accomplish meaningful IV&V activities on behalf of LMAS, although to the extent that any revisions are necessary, we will be fully supportive of them. LMAS will conform to the IT QA Standard Operating Procedures in the process of being formally approved for SBA-wide use when that approval is given and the procedures become effective.

Recommendation 4: *We recommend that the Chief Information Officer evaluate and make necessary adjustments to the QA Manager's workload to ensure that he can devote adequate time to oversee complete implementation of the enterprise QA oversight function.*

Comment: The SBA Chief Information Officer (CIO) concurs with this recommendation and has assigned a full-time IT QA manager who is responsible for the overall IT QA program operations, including relevant policy, processes and deliverables to ensure implementation of the IT QA function within SBA. Additional resources to the QA manager include contracted support specific to the LMAS QA function.

The SBA CIO has also established the Information Technology Quality Assurance (IT QA) program to serve as a management control to validate that information technology investments meet planned requirements and to ensure that LMAS managers, and other internal SBA managers utilize consistent practices to manage the successful delivery of new or on-going Information Technology (IT) initiatives across the agency programs.

The IT QA function is documented and in the process of getting formal approval for the IT QA Standard Operating Procedures (SOP). This SOP, based on the IT QA Concept of Operations, will serve as required practice for LMAS and all SBA IT investments and projects.

The overarching goal of the SBA's IT QA program is for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met. Quality is determined by the intended users and stakeholders. The IT QA program has been added to the Audit Visibility Tracking System. This system is being deployed throughout SBA to ensure consistent tracking and monitoring of audit-related activities.

SIGNED – DAVID B. ROBBINS

David B. Robbins