**The Office of Release Management
Can Improve Controls for
Modernization Program Coordination**

September 2004

Reference Number: 2004-20-157

INSPECTOR GENERAL
for TAX
ADMINISTRATION

September 16, 2004

MEMORANDUM FOR CHIEF INFORMATION OFFICER

Gordon C. Milbourn III

FROM: Gordon C. Milbourn III
Acting Deputy Inspector General for Audit

SUBJECT: Final Audit Report - The Office of Release Management Can Improve Controls for Modernization Program Coordination (Audit # 200420017)

This report presents the results of our review of the effectiveness of the Business Systems Modernization Office's (BSMO) Release Management activities to ensure released projects are tested, minimize crises and disruption to production processes, and deliver systems as described in the project plans, fulfilling stated requirements. This review was part of our Fiscal Year 2004 audit plan for reviews of the Internal Revenue Service's (IRS) Business Systems Modernization (BSM) efforts.

In summary, the BSMO created the Office of Release Management in 2001 as part of the BSM program. The Office of Release Management obtains services from the PRIME contractor[1] and other BSM program contractors, coordinates the delivery of those services, and resolves problems with and between the contractors and the IRS. We reviewed the activities of two subordinate offices of the Office of Release Management: the Release Scheduling Office, which ensures development of strategic/long-term and near-term BSM project release[2] planning to move from the current information systems to the modernized architecture;[3] and the Integration Test and Deployment Office, which provides an integrated testing[4] and deployment program to verify that business and systems requirements will be met by the BSM projects.

---

[1] The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

[2] A release is a specific edition or release of software.

[3] The architecture is the design of a computer system. It sets the standard for all devices that connect to it and all the software that runs on it. The modernized architecture guides the organization of the BSM effort.

[4] Integration testing ensures all system components (hardware and software) are working correctly and collectively with other related or dependent systems.

Generally, the Office of Release Management has served as an effective liaison between the IRS and the BSM contractors in facilitating BSM program activities.

In 1998, the PRIME contractor was designated as the integrator[5] of the BSM program. Since that time, the BSM program has gone beyond the exclusive assignment of the PRIME contractor as its integrator. For example, the BSMO acted as the integrator for the Modernized e-File Project, and the Northrop Grumman Corporation is serving as the integrator for the Custodial Accounting Project. The Office of Release Management has helped facilitate the development, contracting, and testing activities for these non-PRIME BSM projects. It has also performed integration responsibilities for non-PRIME projects requiring the PRIME contractor's services for using the modernized infrastructure.[6] Diversifying the development activities of the overall BSM program will require the BSMO to consider how to assign responsibility for integrating these projects. Without clearly defining who is the integrator for non-PRIME projects and documenting the related responsibilities and processes, the BSMO cannot assure the successful integration of projects developed by multiple contractors.

The Release Scheduling Office has evolved into what it is today by taking on responsibilities as part of the overall BSM program development. The Release Scheduling Office has performed its activities in response to needs of the BSM program and has followed informal processes to accomplish its responsibilities. This Office has recognized the need for formal processes and procedures and has begun documenting some of its activities. However, further work is needed to develop and document its activities to coordinate work and communicate project status among the BSMO, the Information Technology Services organization, and the BSM contractors. Without procedures, the Release Scheduling Office may not consistently perform the work or perform all of the work needed to accomplish its mission.

The Integration Test and Deployment Office uses the Enterprise Life Cycle (ELC)[7] *Systems Evaluation Process Description* (SEPD) to ensure the products provided to the BSMO satisfy the contractual requirements. However, the SEPD does not completely reflect this Office's current responsibilities. Without sufficient detailed guidance, the Integration Test and Deployment Office staff cannot ensure the work is performed effectively and consistently.

To help provide clear direction in the development of the BSM program, we recommended that the Chief Information Officer (CIO) determine whether and how the BSMO will fulfill the BSM program integrator role and document the related responsibilities and processes. Further, to help ensure the mission of the Office of

---

[5] An integrator is an organization that builds systems from a variety of diverse components and coordinates them into a functioning whole.

[6] The modernized infrastructure under development is geographically dispersed over various sites and includes numerous pieces of hardware and software, which must effectively communicate and interact with each other as they support projects that provide benefits to taxpayers and IRS employees.

[7] The ELC establishes a set of repeatable processes and a system of reviews, checkpoints, and milestones that reduce the risks of system development and ensure alignment with the overall business strategy. All IRS and PRIME contractor personnel involved in BSM activities are required to follow the ELC.

Release Management is accomplished, we recommended that the CIO ensure procedures are developed and issued for the Release Scheduling Office to review the accuracy of the Integrated Master Schedule,[8] manage Request for Information Services[9] issues between the IRS and the BSM contractors, facilitate use of PRIME contractor services for non-PRIME projects, and provide BSM contractor staff access to IRS computer systems. Also, we recommended that the CIO ensure the SEPD is updated to provide adequate guidance for the activities to be performed by the Integration Test and Deployment Office staff.

Management's Response: IRS management agreed with the report recommendations and stated that corrective actions are underway to address them. Some responsibility for implementing the recommendation to define the BSMO's role and processes as the BSM integrator will be addressed by the Office of the Associate CIO (ACIO) for Enterprise Services. Steps are underway to restructure the Modernization and Information Technology Services organization to include this new role. This ACIO will ultimately manage, direct, and oversee crosscutting areas that involve highly complex, mission critical information system initiatives. Further, the CIO agreed with the recommendations to develop, complete, or update guidance for managing the activities in the Office of Release Management, and is considering the report's proposed guidelines as presented in Appendix IV. Management's complete response to the draft report is included as Appendix VI.

Copies of this report are also being sent to the IRS managers affected by the report recommendations. Please contact me at (202) 622-6510 if you have questions or Margaret E. Begg, Assistant Inspector General for Audit (Information Systems Programs), at (202) 622-8510.

---

[8] The Integrated Master Schedule provides a schedule for project development and integration of all BSM projects.
[9] A Request for Information Services is required to document any service or product that a BSM project requires from an IRS organization, in order for the project to successfully complete its work.

Table of Contents

The Office of Release Management Can Improve Controls for
Modernization Program Coordination

Background	The Internal Revenue Service (IRS) Business Systems Modernization Office (BSMO) created the Office of Release Management in 2001 as part of the modernization acquisition organization. The Office of Release Management acquires services from the PRIME contractor[1] and other Business Systems Modernization (BSM) program contractors, coordinates the delivery of those services, and resolves problems with and between the contractors and the IRS.

The mission of the Office of Release Management is to help facilitate BSM project development by ensuring projects are thoroughly planned and tested as described in the project plans. Additionally, it provides configuration management[2] processes and procedures for all BSMO, PRIME contractor, and other contractor personnel supporting the BSM program.

To accomplish its mission, the Office of Release Management has established three subordinate offices assigned to perform the following activities:

- The Release Scheduling Office ensures development of strategic/long-term and near-term BSM project release[3] planning to move from the current information systems to the modernized architecture.[4]

- The Integration Test and Deployment Office provides an integrated testing[5] and deployment program to verify that business and systems requirements will be met by the BSM projects.

---

[1] The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

[2] Configuration management involves establishing proper control over approved project documentation, hardware, and software and assuring changes are authorized, controlled, and tracked.

[3] A release is a specific edition or release of software.

[4] The architecture is the design of a computer system. It sets the standard for all devices that connect to it and all the software that runs on it. The modernized architecture guides the organization of the BSM effort.

[5] Integration testing ensures all system components (hardware and software) are working correctly and collectively with other related or dependent systems.

- The Configuration Management Office defines and documents the BSM configuration management process and procedures.

This review was performed at the BSMO facilities in New Carrollton, Maryland, during the period March through June 2004. The scope of our work was limited to the activities of the Release Scheduling and Integration Test and Deployment Offices. We did not review the activities of the Configuration Management Office due to other recent audit work.[6] The audit was conducted in accordance with *Government Auditing Standards*. Detailed information on our audit objective, scope, and methodology is presented in Appendix I. Major contributors to the report are listed in Appendix II. Appendix V presents an overview of the components of the Enterprise Life Cycle (ELC).[7]

The Office of Release Management Is Taking Positive Steps to Document Its Activities

The Office of Release Management has generally served as an effective liaison between the IRS and the BSM contractors in facilitating BSM program activities. The Office has accomplished the liaison responsibilities by regularly hosting and attending meetings with the BSMO and PRIME contractor, such as the Delivery Integration Status conference call during which project testing and deployment status are monitored. Also, as the BSMO liaison, the Office of Release Management has generally acted as an effective contact point in communicating and elevating BSM issues to responsible IRS or PRIME contractor managers to address project development, testing, and deployment concerns. It has:

- Provided input to the *Systems Evaluation Process Description* (SEPD) guidance document that is used in managing the testing of BSM projects.

---

[6] *Additional Actions Are Needed to Establish and Maintain Controls Over Computer Hardware and Software Changes* (Reference Number 2004-20-026, dated December 2003).
[7] The ELC establishes a set of repeatable processes and a system of reviews, checkpoints, and milestones that reduce the risks of system development and ensure alignment with the overall business strategy. All IRS and PRIME contractor personnel involved in BSM activities are required to follow the ELC.

- Developed the monitoring plan[8] and acquisition management plan[9] for the Non-PRIME Projects Integration Office Task Order.[10]

- Drafted procedures to assist non-PRIME projects interested in obtaining PRIME contractor services.

Although the Office of Release Management is taking steps to document its procedures, it needs to either complete or further enhance documentation for the activities it performs. This report addresses the activities performed by the Release Scheduling Office and the Integration Test and Deployment Office that need documented guidance.

The Integrator Role Is Not Clearly Defined in the Modernization Program

During previous efforts in the 1990s to modernize its information systems, the IRS acted as the integrator[11] of the Tax Systems Modernization (TSM) program. In July 1995, the Government Accountability Office (GAO) [formerly the General Accounting Office] expressed concerns with the TSM program performance and reported that the IRS' system architecture, integration, testing and test planning were incomplete.[12] The IRS subsequently disbanded the TSM effort.

When the modernization effort resumed in 1998, the PRIME contractor was designated as the integrator of the BSM program. However, the BSM program has gone beyond the exclusive assignment of the PRIME contractor as its integrator.

---

[8] The monitoring plan provides detailed technical oversight of the contractor's performance.

[9] An acquisition management plan provides the acquisition strategy, relevant policies that will be followed, tasks to be performed, resources needed, and other planning-related information for project development.

[10] The Non-PRIME Projects Integration Office Task Order is used to contract for PRIME contractor services to implement projects to operate with the modernized infrastructure. Modifications to the task order are developed for each project obtaining the PRIME contractor's services.

[11] An integrator is an organization that builds systems from a variety of diverse components and coordinates them into a functioning whole.

[12] *Tax Systems Modernization: Management and Technical Weaknesses Must Be Corrected If Modernization Is to Succeed* (GAO/AIMD-95-156, dated July 1995).

For example, the BSMO acted as the integrator for the Modernized e-File Project,[13] and the Northrop Grumman Corporation is serving as the integrator for the Custodial Accounting Project.[14] The Office of Release Management has helped facilitate the development, contracting, and testing activities for these non-PRIME Modernization projects. It has also performed integration responsibilities for non-PRIME projects requiring PRIME contractor services for using the modernized infrastructure.[15] These activities are described in more detail in a later section of this report.

Further, the IRS Commissioner recently decided to use a contractor other than the PRIME contractor for the development of the BSM Collection Contract Support (CCS) Project.[16] For the CCS Project, the BSMO will have to decide whether it will take over the integration of the system into the modernized infrastructure, contract with the PRIME contractor to perform the integration activities, or use another contractor for the integration activities.

Diversifying the development activities of the overall BSM program will require the BSMO to consider how to assign responsibility for integrating these projects. The Office of Release Management's mission may evolve into the role of program integrator. Just as documenting the responsibilities mentioned in the previous section will help the Office of Release Management accomplish its mission, clearly defining who is the integrator for non-PRIME projects and documenting the related responsibilities and processes will

---

[13] The Modernized e-File Project will develop the modernized web-based platform for filing approximately 330 IRS forms electronically, beginning with the selected forms for corporate and tax exempt organization returns.

[14] The Custodial Accounting Project is being developed to provide the IRS a data warehouse of detailed taxpayer account information to be used for analysis and financial reporting.

[15] The modernized infrastructure under development is geographically dispersed over various sites and includes numerous pieces of hardware and software, which must effectively communicate and interact with each other as they support projects that provide benefits to taxpayers and IRS employees.

[16] The CCS Project will leverage technology improvements and private collection agencies to assist the IRS in collecting delinquent taxes.

be necessary to assure the successful integration of projects developed by multiple contractors.

Recommendation

1. To help provide clear direction in the development of the BSM program, the Chief Information Officer (CIO) should determine whether and how the BSMO will fulfill the BSM program integrator role and document the related responsibilities and processes.

Management's Response: The CIO will assign some of the responsibility for the implementation of this recommendation to the Office of the Associate CIO (ACIO) for Enterprise Services. Steps are underway to restructure the Modernization and Information Technology Services organization to include this new role. This ACIO will ultimately manage, direct, and oversee crosscutting areas that involve highly complex, mission critical information system initiatives such as demand analysis, enterprise architecture, configuration management, project reporting, enterprise life cycle management, and systems engineering.

The Release Scheduling Office Does Not Have Formally Documented Procedures to Direct Its Activities

The Release Scheduling Office helps to ensure development of strategic/long-term and near-term release planning to implement the modernized architecture. To accomplish this mission, it:

- Obtains services from the PRIME contractor's Release Management Office, including the Integrated Master Schedule (IMS), which provides a schedule for project development and integration of all BSM projects.

- Attends and hosts various meetings with the BSMO, IRS, and BSM contractors to assist in communicating project status and to facilitate problem resolution. These liaison activities help minimize project disruption and promote project delivery.

- Coordinates project hardware and software requirements and project development services between the BSM contractor staff and the IRS.

The Release Scheduling Office has evolved into what it is today by taking on responsibilities as part of the overall BSM program development. The Release Scheduling

Office has performed its activities in response to needs of the BSM program and has followed informal processes to accomplish its responsibilities. It has recognized the need for formal processes and procedures and has begun documenting some of its activities.

Without procedures, the Release Scheduling Office may not consistently perform the work or perform all of the work needed to accomplish its mission. The GAO *Standards for Internal Control in the Federal Government* state that information should be recorded and communicated to management and others within the entity who need it and in a form and within a time period that enables them to carry out their responsibilities.

The IMS does not include a review to ensure its accuracy

The IMS provides a schedule for project development and integration of all BSM projects. The purposes of schedules are to provide information needed to monitor and control the work of the project or program and to identify dependencies between project offices and other projects or organizations, including IRS organizations.

Analysis of the IMS helps manage resources and focus attention on those areas of the BSM program that pose the most risk to a project's schedule objectives. The IMS furnishes the ability to identify critical milestones and supporting activities, summarize detailed schedule data to total program levels, and evaluate the impact of current schedule performance on future activities and events.

The ELC includes a requirement that the BSMO perform quality reviews and validation of program and release schedules, review program revisions and redirection, and facilitate the dissemination and distribution of program schedules. The Release Scheduling Office receives the release schedules and the IMS from the PRIME contractor but has not been reviewing the content of the schedules. It has relied on the PRIME contractor to produce the schedules and on the BSM project staff members to identify and address any inaccuracies in the schedules.

In March 2004, the IRS received results from a review of the IMS activities conducted by an independent consulting firm. The reported problems with the IMS included

observations that it has been consistently inaccurate and
unreliable. The independent consulting firm provided
recommendations that included developing a formal review
process to ensure IMS integrity.

The Release Scheduling Office is currently working with
the BSMO Business Integration Program Control Office to
develop guidance to effectively assess the reliability and
accuracy of the IMS. Currently, the Business Integration
Program Control Office performs analyses of portions of the
IMS. However, this Office has not prepared and published
guidance to perform these analyses.

Guidance is not in place for coordinating the completion of Request for Information Services (RIS)[17] issues between the BSM contractors and the IRS

In the Release Scheduling Office's role to provide support
to the PRIME contractor's Release Management Office, it
becomes involved in resolving various types of issues
requiring clarification of project development activity. One
type of involvement is the Release Scheduling Office's role
in coordinating completion of RIS issues in weekly RIS
meetings. The purpose of these meetings is to discuss the
current RIS requirements and come to agreement on the RIS
expectations.

The Release Scheduling Office is responsible for resolving
RIS issues if a BSM contractor and the IRS have reached an
impasse regarding the requested information technology
service. The resolution of these issues becomes significant
when the issues affect the work performance on a BSM
project. If the Release Scheduling Office cannot negotiate a
resolution, the unresolved RIS issue is forwarded to BSM
executives. During the BSM executive meetings, the issues
are discussed and a compromise is secured. Once a RIS
issue has been resolved, the RIS is added to the IMS and the
IRS proceeds to develop and deliver the required service.

The Release Scheduling Office currently has no guidance to
manage the coordination of RIS issues between the IRS and

---

[17] A RIS is required to document any service or product that a BSM
project requires from an IRS organization, in order for the project to
successfully complete its work.

BSM contractors. It did not consider its involvement in the resolution of RIS issues significant enough to require specific procedures.

Without a documented RIS process, Release Scheduling Office employees cannot ensure they provide adequate and consistent coordination to effectively resolve RIS issues between the IRS and the BSM contractors. If RIS issues are not resolved timely, they could delay the IRS from performing the required services for the BSM contractors, thus affecting the completion of a BSM project.

<u>Guidance is not in place to assist non-PRIME projects in acquiring the PRIME contractor's services to use the modernized infrastructure</u>

The Release Scheduling Office is responsible for assisting non-PRIME projects in acquiring the PRIME contractor's services to use the modernized infrastructure. Non-PRIME projects include BSM projects not being developed by the PRIME contractor and projects being developed by the IRS that require the use of the modernized infrastructure. The Release Scheduling Office assists non-PRIME projects' staffs by coordinating contracting activities with the PRIME contractor.

The Release Scheduling Office has developed a listing that identifies and controls the precontract award activities for non-PRIME projects interested in obtaining the PRIME contractor's services. It has also developed a draft procedure with additional detail for some of the precontract award activities included in the listing. In addition, it has developed a monitoring plan that describes the principal roles, responsibilities, and procedures for monitoring the contractor's performance under the task order. While these documents provide the activities that need to be performed, they do not include sufficient detail to guide all activities that the Release Scheduling Office needs to perform to facilitate use of the PRIME contractor's services.

As of March 30, 2004, there were four non-PRIME BSM projects (Modernized e-File, Custodial Accounting Project, Internet Employer Identification Number, and Internet Refund Fact of Filing) that had ongoing PRIME contract activities for services to use the modernized infrastructure.

The Release Scheduling Office is coordinating and managing these PRIME contract activities. In addition, it coordinates preaward contract assessments that provide a project with a cost estimate for the project to use the modernized infrastructure. As of March 30, 2004, there were two BSM projects (Enterprise-wide Relationship Management and Individual Taxpayer Identification Number) in the process of having preaward contract assessments developed.

The BSMO Acquisition Management Directives provide the policy for determining the adequacy of contract performance. While there is guidance for assessing contract performance activities, the guidance does not provide the detail needed to conduct the non-PRIME contract assessment activities that the Release Scheduling Office is responsible for performing.

Without detailed documented guidelines about facilitating the non-PRIME project activities, the Release Scheduling Office staff cannot assure consistent and effective assistance to non-PRIME projects seeking to use the modernized infrastructure. If the Office of Release Management assumes an expanded role as integrator with the number of non-PRIME projects increasing, detailed procedures will become more important to ensure a smooth process for using the modernized infrastructure.

Guidance is not in place to facilitate access to IRS systems for BSM contractors

The IRS developed an automated online system to control personnel requests and access to the IRS information systems. This online system replaced a manual process that used a paper form, Information System User Registration/Change Request (Form 5081), to control access. When developing the automated online system (known as the Online 5081), the IRS did not develop a process for contractor personnel to request access to the IRS' information systems. The automated system was designed to compare requests for access against the IRS payroll system and verify that the personnel were actually IRS employees. Since contractor personnel are not in the payroll system, IRS personnel requesting access for them could not complete the requests using the automated system.

For example, during the development of the e-Services Project, work stoppage occurred because the PRIME contractor had difficulty gaining access to IRS systems. Since a process was not in place to request and gain access to IRS systems for contractor personnel, the BSMO Office of Release Management assumed responsibility for assisting the PRIME contractor personnel in obtaining access to the IRS systems.

The Release Scheduling Office began a weekly teleconference to resolve immediate work stoppages and to facilitate the resolution of issues that may become work stoppages. In addition, it assisted PRIME contractor personnel in obtaining access to IRS systems by manually entering them into the online system. The Release Scheduling Office has now assumed the role for controlling the nonautomated requests for system access for all BSM contractor personnel. It currently has no formal documented guidance for non-IRS personnel using the nonautomated process to obtain access to IRS systems.

Without a documented process, the Office of Release Management staff responsible for the nonautomated process cannot assure consistent and effective management of this process. If contractors are not able to obtain timely access to IRS systems, work stoppages may occur. The work stoppages could result in additional costs for those affected BSM projects, since the contractors would continue to charge the IRS for the time they are unable to perform work on the IRS systems. In addition, if system access is not properly managed and contractors' access is not timely removed, there could be unauthorized access to IRS systems.

The Modernization and Information Technology Services organization is currently implementing new network access procedures as part of the IRS' transition to a new operating system infrastructure. Users, including most contractors, will be required to use a Standard Employee Identifier (SEID) to access the IRS computer information systems network. To obtain an SEID, the IRS must register the contractors in the Online 5081 database. This process is planned to begin implementation in July 2004. The Release

Scheduling Office needs to ensure compliance with the IRS-wide guidance.

Recommendation

2. To help ensure the mission of the Office of Release Management is accomplished, the CIO should ensure procedures are developed and issued for:

    - Reviewing the accuracy of the IMS.

    - Managing RIS issues between the IRS and the BSM contractors.

    - Facilitating use of PRIME contractor services for non-PRIME projects.

    - Providing BSM contractor staff access to IRS computer systems.

    For details of the specific procedures to consider, see Appendix IV.

    Management's Response: The CIO directed the Office of Release Management to develop and issue procedures to help ensure it accomplishes its mission. In developing these procedures, the Office of Release Management is considering this report's proposed guidelines.

Testing Responsibilities Are Not Always Defined Clearly in the Integration Test and Deployment Office's Testing Procedures

The Integration Test and Deployment Office coordinates and oversees integration test and deployment activities from the end of project development through deployment. It reviews requirements for testability and assesses test environment readiness. It also ensures accomplishment of test and deployment planning, execution, reporting, and monitoring.

The Integration Test and Deployment Office uses the ELC SEPD to ensure the products provided to the BSMO satisfy the contractual requirements (i.e., systems software and hardware requirements, contractual agreements, conditions, and terms). The Integration Test and Deployment Office provided input to the SEPD about its role in testing activities. However, the SEPD does not completely reflect its current responsibilities.

- The SEPD requires the Integration Test and Deployment Office to ensure rescheduling of tests previously deferred. When a test is deferred, the project team may prepare a change request. The Integration Test and Deployment Office looks at all impending change requests once they are approved. However, the SEPD does not require verification that a change request has been completed for all deferred tests.

- The SEPD requires the Integration Test and Deployment Office to coordinate reviewing and approving or rejecting requests to waive or defer tests to allow testing to proceed. However, current guidance does not provide the attributes of test waivers or deferrals that should be reviewed or verified.

- The SEPD requires the Integration Test and Deployment Office to resolve problems that continue into the postdevelopment stage (after ELC Milestone 4) of a project (see Appendix V for an overview of the ELC). The Integration Test and Deployment Office manager informed us that this activity is the responsibility of the specific BSM project office.

- The SEPD does not include a requirement for reviewing test folders documenting test results for completeness. However, the Integration Test and Deployment Office manager considered test folder reviews necessary, and his staff does review test folders to ensure tests were properly performed.

- The Integration Test and Deployment Office's mission statement includes responsibility for reviewing whether requirements can be tested. However, the SEPD does not include any tasks or activities to accomplish this.

Without sufficient detailed guidance, the Integration Test and Deployment Office cannot ensure its work is performed effectively and consistently. In addition, with the SEPD incorrectly assigning the Integration Test and Deployment Office responsibility for an activity, it would be held accountable for completing an activity that is outside of its scope of responsibility.

Recommendation

3. The CIO should ensure the SEPD is updated to provide adequate guidance for the activities to be performed by the Integration Test and Deployment Office staff. For details of the specific procedures to consider, see Appendix IV.

Management's Response: The CIO directed the Office of Release Management to develop and issue procedures under the SEPD to provide the specific guidance to address the issues recommended.

Detailed Objective, Scope, and Methodology

The overall objective of this review was to determine the effectiveness of the Business Systems Modernization Office's (BSMO) Release Management activities to ensure released projects are tested, minimize crises and disruption to production processes, and deliver systems as described in the project plans, fulfilling stated requirements. This review was part of our Fiscal Year 2004 audit plan for reviews of the Internal Revenue Service's (IRS) Business Systems Modernization (BSM) efforts. To accomplish our objective, we:

I.   Determined the purpose for establishing the BSMO Office of Release Management and whether it provided effective direction for the BSM program.

    A. Determined how the Office of Release Management participated in the assessment of the BSMO's progress.

    B. Determined how the Director, Release Management, managed and assessed the effectiveness and efficiency of the Office of Release Management.

II. Determined whether the addition of program guidance could improve the effectiveness of the Office of Release Management.

    A. Identified Enterprise Life Cycle (ELC)[1] guidance that could provide the Office of Release Management with procedures to direct its activities.

    B. Determined how the Release Scheduling and Integration Test and Deployment Offices within the Office of Release Management conducted and documented their work.

    C. Determined what specific procedures were needed to guide the Release Scheduling Office staff in overseeing the PRIME contractor's work, resolving problems that arise, and assisting non-PRIME projects in acquiring the PRIME contractor's services.

---

[1] The ELC establishes a set of repeatable processes and a system of reviews, checkpoints, and milestones that reduce the risks of system development and ensure alignment with the overall business strategy. All IRS and PRIME contractor personnel involved in BSM activities are required to follow the ELC. The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

D. Determined what specific procedures were needed to guide the Integration Test and Deployment Office staff in coordinating testing activities, overseeing the PRIME contractor's work, and resolving problems that arise during testing.

E. Determined whether the Office of Release Management coordination activities or recommendations have been adequately documented and controlled.

Major Contributors to This Report

Margaret E. Begg, Assistant Inspector General for Audit (Information Systems Programs)
Gary Hinkle, Director
Edward A. Neuwirth, Audit Manager
Mark Carder, Senior Auditor
Michael Garcia, Senior Auditor
Beverly Tamanaha, Senior Auditor

Report Distribution List

Commissioner C
Office of the Commissioner – Attn: Chief of Staff C
Deputy Commissioner for Operations Support OS
Associate Chief Information Officer, Business Systems Modernization OS:CIO:B
Director, Stakeholder Management Division OS:CIO:SM
Deputy Associate Chief Information Officer, Systems Integration OS:CIO:B:SI
Director, Release Management OS:CIO:B:SI:RM
Chief Counsel CC
National Taxpayer Advocate TA
Director, Office of Legislative Affairs CL:LA
Director, Office of Program Evaluation and Risk Analysis RAS:O
Office of Management Controls OS:CFO:AR:M
Audit Liaisons:
      Associate Chief Information Officer, Business Systems Modernization OS:CIO:B
      Manager, Program Oversight Office OS:CIO:SM:PO

Operating Procedures for the Office of Release Management

This appendix presents operating procedures for the Business Systems Modernization (BSM) Release Scheduling and the Integration Test and Deployment Offices within the Office of Release Management to consider in performing their work.

Release Scheduling Office

The Release Scheduling Office should consider developing procedures to describe its roles and responsibilities in facilitating the following BSM program efforts:

- Reviewing the accuracy of the Integrated Master Schedule (IMS).[1]

- Coordinating completion of Request for Information Services (RIS)[2] issues between the BSM contractors (the PRIME[3] and other contractors providing BSM program services) and the Internal Revenue Service (IRS).

- Developing and managing a process for non-PRIME projects to acquire the PRIME contractor's services.

- Developing and managing a process for BSM contractor staff to gain access to IRS information systems.

The following presents the possible elements for each of these activities:

Reviewing the accuracy of the IMS

The Release Scheduling Office, in coordination with the Business Integration Program Control Office within the BSM Office, should consider developing and publishing detailed guidance and assigning responsibility for reviewing the accuracy of the IMS that includes:

- Assessing the accuracy of the IMS and the release schedule information received from the PRIME contractor, such as:

  - IRS project tasks.

  - Change requests.

---

[1] The IMS provides a schedule for project development and integration of all BSM projects.
[2] A RIS is required to document any service or product that a BSM project requires from an IRS organization, in order for the project to successfully complete its work.
[3] The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

- - Cross-project dependencies including RISs and memoranda of understanding.

  - Non-BSM project schedules.

  - Other non-PRIME modernization project schedules.

- Time periods for the Release Scheduling Office and Business Integration Program Control Office to perform IMS reviews.

- A managerial approval process to assess the adequacy of the IMS review.

- The IMS information used by BSM offices for assessing timelines, slippages, and overall performance.

- A process to verify that the IMS and release schedules agree with project milestone completion dates. Steps need to be developed to resolve any discrepancies or issues, and the process needs to include procedures for escalating unresolved issues to executive management.

- A periodic report detailing the status of issues that need reconciliation between the project status and the IMS status, along with a process to track and monitor issues and discrepancies identified, to ensure the next IMS has the corrected information.

Coordinating completion of RIS issues between the BSM contractors and the IRS

The Release Scheduling Office should consider developing procedures that include:

- A description of the Release Scheduling Office staff's roles and responsibilities in resolving differences in RIS requirements between the BSM contractors and the IRS.

- A process for documenting the actions taken by the Release Scheduling Office to achieve resolution of differences in RIS requirements between the BSM contractors and the IRS. The process should include documentation to assess progress of the RIS resolution activity, including:

  - RIS issue description.

  - IRS organizations involved in the issue.

  - Date the RIS issue was first considered by the Release Scheduling Office.

  - Date the Release Scheduling Office achieved resolution of the RIS issue.

  - If not resolved by the Release Scheduling Office, date the RIS issue was submitted to the BSM executives.

  - Date the BSM executives achieved resolution of the RIS issue.

  - History of actions taken to achieve resolution of the RIS issue.

  - Date the RIS was placed on the IMS and verified by the Release Scheduling Office.

- Time period to achieve resolution of the RIS issue.

- A managerial review to ensure RIS data accuracy.

- Based on RIS data collected, a process to identify RIS issue trends to determine if similar issues continue to arise.

- A process for preparing biweekly RIS status reports for the BSM executives' meeting.

- An outline for training Information Technology Services organization staff on the Release Scheduling Office's role in the RIS issue resolution process.

Developing and managing a process for non-PRIME projects to acquire the PRIME contractor's services

The Release Scheduling Office should consider:

- Updating draft guidance for integrating non-PRIME project activities into the modernized infrastructure[4] to include:

  - References to specific guidance, law, or criteria relied upon in performing non-PRIME project integration activities (e.g., providing input about contract specifications for accessing the modernized infrastructure).

  - Detailed steps and templates for preparing proposed requisition and specific contract actions (referred to as definitization) to use the modernized infrastructure.

  - The process used to definitize task order proposal modifications.

  - The process and schedule for contract voucher reviews.

  - The steps to resolve significant issues arising in project development before they need to be escalated to executive management.

  - A managerial approval process for the non-PRIME integration activities to ensure the accuracy of the data and information being captured.

  - A process to track funding.

  - Any additional information templates/questionnaires/checklists to be completed about projects.

  - Lessons learned from prior projects.

- Updating the Office of Release Management web site to include information about the processes for IRS business units to use in obtaining the PRIME contractor's services to integrate IRS information system development projects into the modernized infrastructure.

---

[4] The modernized infrastructure under development is geographically dispersed over various sites and includes numerous pieces of hardware and software, which must effectively communicate and interact with each other as they support projects that provide benefits to taxpayers and IRS employees.

This information should include the available PRIME contractor's services, information templates/questionnaires to be completed about the project, and points of contact.

Developing and managing a process for BSM contractor staff to gain access to IRS information systems

The Release Scheduling Office should consider developing guidance including:

- A process to monitor BSM contractors with access to systems and their need for continued access to the systems.

- Certification of security/background investigation completion before access is granted.

- Verification that an IRS point of contact is listed.

- A method to ensure managerial approval on the form is appropriate.

- A process for tracking when the time period for the access has expired.

- Steps to be followed, lessons learned, and points of contact to assist Release Scheduling Office staff in obtaining access to IRS systems for contractors and other non-IRS Federal Government employees.

Integration Test and Deployment Office

The Integration Test and Deployment Office provided input about its testing role to the guidance document called the *Systems Evaluation Process Description*. Other items to consider include:

- A step to verify that a change request has been completed for all test deferrals to ensure tests have been rescheduled for later testing.

- A reference to standards or checklists for use in reviewing test waivers and deferrals.

- A requirement for conducting test folder reviews along with the references to any standards or checklists to be used in conducting the reviews.

- The specific steps to review requirements for testability.

- The lessons learned and best practices in assessing testing processes and procedures.

- The removal of requirements that the Integration Test and Deployment Office ensures disposition of deferrals and remaining product defects after testing is completed.

Enterprise Life Cycle Overview

The Enterprise Life Cycle (ELC) defines the processes, products, techniques, roles, responsibilities, policies, procedures, and standards associated with planning, executing, and managing business change. It includes redesign of business processes; transformation of the organization; and development, integration, deployment, and maintenance of the related information technology applications and infrastructure. Its immediate focus is the Internal Revenue Service (IRS) Business Systems Modernization (BSM) program. Both the IRS and the PRIME contractor[1] must follow the ELC in developing/acquiring business solutions for modernization projects.

The ELC framework is a flexible and adaptable structure within which one plans, executes, and integrates business change. The ELC process layer was created principally from the Computer Sciences Corporation's Catalyst® methodology.[2] It is intended to improve the acquisition, use, and management of information technology within the IRS; facilitate management of large-scale business change; and enhance the methods of decision making and information sharing. Other components and extensions were added as needed to meet the specific needs of the IRS BSM program.

ELC Processes

A process is an ordered, interdependent set of activities established to accomplish a specific purpose. Processes help to define what work needs to be performed. The ELC methodology includes two major groups of processes:

- **Life-Cycle Processes**, which are organized into phases and subphases and address all domains of business change.

- **Management Processes**, which are organized into management areas and operate across the entire life cycle.

---

[1] The PRIME contractor is the Computer Sciences Corporation, which heads an alliance of leading technology companies brought together to assist with the IRS' efforts to modernize its computer systems and related information technology.

[2] The IRS has acquired a perpetual license to Catalyst® as part of the PRIME contract, subject to certain restrictions. The license includes rights to all enhancements made to Catalyst® by the Computer Sciences Corporation during the contract period.

Enterprise Life-Cycle Processes
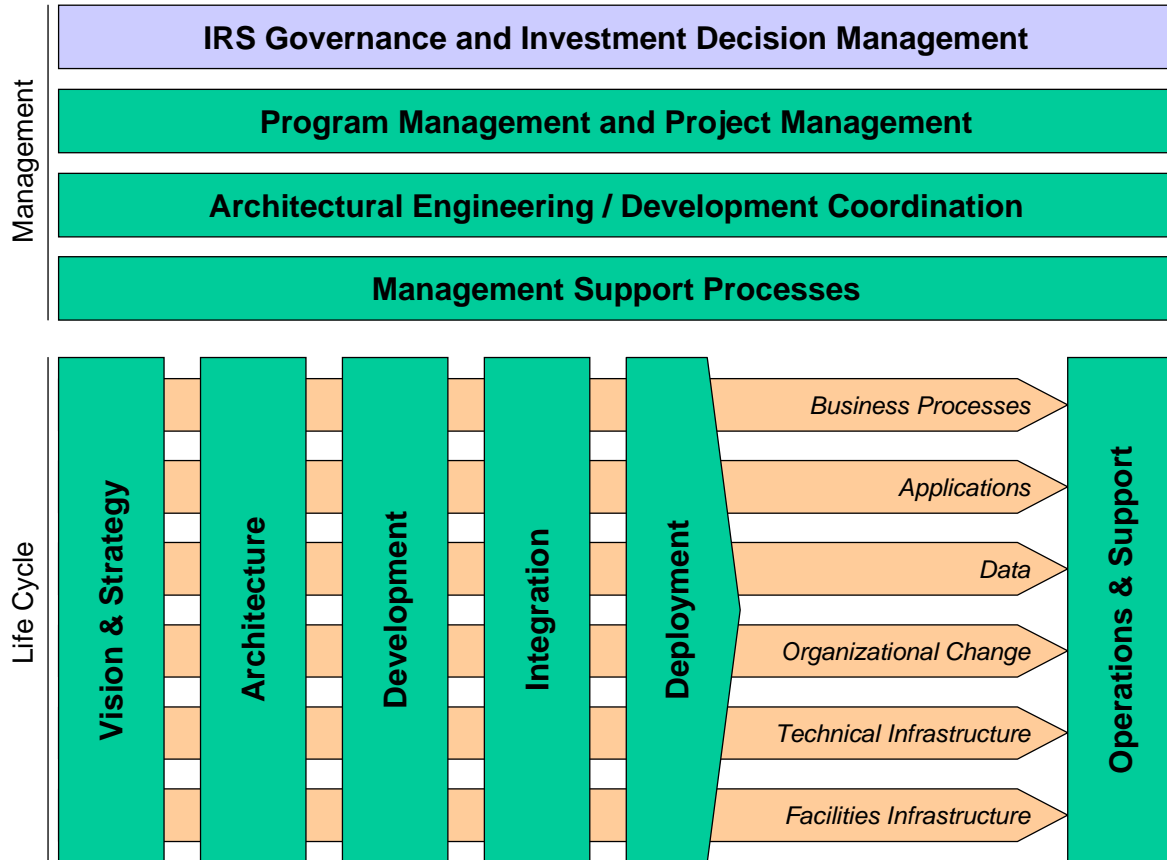
Source: ELC Guide, Page 2-16.

Life-Cycle Processes

The life-cycle processes of the ELC are divided into six phases, as described below:

- **Vision and Strategy** - This phase establishes the overall direction and priorities for business change for the enterprise. It also identifies and prioritizes the business or system areas for further analysis.

- **Architecture** - This phase establishes the concept/vision, requirements, and design for a particular business area or target system. It also defines the releases for the business area or system.

- **Development** - This phase includes the analysis, design, acquisition, modification, construction, and testing of the components of a business solution. This phase also includes routine planned maintenance of applications.

- **Integration** - This phase includes the integration, testing, piloting, and acceptance of a release. In this phase, the integration team brings together individual work packages of solution components developed or acquired separately during the Development phase. Application and technical infrastructure components are tested to determine whether they interact properly. If appropriate, the team conducts a pilot to ensure all elements of the business solution work together.

- **Deployment** - This phase includes preparation of a release for deployment and actual deployment of the release to the deployment sites. During this phase, the deployment team puts the solution release into operation at target sites.

- **Operations and Support** - This phase addresses the ongoing operations and support of the system. It begins after the business processes and system(s) have been installed and have begun performing business functions. It encompasses all of the operations and support processes necessary to deliver the services associated with managing all or part of a computing environment.

  The Operations and Support phase includes the scheduled activities, such as planned maintenance, systems backup, and production output, as well as the nonscheduled activities, such as problem resolution and service request delivery, including emergency unplanned maintenance of applications. It also includes the support processes required to keep the system up and running at the contractually specified level.

Management Processes

Besides the life-cycle processes, the ELC also addresses the various management areas at the process level. The management areas include:

- **IRS Governance and Investment Decision Management** - This area is responsible for managing the overall direction of the IRS, determining where to invest, and managing the investments over time.

- **Program Management and Project Management** - This area is responsible for organizing, planning, directing, and controlling the activities within the program and its subordinate projects to achieve the objectives of the program and deliver the expected business results.

- **Architectural Engineering/Development Coordination** - This area is responsible for managing the technical aspects of coordination across projects and disciplines, such as managing interfaces, controlling architectural changes, ensuring architectural compliance, maintaining standards, and resolving issues.

- **Management Support Processes** - This area includes common management processes, such as quality management and configuration management that operate across multiple levels of management.

Milestones

The ELC establishes a set of repeatable processes and a system of milestones, checkpoints, and reviews that reduce the risks of system development, accelerate the delivery of business solutions, and ensure alignment with the overall business strategy. The ELC defines a series of milestones in the life-cycle processes. Milestones provide for "go/no-go" decision points in the project and are sometimes associated with funding approval to proceed. They occur at natural breaks in the process where there is new information regarding costs, benefits, and risks and where executive authority is necessary for next phase expenditures.

There are five milestones during the project life cycle:

- **Milestone 1 - Business Vision and Case for Action.** In the activities leading up to Milestone 1, executive leadership identifies the direction and priorities for IRS business change. These guide which business areas and system development projects are funded for further analysis. The primary decision at Milestone 1 is to select BSM projects based on both the enterprise-level Vision and Strategy and the Enterprise Architecture.

- **Milestone 2 - Business Systems Concept and Preliminary Business Case.** The activities leading up to Milestone 2 establish the project concept, including requirements and design elements, as a solution for a specific business area or business system. A preliminary business case is also produced. The primary decision at Milestone 2 is to approve the solution/system concept and associated plans for a modernization initiative and to authorize funding for that solution.

- **Milestone 3 - Business Systems Design and Baseline Business Case.** In the activities leading up to Milestone 3, the major components of the business solution are analyzed and designed. A baseline business case is also produced. The primary decision at Milestone 3 is to accept the logical system design and associated plans and to authorize funding for development, test, and (if chosen) pilot of that solution.

- **Milestone 4 - Business Systems Development and Enterprise Deployment Decision.** In the activities leading up to Milestone 4, the business solution is built. The system is integrated with other business systems and tested, piloted (usually), and prepared for deployment. The primary decision at Milestone 4 is to authorize the release for enterprise-wide deployment and commit the necessary resources.

- **Milestone 5 - Business Systems Deployment and Postdeployment Evaluation.** In the activities leading up to Milestone 5, the business solution is fully deployed, including delivery of training on use and maintenance. The primary decision at Milestone 5 is to authorize the release of performance-based compensation based on actual, measured performance of the business system.

Management's Response to the Draft Report

DEPARTMENT OF THE TREASURY
INTERNAL REVENUE SERVICE
WASHINGTON, D.C. 20224

RECEIVED

SEP 0 1 2004

CHIEF INFORMATION OFFICER

August 31, 2004

MEMORANDUM FOR ACTING DEPUTY INSPECTOR GENERAL FOR AUDIT

FROM: W. Todd Grams
                         Chief Information Officer

SUBJECT: Draft Report - The Office of Release Management Can
                         Improve Controls for Modernization Program Coordination
                         (Audit # 200420017 – ECMS 0408-63PJLRBL)

We would like to express our appreciation for the opportunity to review the referenced
draft audit report and the open communication and constructive engagement practiced
by your audit team during this review.

We agree with your assessment that the Office of Release Management is taking
positive steps to document its procedures, and we agree that additional enhancements
are needed. As we continue our planning for the next fiscal year, the Office of Release
Management will focus on:

- Supporting release tactical planning
- Documenting the coordination of requests for information services (RISs)
- Deploying defect review boards and deployment coordination meetings

Our FY 2005 funding request supports Release Management efforts in improving the
quality and management of the Integrated Master Schedule and staffing to facilitate the
oversight of contractor access to IRS computer systems.

We agree with all of your report's recommendations and corrective actions are
underway to address them. Additional comments to each of the recommendations are
provided in the attachment.

If you have any questions, please contact me at (202) 622-6800, or Fred Forman,
Associate Chief Information Officer, Business Systems Modernization, at
(202) 622-3378.

Attachment

Draft Audit Report - The Office of Release Management Can Improve Controls for
Modernization Program Coordination (Audit # 200420017)

IDENTITY OF RECOMMENDATION 1: To help provide clear direction in the
development of the BSM program, the Chief Information Officer (CIO), should
determine if and how the BSMO will fulfill the BSM program integrator role and
document the related responsibilities and processes.

CORRECTIVE ACTION 1: Agree with this recommendation. Some of the
responsibility for the implementation of this recommendation will be within the Office of
the Associate CIO (ACIO) for Enterprise Services. Steps are underway to restructure
the MITS organization to include this new role. This ACIO will ultimately manage, direct,
and oversee crosscutting areas that involve highly complex, mission critical, information
system initiatives such as demand analysis, enterprise architecture, configuration
management, project reporting, enterprise life cycle management, and systems
engineering. Some of the main activities to establish this organization and implement
your report's recommendation are:

- On-board date for ACIO for Enterprise Services: January 31, 2005
- Transition date of initial functions reassigned to the ACIO for Enterprise Services:
  January 31, 2005
- Transition of remaining functions: July 01, 2006

In the near term the ACIO for Business Systems Modernization (BSM) will continue to
implement and integrate improvements across the program in key disciplines areas,
such as: enterprise life cycle management, requirements management, testing,
configuration management, schedule management/monitoring, and modernized
program and infrastructure engineering, regardless of whether contracts are managed
outside the PRIME contract.

IMPLEMENTATION DATE: Proposed Completion Date: July 01, 2006

RESPONSIBLE OFFICIALS: ACIO for Enterprise Services and the ACIO for Business
Systems Modernization (BSM).

CORRECTIVE ACTION MONITORING PLAN: We enter accepted corrective actions
into the Item Tracking, Reporting and Control System (ITRAC). These corrective
actions are monitored on a monthly basis until completion.

IDENTITY OF RECOMMENDATION 2: To help ensure that the mission of the Office of
Release Management is accomplished, the CIO should ensure that procedures are
developed and issued for:

- Reviewing the accuracy of the IMS
- Managing RIS issues between the IRS and the BSM contractors
- Facilitating use of PRIME contractor services for non-PRIME projects
- Providing BSM contractor staff access to IRS computer systems

Draft Audit Report - The Office of Release Management Can Improve Controls for
Modernization Program Coordination (Audit # 200420017)

CORRECTIVE ACTION 2: Agree with this recommendation. Considering your
report's proposed guidelines, we are taking actions to address your recommendation as
follows:

- We will develop guidance detailing the Release Management activities to
  review the accuracy of the Integrated Master Schedule (IMS)
- We will develop guidance for managing the resolution of differences in RIS
  requirements between the modernization contractors and the IRS
- We will develop guidance, and ensure it is readily available, to assist non-
  PRIME projects in acquiring the PRIME contractor's services to use the
  modernized infrastructure
- We will develop guidance for the On-Line Information System User
  Registration/Change Request (OL5081) activities and ensuring that contractor
  access is properly controlled and monitored

We are proposing a completion date of January 2006 for *all* of the above activities.
However, some key steps are being taken sooner. For example, we anticipate the
near-term IMS activities will be completed prior to December 2004; the OL5081
activities by February 2005; the RIS process development in late 2005; and the Non-
Prime activities in January of 2006. A more detailed plan will be entered into our
tracking systems and thereby available to TIGTA for periodic progress assessments.

IMPLEMENTATION DATE: Proposed Completion Date: January 30, 2006

RESPONSIBLE OFFICIAL: Director, Office of Release Management (Office of the
Deputy Associate CIO for Systems Integration)

CORRECTIVE ACTION MONITORING PLAN: See monitoring plan under
Recommendation 1.

IDENTITY OF RECOMMENDATION 3: The CIO should ensure the SEPD is updated to
provide adequate guidance for the activities to be performed by the Integration Test and
Deployment Office staff.

CORRECTIVE ACTION 3: Agree with this recommendation. We will develop and
issue procedures under the Systems Evaluation Process Description to provide specific
guidance on the following activities:

- **Disputed Test Finding Disposition** - Process for handling test findings
  when it is not clear whether or not it is a CR or DR (this is the output from the
  BAIN CR/DR team)
- **Test Design and Planning** - Process for development of the test approaches
  and CSIT test plan, test team structure and leadership, identification of the
  target test suite, test cases, scripts and RTVM

Draft Audit Report - The Office of Release Management Can Improve Controls for Modernization Program Coordination (Audit # 200420017)

- **Defect Review Boards** - Process for agreement to start the next test phase – participants and rules
- **Test Readiness Reviews** - Process for agreement to start the next test phase – participants and rules
- **Deferrals and Waivers** - Process for dispositioning test cases that are not passed and/or executed in the test phase
- **Requirements Review** - Process for early review, assessment and agreement/approval of project requirements to assure testability
- **Metrics** – Test Metrics
- **Test Folders** - Process for creating and maintaining necessary test documentation
- **Test Completion Reporting** - Process and structure for end of test reporting, status reporting to ESC bodies and test closeout
- **Test Data Approaches** - Processes and approaches for the creation, capture, management and disposition of test data

We are proposing a completion date of February 2005, as the completion date for *all* of the above activities. However, some key steps are being taken sooner. A more detailed plan will be entered into our tracking systems and thereby available to TIGTA for periodic progress assessments.

IMPLEMENTATION DATE: Proposed Completion Date: February 27, 2005

RESPONSIBLE OFFICIAL: Director, Office of Release Management (Office of the Deputy Associate CIO for Systems Integration)

CORRECTIVE ACTION MONITORING PLAN: See monitoring plan under Recommendation 1.