



**U.S. GOVERNMENT
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**ASSESSMENT
REPORT
09-08**

**ORACLE E-BUSINESS SUITE RELEASE 2
INDEPENDENT VERIFICATION AND
VALIDATION (IV&V) – TECHNICAL**

March 31, 2009

OFFICE OF INSPECTOR GENERAL



U.S. GOVERNMENT
PRINTING OFFICE
KEEPING AMERICA INFORMED
WASHINGTON, DC 20401

Memorandum

OFFICE OF INSPECTOR GENERAL

DATE: March 31, 2009

REPLY TO

ATTN OF: Assistant Inspector General for Audits and Inspections

SUBJECT: Oracle E-Business Suite Release 2 Independent Verification and Validation (IV&V) – Technical Report
Report Number 09-08

TO: Chief Financial Officer (Executive Sponsor of the Oracle Program)
Chief Information Officer

The GPO Office of Inspector General (OIG) is conducting independent verification and validation (IV&V) of GPO's E-Business Suite Release 2 implementation. The OIG contracted with Noblis¹ to conduct IV&V for Release 2. The overall objective of IV&V is to determine whether the system implementation is consistent with the Oracle project plan and cost plan, and whether the delivered system meets GPO's requirements. The OIG's contract tasks Noblis to assess program management, technical, and testing activities associated with the Release 2 implementation. Noblis is required by the contract to issue to the OIG a monthly program risk assessment as well as summary reports for program management IV&V, technical IV&V, and testing IV&V.

The attached report is Noblis' summary report on Oracle Release 2 Technical IV&V. Technical IV&V focused on the processes, artifacts, and products related to the development of Release 2, with particular emphasis on data conversion, user preparation, user acceptance testing, and deployment planning. As discussed in the report, system cutover has been delayed due to significant shortfalls with requirements discovery and the unplanned complexities with the data migration and conversion efforts. Table 4 of this report contains 23 recommendations designed to strengthen current and future Oracle program management efforts. The recommendations have been categorized by those applicable to Release 2, enterprise-wide, and future Oracle releases. Some of the recommendations were also made in Noblis' IV&V summary report on Release 1.

¹ Noblis, located in Falls Church, Virginia, is a nonprofit science, technology, and strategy organization that helps federal and private sector clients solve complex systems, process and infrastructure problems.

Therefore, we requested an official response to only the ten recommendations applicable to Oracle Release 2.

Management concurred with each of the ten recommendations. We consider the corrective actions taken and proposed by management to be responsive to each of the recommendations. The recommendations are resolved and will remain open for reporting purposes until management has completed the agreed upon corrective actions and the IV&V team has completed follow-up work to verify that the actions have been taken. Management's response is included in its entirety in Appendix A of this report. Our evaluation of management's response to the ten recommendations applicable to Release 2 is located in Appendix B. The status of each of the ten recommendations upon issuance of this report is included in Appendix C. Management also provided responses on certain recommendations categorized as enterprise-wide. We appreciate the information provided in the response related to the enterprise-wide recommendations and will provide the response to the IV&V team. The final report distribution is in Appendix D.

If you have questions concerning this report or the IV&V process, please contact Mr. Brent Melson, Deputy Assistant Inspector General for Audits and Inspections at (202) 512-2037, or me at (202) 512-2009.

A handwritten signature in black ink that reads "Kevin J. Carson". The signature is written in a cursive, flowing style.

Kevin J. Carson
Assistant Inspector General for Audits and Inspections

Enclosure

cc:
Chief of Staff
Chief Acquisition Officer
Chief Management Officer
Chief Technology Officer

**Oracle Release 2
Independent Verification and
Validation (IV&V):
Technical Review**

Final

December 2008



*3150 Fairview Park Drive South
Falls Church, VA 22042-4519*

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EXECUTIVE SUMMARY

The Government Printing Office (GPO) is implementing the Oracle E-Business Suite in a series of incremental releases of functionality. Release 1 was initiated to begin taking advantage of GPO's investment in Oracle technologies and allowing GPO to create a model for future implementation activities. This project, Release 2, adds additional functionality to the original modules as well as introducing new business processes.

This project has conducted requirements gathering, design, development, system testing, training, and user acceptance testing. It is now working on data conversion, additional development, additional testing and preparation to deploy. Current timelines show system cutover in the second quarter of FY09. The delay in the schedule is due to significant shortfalls with requirements discovery and the unplanned complexities with the data migration and conversion efforts.

The primary lesson learned for future projects is that a systematic process for performing and monitoring development project phases should be put into place. Repeatable development oversight and review procedures should be generated and followed for all major phases of a development project. These procedures should clearly define what is to be done within a phase, including:

- how the activities are performed,
- who performs the activities,
- how progress is determined and reported,
- what products are produced during the phase,
- how the products are reviewed, and
- what the exit criteria are for moving from that phase into the next.

Along with procedures, technologies should be employed to create a more robust development environment to include requirements management, configuration management, change control management, and user feedback. Meaningful and insightful metrics showing project progress can be derived from systematic collection of data throughout the development effort. For example, the systematic collection of test results from unit to user acceptance provides program management with insights into the growing maturity of the system and confidence that the system is ready for production.

1. INTRODUCTION

The Government Printing Office (GPO) was created on June 23, 1860 to satisfy the printing needs of Congress. Today the agency is the focal point for the printing and information dissemination needs of the entire Federal community and is moving towards the future of digital documents and the distribution of information electronically. To facilitate its growth and evolution, GPO is undertaking modernization of its processes and supporting infrastructure. This report is an assessment of the Oracle Release 2 project to update the technology for managing the GPO business information in support of its mission.

1.1 PURPOSE

The GPO Office of the Inspector General (OIG), as part of its inspection roles and responsibilities, provides for independent Verification and Validation of the Oracle Release 2 Project. The GPO's external auditor and OIG are also responsible for post-implementation audit compliance requirements consistent with their normal due diligence and fiduciary responsibilities.

The purpose of this document is to provide OIG with technical review of the current and projected status and results of the Oracle Release 2 project.

This report documents the technical review activities undertaken since June 2008 and provides findings for the Release 2 project and recommendations for future phases of system development.

The technical review of GPO's Release 2 project due to the timeline has one major objective: to identify the best practices and lessons learned for application in future system development efforts.

1.2 BACKGROUND

GPO has licensed various modules of the Oracle E-Business Suite to help improve its information architecture. GPO is implementing the Oracle E-Business Suite in a series of phased releases which will incrementally increase functional capability. Early implementation projects were completed to become familiar with Oracle technology and work processes and to develop successful project implementation skills, processes, and user support requirements. These earlier projects introduced the General Ledger, Accounts Receivable, and Fixed Assets modules, as well as limited functionality associated with Purchasing and Inventory.

The GPO Office of Inspector General (OIG) conducted an independent verification and validation (IV&V) of activities associated with this implementation to provide GPO with an assessment of project status, satisfaction of user needs, and project cost effectiveness. These early implementation efforts established the core foundation for the financial systems and enabled further consolidation using Oracle as a fundamental component of the GPO Enterprise Architecture (EA). Use of the Oracle integrated suite is intended to streamline and improve existing business processes as well as allow additional functionality to support GPO's future business endeavors.

Release 2 is intended to more broadly implement the Inventory and Purchasing modules, and to introduce a new core module, Projects. Establishing the jacket costing process via Projects is the

main objective of Release 2. Release 2 is currently scheduled to go live in the second quarter of FY09.

1.3 SCOPE OF THE REVIEW

This document provides a technical review of the processes, artifacts, and products related to the development of Release 2. There are four² review areas covered in this report:

1. Data conversion (Section 2.0)
2. User preparation (Section 3.0)
3. User acceptance testing (Section 4.0)
4. Deployment planning (Section 5.0)

Table 1 provides a list of the deliverables³ associated with each review area. Some deliverables were not available for the review and others were submitted to GPO with names different than that identified in the implementation contractor's proposal.

Table 1: LIST OF DELIVERABLES ASSOCIATED WITH REVIEW AREAS

IV&V Review-Area	SOW Task and Deliverable Name	Actual Deliverable
Data Conversion	Data Conversion and Technical Design Document (Task 3.3.2.2)	“ Oracle R2– Interface and Data Conversion Strategy”, 2-2008
	Conversion and Interface Routines/Coding Documentation (Task 3.3.3)	
	Data Conversion Test Plans (Task 3.3.4.3)	
User Preparation	User Manuals and Training Plan (Task 3.3.8)	“Oracle R2 Training Plan“ R2 Training Schedule-080408.xls
	Attendance Rosters of Trained Employees (Task 3.3.9)	
User Acceptance Testing	User Acceptance Test Plans (Task 3.3.4.2)	
Deployment Planning	Implementation Cut-Over Plan and Deployment Checklist (task 3.3.6)	“Draft Release 2 Cutover Checklist and Plan1024.xls”

² Security is a separate review effort.

³ The system, as implemented, is not part of review; the IV&V team has not participated in any activity where the system was available for assessment.

IV&V Review-Area	SOW Task and Deliverable Name	Actual Deliverable
	Revised Oracle Applications Set-up Documentation (task 3.3.6.1)	<ul style="list-style-type: none"> • BR.100 Inventory Application Setup for 9916 • BR100 AP Application Setup Document for 9916 • BR100_iExpenses_Rel2.doc • BR100Purchasing_Rel2
	Transition to Production Plan and Schedule (Task 3.3.7)	
	Updated Production Roles and Responsibilities Document (Task 3.4.2)	

This report includes a review of the items received by the IV&V team (as identified in Table 1) as well as additional items, including status reports prepared for the weekly project meetings, monthly earned value reports, periodic stakeholder reports, and discussions with various GPO staff. The review of each of the four areas is structured as follows:

- | | |
|--|--|
| <p>1. OBJECTIVES AND STANDARD PRACTICES</p> | <p>A DESCRIPTION OF THE KEY FACTORS ASSOCIATED WITH THE REVIEW AREA; THESE FACTORS ARE THE BASIS FOR THE ASSESSMENT AND RECOMMENDATIONS.</p> |
| <p>2. CURRENT ACTIVITIES, PLANS, AND STATUS</p> | <p>A DESCRIPTION OF THE STATUS OF THE REVIEW AREA – AND OF THE ACTIVITIES AND EVENTS THAT OCCURRED, MILESTONES ACHIEVED, AND DELIVERABLES COMPLETED.</p> |
| <p>3. ASSESSMENT</p> | <p>A COMPARISON OF THE ABOVE – THE EXPECTED AND THE ACTUAL. RECOMMENDATIONS ARE PROVIDED IN THIS SECTION FOR BOTH SHORT-TERM AND STRATEGIC IMPLEMENTATION.</p> |

The assessment of each of the review areas includes recommendations for moving forward with Release 2 (short term) and future phases (long term). An integrated listing of these recommendations is provided in Section 6.0 “Summary”.

2 DATA CONVERSION AND DATA INTERFACES

The strategy and plans for data conversion and interface definition were provided by Guident in the document: “*Interface and Data Conversion Strategy*”⁴, dated February 2008 and provided to the IV&V team in April 2008 for review. Weekly status reports were also reviewed and included in the assessment.

2.1 DATA CONVERSION PLANNING AND EXECUTION

Data conversion and migration is one of the most difficult efforts in a system implementation. It involves identifying and analyzing source data, extrapolating data context from legacy systems with oftentimes inadequate documentation, re-modeling and moving a number of legacy data sources into the new system and testing for conformity to new business rules. All of these activities need to occur as well as efforts to assess and ensure data quality.

2.1.1 Objectives and Standard Practices

Objectives associated with conversion and migration of legacy system data into a new system are to:

- Provide historical data into the new system that meets data quality standards of the new data model
- Eliminate the need to continue use of legacy systems
- Eliminate the need for user’s to develop “desktop applications” for capturing and manipulating data outside of the new system

The following activities are expected as part of a data conversion process with active involvement of all stakeholders (users of the data):

- Identify legacy system data stores
- Determine conversion/migration strategy and approach
- Agree with stakeholders on what will be converted and what will not be converted
- Develop a strategy for accessing data that is not converted
- Define quality assurance procedures for conversion process and results
- Identify subject matter experts to be involved in cleaning data and validating conversion results
- Determine schedule for conversion

The following activities can be iterative, depending on the results of the data conversion testing:

- Define conversion method
- Clean legacy data
- Execute the conversion method
- Evaluate data quality

⁴ Oracle Release 2, “Interface and Data Conversion Strategy”, Guident Technologies, February 5th, 2008

Based on the results of the above activities a final conversion is performed and tested. The organization can then finalize the plan for the disposition of the legacy system. The final activity in this effort then is to perform the actual data conversion and add it to the production system.

2.1.2 Current Activities, Plans, and Status

Planning:

The data conversion plan identified the source systems and the method (manual or automated) for extracting and migrating the data. The methodology, resource requirements, responsibilities, and activities were not outlined.

In the September 5th, 2008 status report for the Monday weekly project meeting, it was reported that data conversion began the prior week: *“Begin data conversion planning – begin working with the business unit POCs on transactional data that has financial impact, such as the inventory balances and unbilled jacket charges”* and *“Communicated the start of the final data conversion activities to the Finance and other stakeholders from the business units – need to determine cut-off date and the POCs that will be responsible for reconciling the converted data at transition from legacy to Oracle.”*

In the September 12th 2008 status report, the contractor reported: *“Continue data conversion planning – begin working with the business unit POCs on transactional data that has financial impact, such as the inventory balances and unbilled jacket charges”*

Table 2 compares the plan against the set of expected planning activities.

Table 2. Data Conversion Planning Activities

Expected Conversion Planning Activities	Covered in Data Conversion Plan
1. Identify legacy systems data stores	Yes
2. Determine conversion/migration strategy and approach	Not specifically in plan
3. Agree with stakeholders on what will be converted and what will not be converted	Not specifically in plan
4. Develop a strategy for accessing data that is not converted	Not specifically in plan
5. Define quality assurance procedures for conversion process and results	Not specifically in plan
6. Identify subject matter experts to be involved in cleaning data and validating conversion results	No
7. Determine schedule for conversion	Yes

Conversion/migration:

Based on information provided in status reports, it appears that a number of practice conversions and tests have been performed for converting the legacy data. However, at this time, the practice conversions and issues with converted data are still reported in the weekly status reports, indicating that conversion and migration activities are still ongoing.

Quality Assurance:

Users did not have converted data to review during UAT. It is unclear who has the primary responsibility for assurance of data quality.

2.1.3 Assessment

The conversion plan and the September and October 2008 weekly status reports are the primary sources of information for this assessment on the current status, along with targeted stakeholder interviews.

The first objective, *“Provide historical data into the new system that meets data quality standards of the data model”*, will be partially met by the decision to migrate a portion of the historical data. This reduces the probability of introducing data quality issues into the new system. The reasoning for the decision to convert some historical data may need to be reconsidered with the stakeholders. If there are reports requiring multi-year data that crosses multiple systems (Release 2 and legacy), then the reporting effort will be cumbersome, prone to data quality issues, and not easily replicable. For example, if managers want to understand inventory trends or the historical costs of items, the historical data associated with “ITEM BALANCE AND ITEM COST INFORMATION” (from MMPCS) would be required. The reports would need a combination of current system data with the historical data.

It may not be sensible to store the historical data for transient values as part of the new system. However, GPO should evaluate if an enterprise-wide data repository might be important for collecting archival data; this could be a consideration for following phases of the Oracle projects.

The second objective, *“Eliminate the need to continue use of legacy systems”* is not supported by the planned data conversion intentions as stated in the plan:

“It is the project team’s understanding that in situations where access to the historical information is needed, the associated data will be retrieved directly from the legacy systems – assuming that the appropriate systems would remain available in a read-only mode. Alternatively, a data warehouse would facilitate extracting the data from the legacy systems and organizing it in a way that the pertinent data would be readily accessible. Any discussions of related tools and technologies are outside the scope of this document.”

The objective, *“Eliminate need for user’s to develop “desktop applications” for capturing and manipulating data outside of the new system”* has not yet been achieved. Some of the users maintain data stores on their desktop which are prone to data synchronization issues. They use these “desktop-systems” for reporting, tracking and oversight of their business processes. At this time their workaround is to manually enter the data elements not currently collected by the new system into the desktop system along with extractions (or additional manual entry) from the new system.

ID	Recommendation
1	Develop an enterprise strategy for managing data conversion efforts including the policy for on-line access of historical data, management of non-converted data, and legacy data reporting and retention requirements.

2.2 DATA INTERFACE

2.2.1 Objectives and Standard Practices: (Interfaces)

Interfaces to external data are critical elements of the system's architecture and include transactional or analytical data. Access involves system-to-system technical and sometimes organizational cooperation. The objective is to ensure the right data is transmitted to the right systems at the right time without impacting performance or data quality of either system.

The expected activities of interface definition include:

- Interface sources are identified
- Data sharing requirements determined
- Security issues identified
- Program-level agreements reached
- Technical protocols defined
- Interface design and execution completed and tested

2.2.2 Current Activities, Plans, and Status

The data interface plan identifies twelve system interface requirements for Release 2 and the following legacy systems:

- PROBE
- CPLT
- NFC
- PEPS
- PICS
- handheld devices
- GGBL
- ONBASE
- Bank Credit Card File

UAT did not use a Release 2 baseline that included active interfaces. The project team is now in the process of identifying the end-to-end system tests to ensure that the system interfaces work correctly.

During UAT, the users were told to assume "*that the data is there*" and assume "*that the action occurred and the data is sent*". They were unable to test and validate the correctness of the interfaces. This left the users with concerns about the system as a whole.

There appears to be a conflict in resource requirements and resource availability for developing, testing, and deploying the interface portion of Release 2. For a number of weeks, the following issue was reported in the Weekly Status Report:

“The technical development of the Oracle R2 inbound interfaces will continue to require timely assistance for data extracts and data mappings from the legacy applications support personnel; for the support personnel to respond to requests from the Oracle R2 team in a timely fashion, it will be necessary to appropriately prioritize their current “activities/projects.”

This issue is indicative of unavailability of critical resources.

2.2.3 Assessment

It is questionable at the current time whether the objective of system interfaces will be met. Specifically, without adequate user validation during UAT, system interfaces cannot be assumed to be functioning properly. This concern is further exacerbated by the apparent lack of technical resources to assist with the interface development.

ID	Recommendation
2	Ensure a stable version of the production baseline (including interfaces and converted data) is available for testing during UAT.

3 USER PREPARATION

User preparation begins prior to deployment. In this step, users and IT staff are prepared in advance for the deployment and cut-over to the new system. This preparation includes:

1. Training
2. Support materials
3. Process for user access to help/technical assistance

Each of these preparation activities is discussed in the following subsections.

3.1 TRAINING

3.1.1 Objectives and Standard Practices (Training)

Training is a planned phase that involves a set of coordinated activities that are monitored, assessed and implemented over the course of a project. The objective of training is to provide users with the system knowledge to adequately perform their business functions. The training plan needs to be flexible so that it effectively provides training at the right time in the implementation schedule as the schedule adjusts. Training is required for users performing user acceptance testing so they can adequately understand the context of the testing. For deployment, all users should be trained within a time frame close enough to actual cutover that training is not forgotten. Further, if a train-the-trainer approach is used, additional training to those individuals needs to be provided (including observing their user training sessions and providing appropriate feedback).

Training should be provided by competent trainers with experience in both the system and business practices of the organization. The trainers should be provided opportunity to work with a production equivalent system for a period of time prior to training.

Expected activities include:

- Development of the training plan
- Development of the training schedule
- Development of training materials
- Execution of the training
- Evaluation of training effectiveness
- Provide follow-on training as necessary

Training materials may consist of:

- Reference manual or user procedure document
- Guides for the participant (e.g., syllabus, schedule, pre-test, exercises, performance checklists)
- Guide for the trainer (e.g., outline, post-test, answers, training exercises, checklists)
- Supporting audiovisuals (e.g., PowerPoint presentations, posters, training aids, flip charts)
- On-line tutorials
- Additional supporting materials (e.g., train-the-trainer courses)

3.1.2 Current Activities, Plans, and Status

The following documents were provided to the IV&V team for review in July 2008:

- Oracle R2 Training Plan
- R2 Training Schedule-080408

The documents cover the following information:

- Who is being trained on what (schedule diagrams)
- When each training session is to be held

These documents indicate that training was divided into two segments and defined the “when” and the “who” for these sessions. Resource requirements, environment requirements, methods, materials, purpose, and the expected outcomes were not covered. The qualifications of the training team were not specified.

Training was planned in two segments:

- Orientation (Navigation) Training
- Module Specific Training (20 different modules)

The focus of Orientation Training was to provide an overview of Release 2 and to familiarize users with the look and feel of the system and the general methods of navigation. All potential users of the system following cutover were invited to attend this session.

The module specific training was planned to be completed before user acceptance testing. The schedule was for August training, September UAT, and deployment on October 1st.

3.1.3 Assessment

Training Plan Content:

User training was not functionally complete from their viewpoint. They felt that the training focused on Oracle in lieu of their business processes. They were also concerned that training did not cover Business Objects, the primary reporting tool. While this is a separate system from the Oracle system, it is still a required capability that the users will to perform their processes. Reporting is always a critical user function.

ID	Recommendation
3	Define a role based training plan that specifies the training classes for each role and includes stakeholders in the business process training; ensure the business owners approve of the training plan and training metrics are defined and capture.

A sample training plan outline from the Housing and Urban Development Office of the Chief Information Officer⁵ is shown below:

1.0	GENERAL INFORMATION
1.1	Purpose
1.2	Scope
1.3	System Overview
1.4	Project References
1.5	Acronyms and Abbreviations
1.6	Points of Contact
1.6.1	Information
1.6.2	Coordination
1.7	General Training Prerequisites
2.0	TRAINING APPROACH
2.1	Training Requirements
2.2	Roles and Responsibilities
2.3	Techniques and Tools
2.4	Training Prerequisites
2.5	Training For Revised Office Procedures
2.6	Schedule
2.7	Curriculum
3.0	EVALUATION
3.1	Metrics
3.2	Strategy

Figure 1. Example Training Plan template

Training Effectiveness and Scope:

It was expected that 156 users would participate in the orientation training and that each would also participate in one or more module specific training sessions. Far fewer users showed up to the later sessions than were expected. Users reported significant disaffection with the Orientation training – feeling that they were expected to “know Oracle” instead of learning how to perform their business processes. Several felt that the time expended was unprofitable. They also do not feel confident that on the day of deployment they will know what to do.

⁵ Available at: <http://www.hud.gov/offices/cio/sdm/devlife/tempchecks/tptemplate.doc>.

Users considered the training to be predominately “Oracle-oriented” and not business process oriented. Some of their comments included: *confusing, didn’t learn how to do job, didn’t know I needed to learn Oracle, and didn’t learn how to do reports*. Users reported that not all functionality was available for training.

There are now plans to address reports: “*Plan and rollout a user training schedule for BOBJ Projects and Inventory reports*” per the October 17th Weekly Report.

Users who were identified as potential trainers felt that they were inadequately prepared for this challenge based on the amount of training they received and access to a trial system. Further, inadequate training materials were provided to the users. Finally, no measures were in place to gauge the effectiveness of the training.

ID	Recommendations
4	Set up a training instance of the system and keep it available to the users as early as possible for review and familiarity; keep this instance sufficiently synchronized with development activities; include a feedback mechanism so users can record issues and enhancements while working on the system.
5	The majority of users should be trained “just-in-time” prior to the system cutover. Some key users should be trained well in advance of the cutover to allow for them to be involved in prototype reviews, analysis, and testing.

3.2 SUPPORTING DOCUMENTS AND INFORMATION

3.2.1 Objectives and Standard Practices:

Intuitively designed systems, reflecting business processes are the best resources in support of user access to a system. Users also expect some documentation (paper, electronic, or hyperlinks from the system) to provide explanations. This documentation should be easily referenced and specific to the business user. The underlying technology is not something the users need to understand or sort out. They need to understand where to go to do certain functions, how to get reports, how to interpret error messages, and how to protect their work.

If the lexicon of the new system is different than the legacy system, then access to data definitions is appropriate. If users are building their own reports or extractions, then information on like data is considered necessary.

3.2.2 Current Activities, Plans, and Status

Some users did not get materials (such as a user guide) at training. A post-training environment for continued training was not available. Training stopped; learning stopped; due to delays, the system will be deployed at least two months after training.

3.2.3 Assessment

According to users, the training materials and online help do not focus on or provide information on the business process. The information provided is generic to operating the system. If both training materials and user guides provided insight to business processes and how to execute these processes within the system, the users would better understand how to operate the new system.

ID	Recommendation
6	Ensure user support materials and artifacts are available for training and that they augment post training phases; training materials should include the full business process and should be reviewed and approved of by the business owners or super users.

3.3 POST DEPLOYMENT HELP PROCESS

3.3.1 Objectives and Standard Practices:

During training, or pre-deployment, users are provided with sufficient information for understanding how to get help on the new system, including:

- Users are provided with instructions for reporting issues and for getting help with business processes
- Users are provided a mechanism for making enhancement requests for future versions
- Users have ready access to local support staff within their organization that can respond rapidly to issues that are raised

3.3.2 Current Activities, Plans, and Status

A cutover or deployment plan containing post cutover support plans is not available to review. It appears that data conversion may be in the critical path for determining when the system is ready for cutover. The specific help or support methodology for Release 2 is not specified. Plans have been discussed for focused implementation contractor support to be highly available to support the user community immediately after cutover. Issues were raised concerning the second and third shift support availability, and while commitments were discussed, no documented support plan was available for review.

3.3.3 Assessment

Cutover planning for post deployment help has not been sufficiently defined. Criteria for determining cutover readiness should include post deployment help items. Additionally, internal resources should be reviewed to identify and integrate them in the post deployment help processes.

ID	Recommendation
7	Conduct detailed planning on post deployment help processes and fully document the plan to allow for communication and coordination.
8	Integrate internal GPO help resources into the post deployment help plan.

4. USER ACCEPTANCE TEST

Noblis collected information on the Release 2 User Acceptance Test through the following activities:

- Review of test scripts
- Weekly meetings and status reports
- Post test discussion with users who were involved in testing
- Post test discussion with GPO staff responsible for testing

Documents for UAT execution and results were not available for the review.

Based on information derived from the above sources, Noblis assessed the user acceptance test event and the results of the test, as described in the following two subsections.

4.1 TEST PLANNING AND EXECUTION

User Acceptance Testing was initially performed in September 2009. All of the developer test scripts were executed. It resulted in at least one critical issue. The test scripts were developed by the implementation contractor (Guident).

4.1.1 Objectives and Standard Practices:

User acceptance test (UAT) planning and execution is generally a cooperative activity shared by the key users and project staff, with support of developers. Planning for user acceptance is initiated early with the responsible staff participating in high-level system review meetings from the beginning of the project. Over time, the optimum testing environment, testing constraints, entry and exit criteria, scope and methodology are established.

The objective of UAT is for users to gain confidence and acknowledge that the delivered system meets their business requirements and that it will perform as expected following deployment.

The UAT phase begins when key milestones have been achieved in the development of the system. These include:

- System Integration Testing (SIT) is completed by developers and the system has no outstanding critical issues
- A fully configured production like environment is established (including interfaces and converted data)
- The users who will participate in the testing on the system are fully trained on how to use the system and on the process for the UAT

Best practices for the UAT process generally include:

- Test on closest approximation of the production system (systems, interfaces, data) as possible
- Ensure test scope covers all key users, user roles, reports, and user identified functions and exceptional cases
- Identify and involve external stakeholders,
- Determine best course of action for replicating, simulating, or engaging external system data exchanges.

- Assess non-functional components of the system, from user viewpoint to include: performance, usability, interoperability, and data quality.
- Include converted data

The UAT expected activities include:

- User testing of the system functionality from a business process focus
- Systematic collection of test results and user input
- Multiple parallel test sequences with testers (work-like paradigms)
- Involvement of external users for system interface checks.

UAT is a planned event that results in determination of whether the system is ready to “go live”. It is expected that users will identify issues that need resolution. Some issues are seen as “critical” and must be fixed before deployment; others issues are added to things to fix in the next phase. Generally as the final activity in the UAT phase, the users, developers and project team work together to assess what is critical and what can be deferred.

4.1.2 Current Activities, Plans, and Status:

UAT Planning: UAT test planning was informal. The STB was not assigned responsibility for the UAT at the beginning of the project, thus limiting their overall ability to effectively plan the event. Resource issues and time constraints prevented formalizing efforts, such as plan development, team building, and setting up methods and procedures. No actual UAT test plan exists, which would include entrance and exit criteria, test methodology, issue resolution, among other elements.

The Release 2 UAT was organized around modules of functionality following development test scripts (Purchasing, Inventory, Payables, and Projects). These test scripts were written during requirements discovery effort with additional updates during the CRPs. These scripts were verified by the STB prior to each UAT session and were modified as required.

Instead of a stable baseline for testing, the STB was provided “just-in-time” releases of functionality scheduled for testing. The test organization was challenged with these quick releases – they had very limited time to test their scripts for each function (sometimes just hours before the test was to begin).

The planned duration for the UAT was also challenging. The main priority --complete the scripts -- was the only form of testing that fit in the allotted time. There wasn’t time to plan or to do non-functional user testing, or user-identified functional testing.

UAT Execution: During the testing, the users were initially observers as an STB tester walked through each script, serially. The environment was a replication of the expected internal environment with stubbing to external systems. Converted data was not included in the test environment. Canned data and scripted data were used. Reports were not generated during the testing. Performance was not assessed. Interfaces were not tested.

During the testing, users brought up issues and had questions concerning how different business processes would be accomplished. The testing organization and the developer on-hand reportedly tried to respond to the users, but were also compelled by scheduling constraints to follow and complete each script. Some user issues could not be constructively addressed during the test sessions since the focus was completing the scripts.

Participants were identified based on whether they would be business users of Release 2. One non-user (but affected stakeholder) participated in the UAT on their own initiative. This user represented a front end system that would feed data into Release 2. During testing of the initiation of a process, this user was able to identify some critical business process issues.

At one point users reported taking over the keyboard and entering the test data, as scripted; and then began entering test data that was not scripted to validate that the system did not accept bad data. The system did catch the invalid data entries and the users were able to review the error messages and thought the messages were well written and easily understood.

Users were asked to sign off that a test ran correctly and that they accepted the functionality. UAT results were based on the signed test scripts.

A side effect from UAT was that the STB became de facto liaisons between the developers and the users as well as assuming the role of tutor. The test organization pursued functional issues identified by the users and documented or demonstrated resolutions. They also emailed users with requests for feedback on user-identified issues and then provided additional demonstrations of functionality for user-identified specific business cases. Some, not all, of the users took advantage of the solicitation for feedback.

UAT Results: The UAT user-participants identified

- A critical “show stopper”⁶,
- Some functional issues that needed workarounds,
- A potential to improve a business flow that could have been included in the Release 2 and was not.
- Erroneous reports
- Missing legacy data
- Incomplete testing

Critical Issue: The critical functional issue identified by the users is now⁷ under review by the IT organization and business organizations. This issue relates to assumptions about data exchanged via an interface. Users assumed that flagging certain records (based on criteria for what should and should not be automatically processed) would be done in the PICS system before the data was available to Release 2. This assumption is critical to the business process; records that are less than \$100k and not flagged are automatically processed. The business user assumed that the flags were part of the PICS system and this is not the case. If this issue is not corrected, automatic payment may occur where it should not and/or if the automatic payment capability is turned off, the required level of effort to process payments will increase.

A meeting was set up to discuss resolution for this issue.

⁶ Key functionality that is missing; this will cause either excess cost to the organization in terms of resources, erroneous data (such as mischarged financials), broken business rules (such as IRS liens on accounts), etc. A critical show-stopper must be resolved. Sometimes the mitigation is to turn off the broken functionality (leading to extra manual work); sometimes it requires a fix to the system.

⁷ As of October 9th, 2008; resolution is not reported in this document.

Functional Issue: Another shortfall was identified in relation to the report information required for reporting on gas purchases. A work-around was identified for the initial release (users will still be provided a report in Excel).

Business Process Improvement: Production/purchasing of GPO Forms was another user identified issue; the issue was resolved through discussion between the users, STB, and the developers. However, it was also one instance where the users identified a perhaps unnecessary business action (a product of the legacy system no longer necessary with the new system).

The UAT also resulted in finding that the assignment of privileges needed further work/refinement.

Erroneous reports: The users are concerned about reports and were unable to validate them with UAT. They have found that with Release 1, some reports pulled from Business Objects may not have the same data as expected when viewing the data from the Oracle system. This data quality “disconnect” between the differently derived reports raises a concern with the users; specifically, how to they determine what is correct. They would like to review reports for Release 2 with their converted data derived for comparative purposes.

Missing Legacy Data: There are some missing data objects in Release 2 that some users currently capture in desktop reporting systems (Excel spreadsheets). This means they will either continue to manually enter data into the desktop system or perform dual record entry by also entering into the legacy system. There is a concern about the impact to the business process when the legacy system is eventually removed from production.

Incomplete Testing: Users expected to be trained on and to test the correctness of the data conversion and data reports through Business Objects. Reporting was not covered.

4.1.3 Assessment

UAT was successful in many ways. Functionality issues that would be “show stoppers” were identified prior to deployment. User issues with training were partially mitigated with their involvement in the testing. During UAT, users recognized that the roles and responsibilities were too broad and needed refinement. That activity is currently underway.

ID	Recommendation
9	Develop role-based privileges as part of early business process engineering and requirements gathering activities.

Based on the Release 2 UAT, a number of process improvements for GPO’s future system development projects were identified. The following subsections provided assessment of the expected UAT practices and objectives (described above) with recommendations for GPO to implement in future projects.

Overall: After reviewing previous technical reports in combination with discussions with the UAT participants and STB, the following issues, reported in earlier technical reviews, continue to be factors in Release 2 efforts:

- The schedule did not allocate time sufficiently for requirements gathering
- Requirements gathering did not have the full complement of users necessary to convey the requirements (more worker-bees should have been included).
- Methodology for reflecting the discovered business processes and requirements was not well understood by the users who participated; the users who participated probably didn't understand the intricate nuances of the day-to-day work process.

The problems identified in the testing (both with the methodology of the test, and with the functionality of the system) would have been identified/rectified much earlier in the lifecycle of this effort if the requirements phase had been more effective. A cascading need to readjust system functionality in the development and testing phases of the lifecycle (including post UAT) are symptoms of requirements challenges.

ID	Recommendation
10	Institute greater discipline in the requirements management process and incorporate requirements into the overall change control and configuration management processes with appropriate stakeholders involvement; ensure include documented business processes and use cases.

Test Readiness: There is no indication that a formal process was used to determine readiness for UAT. While the users were trained, the other generally accepted readiness criteria were not met (or status not known). Data conversion was not accomplished; the real data was not included in the test. A stable baseline was not delivered prior to the test and its implementation on a replicated environment, including interface was not achieved. The test environment had to check-out in a "just-in-time" fashion each set of tests prior to the UAT event, on a new release. External stakeholders were not invited to participate.

ID	Recommendation
11	Develop a systematic and controlled process for initiating UAT that includes readiness criteria; readiness criteria should include converted data and have stakeholder involvement in development and agreement that criteria have been met.
12	Develop exit criteria which determine when UAT has been concluded; include issue resolution and disposition within the exit criteria; obtain stakeholder involvement in development of the criteria and approval that exit criteria have been met.

Test Environment: UAT did not test a production-like version of Release 2. It tested an evolving environment. It also tested on an insular test environment with interfaces stubbed. Instead of converted and actual business data, test data and scripted data was used. The fact that a baseline was not established prior to the UAT start is indicative of a schedule challenges and resulted in a chaotic test environment. The UAT was done on an environment not under configuration management and there is low confidence in the stability of the environment (i.e., regression testing for introduced changes). Only one desktop was used to run against the system. Capacity planning was not considered in testing environment.

ID	Recommendation
13	Perform UAT on <u>one</u> production-ready version of the system, replicating the planned production environment to greatest extent possible including interfaces and data exchanges; ensure sufficient performance testing is included in UAT; ensure testing covers the end-to-end business process (including reporting).

Functional Scope: The objective to effectively cover the key functionality following normal business processes was met through use of canned data and test scripts. However the normal business processes of the user was not tested. The users reported a concern about the amount of functionality tested; they are unsure if all serious shortfalls were identified by following the scripts.

In the post-UAT discussion, users reported some known issues with Business Objects and Release 1 data; they found some reports (not all) to have erroneous calculated data when comparing screen data views against Business Objects derived reports.

As part of a UAT, the users should be provided an opportunity, to review reports with converted/migrated data.

Non-Functional Scope: Due to the lack of time and resources available for planning the UAT and for executing it, non-functional testing was not performed. The usability (ease of use), compliance with Government standards for accessibility (508), and interoperability with other programs– all of which users can assess – were not part of this UAT. Also, performance measures were not part of the UAT, including:

- Impact of more than 3 of 4 users on the system⁸ at a time
- Impact of a “Business Objects” session running simultaneously with multiple users accessing Release 2 business functionality.
- Impact of numerous log-ins (simultaneous users)⁹

ID	Recommendation
14	Users must test with their expected roles and responsibilities; all roles and responsibilities should be tested.
15	As part of UAT, include usability, accessibility, interoperability, and performance along with functionality in the test scenarios; include multi-user scenarios transacting normal business processes to test data contention.

Test Completion: During Release 1, a recommendation was made to systematically collect user input and to systematically track and audit actions that occur in response to the input¹⁰. There is no information to review as to how disposition of the issues were handled. Based on information available to this assessment it appears that the initiative of the STB coupled with the perseverance of some of the users resulted in handling identified issues and finding resolutions. The assessment cannot be made on whether or not all user identified issues were handled, captured, or documented.

⁸ Users of Release 1 reported a noticeable “performance lag” in the afternoons.

⁹ It was reported that Oracle often crashed when numerous logins were made. So the testers did not login and out for each different role – they just used the super user role.

¹⁰ Oracle Release 1 Assessment USGPO, MITRE, March 6th, 2008.

ID	Recommendation
16	UAT test results should be collected and evaluated systematically and available to all stakeholders with integration to the change control process.

Results: The users' issues and concerns about the business functionality and data quality were informally recorded between the email dialog established by the STP and through discussions between the users. These results reported above were not part of the scripted test session. It was advantageous that the STP recognized the need to work on these issues. However, there is no certainty that all non-scripted problems identified by users have been systematically collected or reviewed.

5 DEPLOYMENT READINESS PROCESS

5.1 DEPLOYMENT PLANNING AND EXECUTION

5.1.1 Objectives and Standard Practices:

Planning for deployment means establishing criteria to evaluate readiness against, scheduling readiness review activities, and developing processes and procedures for stakeholder and project team leads to conclude and recommend that a system is ready to go into production. The criteria usually include the following factors:

- User acceptance verified
- User support (training, documentation, helpdesk)
- Data conversion completed
- Baseline prepared and under CM
- Production environment established and tested
- Operational support training and documentation completed
- Service Level Agreements in place
- System interfaces verified
- Security infrastructure in place, as required
- Continuity of operations and backup and recovery plans defined

The plan defines these criteria. A core team of users, project staff, testers, and developers with designated responsibilities is established and documented in the plan. A Schedule of all critical dates associated with the deployment is established and tracked. The plan defines determine resources requirements to complete the deployment. A deployment readiness checklist is agreed upon and with implementation of the plan, this checklist is tracked.

5.1.2 Current Activities, Plans, and Status

The cutover process is not well understood. A plan defining criteria and evaluation methods for determining cutover readiness is not available for review. A checklist of intended and pending actions was provided title "Draft Release 2 Cutover Checklist and Plan1024.xls". Based on this checklist it appears that there are critical tasks still to be accomplished and that many are behind schedule for the current cutover date (November 12th as of this analysis, which has since been

delayed to the second quarter of FY09). Figure 2 below provides an overview of these activities requiring completion before cutover. As shown, on October 24th, 54% of the listed tasks are incomplete. However, this does not reflect whether or not certain tasks may be more difficult or require more time and effort than others.

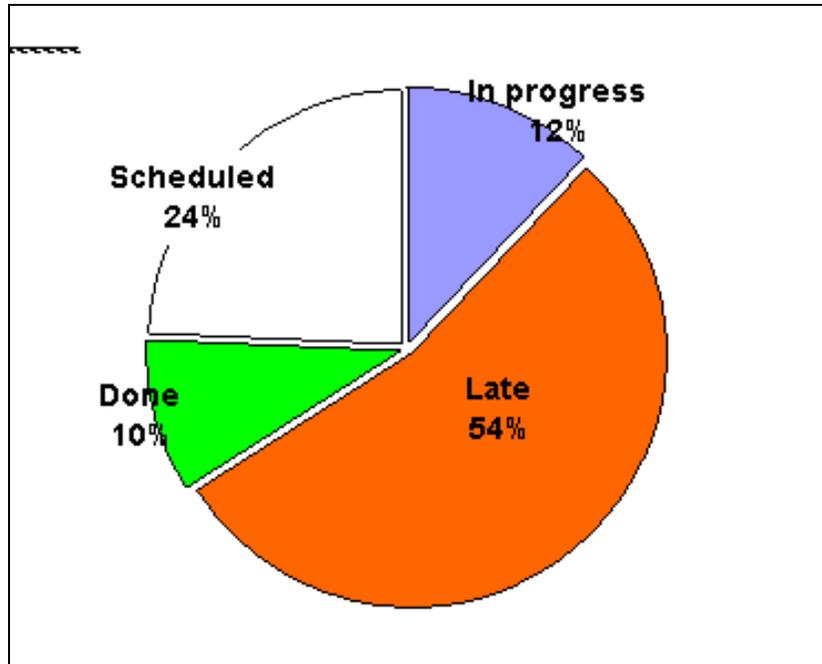


Figure 2. Overview of Cutover Task Status

The category of tasks on the list, along with the currently recorded status is shown below in Table 2.

Table 3: Task Status for Cutover

Category	In progress	Late	Done	Scheduled	Grand Total
CEMLI		1		1	2
Configuration	2	4	2	1	9
Data Conversion		4	1	2	7
Development / Configuration		1			1
Infrastructure		2	1		3
Interface	1	5		2	8
On Demand / Infrastructure		1			1
Operations		1		1	2
Reports	2			1	3
Security		2		1	3
Testing		1			1
Training				1	1

Category	In progress	Late	Done	Scheduled	Grand Total
Grand Total	5	22	4	10	41

Many of the tasks in the above categories are probably related to development more than cutover. They should be completed before any consideration of readiness to deploy. A rudimentary assessment of each task leads to the following conclusion – there are many development tasks to be completed.

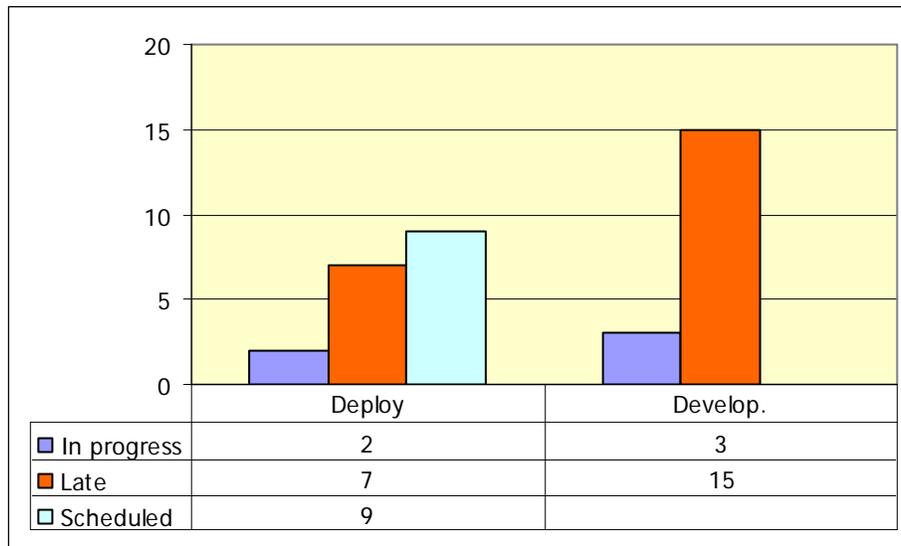


Figure 3. Task Analysis (10-22-2008).

5.1.3 Assessment

The weekly meetings on Release 2 focus on planned activities and accomplishments and known issues. It is recommended that these meetings explicitly review the criteria for readiness and make a determination as to whether or not that aspect of the system is complete. An executive overview of these criteria should be provided.

Furthermore, the readiness team should have explicit exit criteria that will determine when Release 2 is ready for full deployment. Exit criteria developed for UAT may provide useful input, but other readiness factors will be necessary (and should be included in a Deployment Readiness Checklist).

With the expectations that readiness criteria are part of the plan and are being monitored by the GPO Project Team, the IV&V assessment of the current status of Release 2 is as follows for October 24, 2008:

READINESS FACTOR	STATUS	COMMENT
USER ACCEPTANCE	GREEN	
USER SUPPORT	YELLOW	OUTSTANDING TRAINING ISSUES
	W	USER MATERIALS UNAVAILABLE
DATA CONVERTED	RED	IN PROGRESS (PROCEDURES BEING TESTED)
DATA INTERFACES SET	RED	IN-PROGRESS
SECURITY ENVIRONMENT APPROVED	RED	RESPONSIBILITIES BEING DEFINED (PRELIMINARY DESIGN/REQS. WORK)
BASE-LINED VERSION OF SYSTEM UNDER CONFIGURATION MANAGEMENT	RED	SYSTEM STILL HAVE COMPONENTS UNDER DEVELOPMENT & TEST
PRODUCTION ENVIRONMENT CONFIGURED AND TESTED	RED	
CONTINUITY OF OPERATIONS AND BACKUP AND RECOVERY PROCESSES IDENTIFIED AND CHECKED	RED	
OPERATIONS SUPPORT READY	RED	

ID	Recommendation
17	Establish preferred Agency methodology for managing deployment readiness and cutover to include standards for scheduling, reviewing, identifying and managing criteria
18	Provide information on when requirements or enhancements that are not included in the current release will be addressed.

6 SUMMARY AND RECOMMENDATIONS

The recommendations listed in the above sections are specific to the review area they are associated to. Analysis of these recommendations leads to a general recommendation:

ID	Recommendation
19	Review, revise, and reissue the GPO Software Development Lifecycle document to reflect current policies and procedures; review and update the GPO Policy for instituting the SDLC process for all GPO IT projects
20	Institute a visible and transparent process for the systematic collection, auditing, monitoring, tracking, and reporting on change requests and issues.
21	Evaluate the shortfalls identified during the Release 2 project and determine cause and source and how to plan against their reoccurrence as part of the evaluation criteria for the next contracting phase Release.
22	Set up, and institute, a repeatable training process for educating expected participants in Phase Gate Reviews (as identified in the SDLC document): <ul style="list-style-type: none"> • What is expected of participants (responsibilities) • What products are to be reviewed • What expertise is required for reviewing the products and assessing readiness to move forward
23	Establish appropriate timeframes prior to each Phase Gate Review for release of materials to be reviewed; Phase Gate Reviews should be held at the end of the timeframe ensuring reviewers have sufficient time to review and assess materials and products.

The recommendations in sections 2.0-5.0 and the above requirements are combined in Table 4 in the following section.

TABLE 4: LISTING OF RECOMMENDATIONS

ID	Recommendation	Recommendation Subject Areas			
		Release 1 Repeat (from Summary Report)	Release 2 Project	GPO Enterprise-wide	Next Oracle Release
1	Develop an enterprise strategy for managing data conversion efforts including the policy for on-line access of historical data, management of non-converted data, and legacy data reporting and retention requirements.	18	x	x	x
2	Ensure a stable version of the production baseline (including interfaces and converted data) is available for testing during UAT.	15	x	x	x
3	Define a role based training plan that specifies the training classes for each role and includes stakeholders in the business process training; ensure the business owners approve of the training plan and training metrics are defined and capture.			x	
4	Set up a training instance of the system and keep it available to the users as early as possible for review and familiarity; keep this instance sufficiently synchronized with development activities; include a feedback mechanism so users can record issues and enhancements while working on the system.				x
5	The majority of users should be trained “just-in-time” prior to the system cutover. Some key users should be trained well in advance of the cutover to allow for them to be involved in prototype reviews, analysis, and testing.		x		x

ID	Recommendation	Recommendation Subject Areas			
		Release 1 Repeat <small>(from Summary Report)</small>	Release 2 Project	GPO Enterprise-wide	Next Oracle Release
6	Ensure user support materials and artifacts are available for training and that they augment post training phases; training materials should include the full business process and should be reviewed and approved of by the business owners or super users.		X		X
7	Conduct detailed planning on post deployment help processes fully document the plan to allow for communication and coordination.	3	X	X	
8	Integrate internal GPO help resources into the post deployment help plan.		X		
9	Develop role-based privileges as part of early business process engineering and requirements gathering activities.				X
10	Institute greater discipline in the requirements management process and incorporate requirements into the overall change control and configuration management processes with appropriate stakeholder's involvement; ensure include documented business processes and use cases.	5		X	
11	Develop a systematic and controlled process for initiating UAT that includes readiness criteria; readiness criteria should include converted data and have stakeholder involvement in development and agreement that criteria have been met.	7		X	
12	Develop exit criteria which determine when UAT has been concluded; include issue resolution and disposition within the exit criteria; obtain stakeholder involvement in development of the criteria and approval that exit criteria have been met.			X	

ID	Recommendation	Recommendation Subject Areas			
		Release 1 Repeat <small>(from Summary Report)</small>	Release 2 Project	GPO Enterprise-wide	Next Oracle Release
13	Perform UAT on one production-ready version of the system, replicating the planned production environment to greatest extent possible including interfaces and data exchanges; ensure sufficient performance testing is included in UAT; ensure testing covers the end-to-end business process (including reporting).		X	X	
14	Users must test with their expected roles and responsibilities; all roles and responsibilities should be tested.		X	X	
15	As part of UAT, include usability, accessibility, interoperability, and performance along with functionality in the test scenarios; include multi-user scenarios transacting normal business processes to test data contention.	11	X	X	
16	UAT test results should be collected and evaluated systematically and available to all stakeholders with integration to the change control process.	12	X	X	
17	Establish preferred Agency methodology for managing deployment readiness and cutover to include standards for scheduling, reviewing, identifying and managing criteria			X	
18	Provide information on when requirements or enhancements that are not included in the current release will be addressed.				X
19	Review, revise, and reissue the GPO Software Development Lifecycle document to reflect current policies and procedures; review and update the GPO Policy for instituting the SDLC process for all GPO IT projects			X	
20	Institute a visible and transparent process for the systematic collection, auditing, monitoring, tracking, and reporting on change requests and issues.	24		X	

ID	Recommendation	Recommendation Subject Areas			
		Release 1 Repeat <small>(from Summary Report)</small>	Release 2 Project	GPO Enterprise-wide	Next Oracle Release
21	Evaluate the shortfalls identified during the Release 2 project and determine cause and source and how to plan against their reoccurrence as part of the evaluation criteria for the next contracting phase Release.	17		X	
22	Set up, and institute, a repeatable training process for educating expected participants in Phase Gate Reviews (as identified in the SDLC document): <ul style="list-style-type: none"> • What is expected of participants (responsibilities) • What products are to be reviewed • What expertise is required for reviewing the products and assessing readiness to move forward 			X	
23	Establish appropriate timeframes prior to each Phase Gate Review for release of materials to be reviewed; Phase Gate Reviews should be held at the end of the timeframe ensuring reviewers have sufficient time to review and assess materials and products.			X	

Appendix A. Management's Response

U.S. GOVERNMENT PRINTING OFFICE
OFFICE OF INFORMATION TECHNOLOGY AND SYSTEMS

Memorandum

DATE: March 23, 2009

REPLY TO
ATTEN OF: Chief Information Officer (CIO)

SUBJECT: IT&S Response to OIG Oracle E-Business Suite Release 2 Independent Verification and Validation (IV&V)

TO: Assistant Inspector General for Audits and Inspections

My office has produced an updated status report, which is attached, of progress made to address the open recommendations contained in the Office of Inspector General (OIG) Report, which you inquired about in your email message of December 29, 2008.

If there are any questions or comments regarding the attachment, please contact me. Thank you.

Sincerely,



Michael Wash

Attachment

cc:
Maria Lefevre
Brent Melson

Appendix A. Management's Response

**IT&S Response:
OIG Draft Oracle E-Business Suite Release 2 Independent Verification and
Validation (IV&V)**

March 23, 2009

Introduction

The Office of the Inspector General (OIG) issued a draft report on December 29, 2008, concerning Oracle E-Business Suite Release 2 Independent Verification and Validation (IV&V). This contains our responses to the recommendations.

We appreciate the opportunity to respond to the draft report.

Open OIG Recommendations and IT&S Response

Release 2 Recommendations

OIG Recommendation #1:

Develop an enterprise strategy for managing data conversion efforts including the policy for on-line access of historical data, management of non-converted data, and legacy data reporting and retention requirements.

IT&S Response:

A data cut over plan has been developed by Mitre Corporation, our program support contractor. This plan will be used for the final data migration from legacy systems to Oracle.

This plan has gone through extensive review, and will complete the final reviews the week prior to go-live.

OIG Recommendation #2:

Ensure a stable version of the production baseline (including interfaces and converted data) is available for testing during UAT.

IT&S Response:

We agree with this recommendation and have taken steps to ensure the system has sufficient integrity to support production operations. Specifically, we have:

- Instituted a Configuration Management activity for this release with regular Change Control Board meetings.
- Tracked Program Tracking Report (PTR) issues and initiated analyses and actions required to resolve these issues.
- Developed User Acceptance Testing (UAT) test cases in close collaboration with the end users, GPO's test group, and Mitre Corporation, our contractor assisting us in these efforts.



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Appendix A. Management's Response

OIG Recommendation #5:

The majority of users should be trained "just-in-time" prior to the system cutover. Some key users should be trained well in advance of the cutover to allow for them to be involved in prototype reviews, analysis, and testing.

IT&S Response:

We agree. Training was conducted in mid-2008 in anticipation for an October 1, 2008 launch. When the launch was delayed, we realized that additional training and a refresh of the original training would be required.

IT, in collaboration with GPO's Workforce Development organization have been actively training high-priority users, and developing training and training aids for the rest of the agency employees that will need Oracle training. Please see the associated document (090320 GBIS Phased Training.pdf) for additional details on the training plan.

In addition, we have made arrangements to have enhanced Oracle contractor support on site for 2 months after the launch to support users as questions arise.

OIG Recommendation #6:

Ensure user support materials and artifacts are available for training and that they augment post training phases; training materials should include the full business process and should be reviewed and approved of by the business owners or super users.

IT&S Response:

Please see our response to recommendation #5. We feel that this issue is covered with the training aids that have been and are being developed.

OIG Recommendation #7:

Conduct detailed planning on post deployment help processes fully document the plan to allow for communication and coordination.

IT&S Response:

Post implementation support will be conducted by our contractor, Guident, for a period about 30 days. During this time Guident will provide support for the newly implemented applications and functionality. During this 30 day Post-Implementation support phase, the GPO support team consisting of GPO, BroadPoint, and Guident personnel will assist the effort and ultimately take ownership.

OIG Recommendation #8:

Integrate internal GPO help resources into the post deployment help plan.

IT&S Response:

Post implementation support will be conducted by our contractor, Guident, for a period about 30 days. During this time Guident will provide support for the newly implemented applications and functionality. During this 30 day Post-Implementation support phase, the GPO support team consisting of GPO, BroadPoint, and Guident personnel will assist the effort and ultimately take ownership.

Additionally, GPO End User Support organization located in IT will administer help in supporting access controls as required



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Appendix A. Management's Response

OIG Recommendation #13:

Perform UAT on one production-ready version of the system, replicating the planned production environment to greatest extent possible including interfaces and data exchanges; ensure sufficient performance testing is included in UAT; ensure testing covers the end-to-end business process (including reporting).

IT&S Response:

We agree with this recommendation and have instituted plans that align to this. UAT is being performed on a production representative version of the Oracle applications configured for our release 2. Once UAT is complete and identified issues (tracked via PTRs in Configuration Management), the test instance configuration will be used to configure the production instance.

OIG Recommendation #14:

Users must test with their expected roles and responsibilities; all roles and responsibilities should be tested.

IT&S Response:

We agree. This is a key part of the UAT testing that is currently underway.

OIG Recommendation #15:

As part of UAT, include usability, accessibility, interoperability, and performance along with functionality in the test scenarios; include multi-user scenarios transacting normal business processes to test data contention.

IT&S Response:

We agree. This is a key part of the UAT testing that is currently underway.

OIG Recommendation #16:

UAT test results should be collected and evaluated systematically and available to all stakeholders with integration to the change control process.

IT&S Response:

We agree. This is a key part of the UAT testing that is currently underway. Daily meetings are conducted to schedule tests, and review results. All test results need to be signed off by the user performing the test, a representative from the IT test team, and the stakeholder representatives.

Appendix A. Management's Response

General Recommendations

OIG Recommendation #19:

Review, revise, and reissue the GPO Software Development Lifecycle document to reflect current policies and procedures; review and update the GPO Policy for instituting the SDLC process for all GPO IT projects.

IT&S Response:

A Directive has been in place for over 2 years that outlines GPO's SDLC process. This directive is currently being updated to include more details associated with IT governance, activities in the Architecture Review Board, the Technical Reference Model work group, and Configuration Management. We intend to issue a new directive soon, once it has been thoroughly reviewed and approved by GPO management.

Our intention is to use the new SDLC directive as guidance for all IT projects and eventually extend this to all GPO projects.

OIG Recommendation #20:

Institute a visible and transparent process for the systematic collection, auditing, monitoring, tracking, and reporting on change requests and issues.

IT&S Response:

Configuration Management and associated Change Review Boards are now a part of all major IT projects. This activity capture, assigns and tracks progress on PTRs.

OIG Recommendation #21:

Evaluate the shortfalls identified during the Release 2 project and determine cause and source and how to plan against their reoccurrence as part of the evaluation criteria for the next contracting phase Release.

IT&S Response:

Once we complete Release 2, we will conduct a through lessons learned session to understand how we can perform at a higher level in the future. We have effectively used this technique on other program and have benefited from the results. This is becoming a standard part of our process for IT projects at GPO.

OIG Recommendation #22:

Set up, and institute, a repeatable training process for educating expected participants in Phase Gate Reviews (as identified in the SDLC document):

- What is expected of participants (responsibilities)
- What products are to be reviewed
- What expertise is required for reviewing the products and assessing readiness to move forward

IT&S Response:

We agree. One of the key IT initiatives for FY09 is to update the SDLC Directive as mentioned in Recommendation #19, and to develop standard templates to be used to support activities in each phase of activity. The intention of the template development activity is to have a common approach and vernacular for project activities. These templates will serve as an educational tool. We will also use these in future project training courses.

Appendix A. Management's Response

OIG Recommendation #23:

Establish appropriate timeframes prior to each Phase Gate Review for release of materials to be reviewed; Phase Gate Reviews should be held at the end of the timeframe ensuring reviewers have sufficient time to review and assess materials and products.

IT&S Response:

Our guideline is to have this material available 1 week prior to the meeting. At this stage in our project management process maturity, we do not always meet this guideline, but I am happy to say that we are improving. Completing the activity outlined in Recommendation #22 will help us communicate the expectations for Gate deliverables, and support the enforcement of our guidelines.

Appendix B. Evaluation of Management's Response

The OIG's evaluation of management's response to each of the recommendations applicable to Oracle Release 2 is presented below.

Recommendation 1. Develop an enterprise strategy for managing data conversion efforts including the policy for on-line access of historical data, management of non-converted data, and legacy data reporting and retention requirements.

Management's Response. Concur. A data cut over plan has been developed by Mitre Corporation, the program support contractor. This plan will be used for the final data migration from legacy systems to oracle. This plan has gone through extensive review, and we will complete the final reviews the week prior to go-live.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. We would like to emphasize that the data cut over plan should address how legacy data will be accessed and maintained for reporting and retention requirements. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are verified by the IV&V team.

Recommendation 2. Ensure a stable version of the production baseline (including interfaces and converted data) is available for testing during UAT.

Management's Response. Concur. We have taken steps to ensure the system has sufficient integrity to support production operations. Specifically, we have:

- Instituted a configuration management activity for this release with regular Change Control Board meetings.
- Tracked Program Tracking Report (PTR) issues and initiated analyses and actions required to resolve these issues.
- Developed User Acceptance Testing (UAT) test cases in close collaboration with the end users, GPO's test group, and Mitre Corporation.

Evaluation of Management's Response. The actions taken by management are responsive to the recommendation. The actions are very positive for development testing (from unit tests through final regression tests). We would like to emphasize that the UAT baseline should not be modified during testing, as a moving target can have unfortunate consequences. We also emphasize that the testing needs to include interfaces; especially external interfaces such as Treasury. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are verified by the IV&V team.

Recommendation 5. The majority of users should be trained "just-in-time" prior to the system cutover. Some key users should be trained well in advance of the cutover to allow for them to be involved in prototype reviews, analysis, and testing.

Appendix B. Evaluation of Management's Response

Management's Response. Concur. Training was conducted in mid-2008 in anticipation for an October 1, 2008 launch. When the launch was delayed, we realized that additional training and a refresh of the original training would be required. IT&S, in collaboration with GPO's workforce development organization have been actively training high-priority users, and developing training and training aids for the rest of the agency employees that will need Oracle training. In addition, we have made arrangements to have enhanced Oracle contractor support on-site for 2 months after the launch to support users as questions arise.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The sand-box concept was valuable to the GBIS 2.0 project. It supported the user learning experience and led to identification of critical functional problems with the software. The post-support arrangement will be a positive mitigation for any missed training opportunities. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until the IV&V team reviews evidence of formal training prior to go live.

Recommendation 6. Ensure user support materials and artifacts are available for training and that they augment post training phases; training materials should include the full business process and should be reviewed and approved by the business owners or super users.

Management's Response. Concur. See response to recommendation 5. We feel that this issue is covered with the training aids that have been and are being developed.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The IV&V team was only able to review pre-October testing materials. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until the IV&V team reviews the updated training material.

Recommendation 7. Conduct detailed planning on post deployment help processes and fully document the plan to allow for communication and coordination.

Management's Response. Concur. Post implementation support will be conducted by our contractor Guident, for a period of 30 days. During this time Guident will provide support for the new implemented applications and functionality. During this 30-day post-implementation support phase, the GPO support team consisting of GPO, Broadpoint, and Guident personnel will assist the effort and ultimately take ownership.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until the IV&V team reviews the documented plan and observes post implementation support.

Appendix B. Evaluation of Management's Response

Recommendation 8. Integrate internal GPO help resources into the post deployment help plan.

Management's Response. Concur. See response to recommendation 7 above. Additionally, the GPO End User Support organization located in IT&S will administer help in supporting access controls as required.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until the IV&V team reviews the documented plan and observes post implementation support.

Recommendation 13. Perform UAT on one production-ready version of the system, replicating the planned production environment to the greatest extent possible including interfaces and data exchanges; ensure sufficient performance testing is included in UAT; ensure testing covers the end-to-end business process (including reporting).

Management's Response. Concur. We have instituted plans that align to this. UAT is being performed on a production representative version of the Oracle applications configured for our release 2. Once UAT is complete and identified issues (tracked via PTRs in configuration management), the test instance configuration will be used to configure the production instance.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are reviewed by the IV&V team.

Recommendation 14. Users must test with their expected roles and responsibilities; all roles and responsibilities should be tested.

Management's Response. Concur. This is a key part of the UAT testing that is currently underway.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are reviewed by the IV&V team.

Recommendation 15. As part of UAT, include usability, accessibility, interoperability, and performance along with functionality in the test scenarios; include multi-user scenarios transacting normal business processes to test data contention.

Management's Response. Concur. This is a key part of the UAT testing that is currently underway.

Appendix B. Evaluation of Management's Response

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are reviewed by the IV&V team.

Recommendation 16. UAT test results should be collected and evaluated systematically and available to all stakeholders with integration to the change control process.

Management's Response. Concur. This is a key part of the UAT testing that is currently underway. Daily meetings are conducted to schedule tests, and review results. All test results need to be signed off by the user performing the test, a representative from the IT&S test team, and the stakeholder representatives.

Evaluation of Management's Response. The actions taken and proposed by management are responsive to the recommendation. The recommendation is resolved and undispositioned, and will remain open for reporting purposes until corrective actions are reviewed by the IV&V team.

Appendix C. Status of Recommendations

Recommendation No.	Resolved	Unresolved	Open/ECD*	Closed
1	X		TBD	
2	X		TBD	
5	X		TBD	
6	X		TBD	
7	X		TBD	
8	X		TBD	
13	X		TBD	
14	X		TBD	
15	X		TBD	
16	X		TBD	

*Estimated Completion Date

Appendix D. Report Distribution

Public Printer
Chief of Staff
Acting General Counsel
Chief Acquisition Officer
Chief Management Officer
Chief Technology Officer