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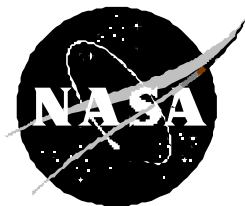
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**INTEGRATED FINANCIAL MANAGEMENT
PROGRAM BUDGET FORMULATION
MODULE**

March 30, 2004

cc:

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National Aeronautics and
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Integrated Financial Management Program (IFMP) Budget Formulation Module (BFM)

Managing under a full cost concept is a Federal requirement that has been embraced by NASA under its full cost initiative. The full cost initiative consists of three components—full cost accounting, cost-based budgeting, and full cost management. The Budget Formulation Module (BFM), a component of the Integrated Financial Management Program (IFMP), supports NASA's initiative for cost-based budgeting. The BFM supports formulation of NASA's institutional, program, enterprise and Agency level budget requirements. NASA is currently implementing BFM in three releases. Release .5 was implemented in October 2003 and designed to contain 80 percent of the module's functionality as the basis for 'bottom up' Center budgeting. Release .5B, was implemented on February 23, 2004, to capture the remaining functionality that would be part of Release .5. Release 1 is to contain the remaining 20 percent of the module's functionality, and be the basis for 'top down' Headquarters budgeting.

Since the initial stages of our audit, which began in May 2003, full implementation dates for BFM have slipped twice. Originally scheduled for implementation in February 2004, the target date is now January 2005, meaning that NASA's planned use of the IFMP to implement cost-based budgeting—the final component necessary for full cost management—will be delayed until fiscal year 2006.

At the time of our audit, we were concerned that the NASA BFM Team had not:

- Engaged key users of the BFM, specifically Headquarters enterprise personnel, in the development of the system until October 2003, nearly 21 months after the project's inception and less than 5 months before the initial planned implementation (Audit Issue 1);
- Included, as planned, five key BFM requirements in Release .5, which was the first of the three BFM releases (Audit Issue 2); and
- Included sufficient functionality in the BFM document repository system that would have enabled elimination of a legacy budget document repository system (Audit Issue 3).

Due to the fast moving nature of the BFM implementation, we immediately communicated those three issues to the NASA IFMP Program Executive with four recommendations for improvement. NASA management responded to the issues and, as of the issuance of this report, has adequately addressed all issues. We consider two of the four recommendations closed. The other two recommendations are resolved but will remain open pending our review of NASA's stated actions.

Audit Issues and Recommendations

Audit Issue 1. BFM Headquarters-Level Functionality

When we reported this issue to management on January 14, 2004, enterprise resource personnel—integral BFM users who require budget data to make business decisions and provide information to NASA stakeholders (NASA Office of the Chief Financial Officer (CFO), Office of Management and Budget [OMB], and Congress)—had concerns with the functionality of BFM with phasing plans, the report form and content area, and adjustments to Center budget data. Those concerns came about because enterprise personnel had little involvement until October 2003 in the BFM requirements definition process. As a result, we were concerned about whether the Agency would have sufficient time to build the necessary functionality into the BFM and test the software in time for full implementation of the module, which at that time was scheduled for May 2004.

Although the system design was essentially complete, some of the NASA enterprise personnel we interviewed stated they had concerns with the BFM. Specifically, those concerns involved developing phasing plans, the BFM report form and content, and adjustments to Center budget data. The issues that the enterprise personnel cited as potential problems could have impeded job performance and degrade the timeliness and accuracy of budget data provided to NASA's primary stakeholders.

Phasing Plans. Enterprise personnel stated that the steps necessary to complete phasing plans would be greatly increased using the BFM. Under the current NASA Budget System, phasing plans for current and prior year funds, as well as obligations and costs, are entered on one screen. To enter the phasing plans in the BFM, however, not only are current and prior year funds entered on different screens, but obligation and cost plans are also entered on separate screens. The enterprise personnel stated that having to enter data in such a manner would increase the workload, especially with the system's reported slow processing time.

Report Form and Content. Some enterprise personnel stated that BFM reports that were produced by the Core Financial Module business warehouse (which stores the budget data) would not be useful to the enterprises. Those enterprise personnel stated that obtaining needed data requires a manual process that includes exporting data from the business warehouse to an Excel spreadsheet, then manipulating the data to the format needed to perform trend analyses. Those enterprise personnel stated that the manual process took a significant amount of time to perform and still did not always produce the desired results, and it would be more beneficial if the BFM or the business warehouse could produce reports in a more useable format.

Adjustments to Center Budget Information. Enterprise personnel stated that the BFM did not support the automated update of Center budget data resulting from enterprise-level adjustments. When enterprise personnel made adjustments to budget data, the

Centers had to run a manual report in order to reconcile their records to the enterprise records. Enterprise personnel stated that it would be desirable if the BFM automatically adjusted Center-level budget data when adjustments are made at the enterprise level. Manually updating budget records is labor intensive and increases the risk that enterprises' budget changes to the Center data will be inaccurate or incomplete. Ensuring that enterprise budget adjustments are automated would ensure that the following year's budget starting point is accurate.

Enterprise personnel were not involved from the beginning in the design of the BFM. In February 2002, the BFM Project Team began conducting workshops that included NASA personnel from each Center to aid in developing system requirements and design. Management at each Center determined which personnel would attend the requirements and design sessions. Based on our review of the workshop rosters and through discussions with IFMP personnel, we found that primarily Center CFO office personnel, not enterprise personnel or program managers, attended the workshops. The IFMP Program Executive stated that although enterprise personnel were invited to all of the module's requirements planning sessions, for the most part, those personnel either chose not to attend or were unable to attend. Enterprise personnel stated that they did not attend planning sessions because they believed that the system's requirements had already been defined and when they did raise questions concerning requirements for the BFM, IFMP personnel told them that they would have to "live with" those requirements. The BFM Project Manager stated that enterprise personnel would be involved only with the design of Release 1, and would therefore not have any involvement with the BFM until later in the implementation cycle.

On October 27, 2003, management directed that a design team of enterprise personnel and the NASA Headquarters Director of Resources Management convene to help define Headquarters BFM requirements. Enterprise personnel we interviewed stated that this exercise was beneficial and that the team identified basic requirements for all of NASA's enterprises. The basic requirements that the team identified did not, however, include the three requirements identified by enterprise personnel, as noted.

At that time we were concerned about whether the Agency would have sufficient time to accommodate enterprise requirements in time for the scheduled full implementation in May 2002. If Release 1 of the BFM were implemented without including all of the enterprise requirements, the Agency would have been unable to obtain and provide in a timely manner complete and accurate data for both internal use and to NASA's primary stakeholders. We believe that this situation could have been avoided had enterprise personnel been involved in the requirements definition process at the beginning.

Recommendations, Management's Response and Evaluation of Management's Response

- 1. Ensure that as a top priority for any future IFMP module, integral users are identified and involved at the earliest stages of design and functionality determination.**

Management's Response. Management concurred with the recommendation. Management stated that integral users of the BFM were identified and involved at the earliest stages of design and functionality determination for the Budget Formulation Project. Headquarters user involvement in BFM began on June 11, 2003. Consistent with their role as primary users, Center representatives comprised the requirements design team for Release .5. Similarly, the enterprises and the Office of the CFO with their role as primary users comprised the requirements design team for Release 1. The complete text of management's response is in Appendix D.

Evaluation of Management's Response. Management's action is responsive to the recommendation, and the recommendation is closed.

Although we believe management's actions are responsive we believe some of their statements are inaccurate. Management's statement that integral users were involved at the earliest stage of design of the project is misleading because: (1) Release .5 and Release 1 for the BFM are interdependent, and all users should therefore have been involved in the design of both releases; (2) Although some Headquarters users did start to become involved in the BFM project in June 2003, most Headquarters users did not become integrally involved in the design process until October 2003; and (3) even if all necessary Headquarters users became integrally involved in the BFM design process in June 2003, that date was too late.

Interdependency of Release .5 and Release 1 for the BFM. Release .5 (which involves mostly Center personnel) and Release 1 (which involves most Headquarters personnel) are interdependent and share common information. For example, data Center personnel enter into Release .5 transfers to the enterprises at NASA Headquarters (Release 1) for analysis and changes. Later in the budget process, the Release 1 data are transferred to Release .5. Because of the interdependencies of the two releases, all of the module's users (both Center and Headquarters) should have been involved from the beginning. Although we agree that enterprises and CFO personnel are not direct users of Release .5 but are for Release 1, the information that Center users enter into Release .5 directly affects the enterprises, and vice versa. Involving enterprise personnel for only the design and requirements determination for Release 1 is a clear example of NASA management treating Release .5 and Release 1 as two separate systems, even though they are interdependent.

The General Accounting Office (GAO) Executive Guide for Creating Value Through World-class Financial Management (GAO/AIMD-00-134 dated April 2000) emphasizes the importance of involving, early in the development process, all critical users of a

proposed system. The Guide states that to demonstrate and reinforce commitment to improving financial management, heads of agencies and senior executives could involve key program managers and business managers in implementing financial initiatives. GAO's 1987 Policy and Procedures Manual for Guidance of Federal Agencies, Appendix III, Chapter 4—"Accounting System Development and Modification," though superseded by requirements established by the Joint Financial Management Improvement Program, contains some valid points about involving users early in a project's development cycle:

accounting system acquisition and development should be managed by a structured process that provides for continuous involvement of users throughout the processAlso critical to the success of the system development is user involvement. Users should be an integral part of the project team, participating in all phases. Involving the user from the start is one of the most effective ways of identifying system requirements and problems and perhaps the only practical means of ensuring system acceptance by the organization.

Headquarters User Involvement. We disagree with management's assertion that Headquarters users became involved with the BFM definition process of functional requirements beginning in June 2003. Although some Headquarters users did start to become involved in the BFM project in June 2003, most Headquarters users did not become integrally involved in the design process until October 2003. On August 15, 2003, the BFM Project Manager stated that the necessary decisions regarding Headquarters requirements would be made by the end of September 2003. In addition, we conducted numerous interviews supporting that enterprise personnel had little involvement in the requirements definition process for the BFM until October 2003.

Timeliness of Headquarters Involvement. Headquarters user involvement in the BFM was not timely. We believe that Headquarters enterprise personnel not being involved until later in the requirements definition process was what contributed to the slip in the implementation date of Release 1.

In August 2003, the BFM Project Manager stated that enterprise personnel would become heavily involved during September 2003, with the project's requirements definition process. As the enterprise personnel were getting ready to be involved in the process, Release 1 was scheduled for implementation barely 6 months away—on February 23, 2004. That implementation date would have left less than 6 months to develop the requirements, modify the software¹ accommodating those requirements, test the software, and provide enough time for users to become familiar with the software before having to use it for an actual budget cycle.

¹ Budget Formulation Project Management described the BFM SAP Strategic Enterprise Management software as a 'toolkit' to which SAP programmers conform to NASA's budget process. According to the BFM Project Plan, the Agency solution (budget process) is imprinted into the SAP Strategic Enterprise Management software, creating the budget formulation system, along with the necessary interfaces to the Core Financial and Office of Management and Budget reporting capabilities, and data analysis tools.

The planned implementation of Release 1 subsequently slipped to May 2004. However, as of January 2004, NASA enterprise personnel had concerns with the functionality of BFM and its ability to produce phasing plans, with the BFM report's form and contents of the reports, and with adjustments to Center budget data. On January 30, 2004, the planned implementation of Release 1 slipped to January 2005. According to IFMP management, the justification for the release date slippage was to provide NASA Headquarters personnel an adequate period of time to become familiar with the BFM before having to use it for producing major budget deliverables.

2. Direct that the BFM project management works closely with NASA Headquarters enterprise personnel to ensure that the BFM will meet enterprise needs for phasing plans, internal and external (including OMB and congressional) reporting requirements, and adjustments to Center data.

Management's Response. Management concurred with the recommendation. The BFM Project realigned its release strategy and schedule. In consultation with the CFO, the IFM Program Office delayed until January 2005 the implementation of the Headquarters functionality of BFM. The decision was made to provide Headquarters personnel an adequate period of time to become familiar with the BFM before having to use it for producing major budget deliverables. A "dress rehearsal" environment will be available from September through December 2004. The dress rehearsal will allow, as a training exercise, Headquarters personnel to produce fiscal year 2006 budget deliverables. Enterprise representatives on the design team endorsed this as their preferred approach.

Evaluation of Management's Response. Management's action is responsive to the recommendation. The recommendation is resolved but will remain open pending our assessment of Headquarters personnel's familiarization period with the BFM software beginning in September 2004.

Audit Issue 2. Inclusion of Key BFM Functionality in Release .5B

When we reported this issue to NASA management on January 14, 2004, five key system requirements that were originally planned to be included in BFM Release .5 were not in the release. The requirements were (1) data integrity business checks that would ensure that budget planners do not assign the wrong appropriation to a project, (2) full system traceability (audit trail), (3) restricted access to embargoed budget data, (4) acceptable system response time, and (5) an on-line quick reference tool. Those five key system requirements were critical to Center program and project staff in developing their 'bottoms-up' budget data—the primary reason that NASA needed those requirements included in Release .5. On October 20, 2003, we issued a memorandum to the NASA IFMP Executive reporting our concern that those requirements were not going to be included in Release .5. On October 22, 2003, the NASA IFMP Executive and the IFMP Director stated that because of new full cost requirements that had been developed late in the Release .5 development cycle, the requirements originally planned for that release were deferred to an additional release—Release .5B.

Considering the late change in planning that resulted in having key functionality delayed until Release .5B (implemented February 23, 2004), we were concerned about whether those requirements were in fact included in Release .5B. Including those five key system requirements in Release .5B would both ensure that the final release (Release 1, which at the time we reported this issue to management was scheduled for January 2005) contained the requirements and allowed ample time for addressing user feedback, coding required changes into the software, and testing those changes.

Recommendation, Management’s Response, and Evaluation of Management’s Response

- 3. The IFMP Program Executive should include and fully test in BFM Release .5B the required data integrity business checks, full system traceability, restricted access to embargoed data, system response time, and on-line quick reference tool functions as planned before Release .5B is implemented.**

Management’s Response. NASA partially concurred with the recommendation. Management stated that the on-line quick reference tool will be available soon for Release .5B. Management found that full audit trail capability and data integrity business checks would result in significant degradation of system performance, and restriction to embargoed data was no longer a NASA-identified requirement. Management stated that Centers could restrict viewing of their data in the pre-POP [Program Operating Plan] process to their Center only. In subsequent Agency versions, viewing outside of a Center will be restricted to “released” (official) versions only (see Appendix D).

Evaluation of Management’s Response. We consider management’s actions responsive to the recommendation. In a January 2004 video conference, IFMP officials acknowledged that a slow system response time was still a problem and stated they were working with SAP (the BFM software vendor) to rectify the problem. The recommendation is resolved but will remain open pending further OIG monitoring, follow-up, and evaluation of NASA’s actions related to this issue.

Audit Issue 3. Maintaining the Legacy Data Warehouse Document System.

When we reported this issue to management on January 14, 2004, the BFM system designed to store sensitive electronic documents pertaining to key budget decisions and directives—the Business Information Collector (BIC)—did not have sufficient functionality necessary to preclude the unauthorized manipulation of documents.

The unauthorized manipulation of documents can be controlled through the use of Portable Document Files commonly referred to as .PDF files. A Portable Document File is a file format that captures all of the elements of a printed document as an electronic image, making it difficult to alter a document. A SecurID token would provide an additional level of security requiring the user to combine a known password with a

number generated by the token. The electronic document warehouse (the Business Information Collector) could not maintain Portable Document Files and did not require the use of SecurID tokens.

In order to keep this critical budget function, the Agency had planned to maintain the legacy data warehouse document system—the Code BR Information Collector (BRIC). The BRIC both supported the .PDF format and required a SecurID token to access sensitive documents. Because one of IFMP’s primary objectives is to eliminate the many supporting systems that existed in the Agency, keeping the BRIC—which NASA personnel estimate could cost approximately \$51,000 annually to maintain—is both counter to the IFMP goals as well as costly.

Recommendation, Management’s Response, and Evaluation of Management’s Response

- 4. The IFMP Program Executive should ensure before Release .5B is implemented that BIC contains adequate security safeguards that protect sensitive data so the Agency can eliminate the legacy Code BF data document warehouse system.**

Management’s Response. NASA partially concurred with the recommendation. The BIC was not implemented in Release .5 or Release .5B but is planned for a future update. The Budget Formulation Team is working with the Headquarters design team to determine how the capability should be used in Release 1. Inability of the BIC to serve as a large repository for documents is the result of functionality limitations and not security limitations. Appending a large volume of documents in BIC can negatively impact performance of the system. As of March 2004, the BRIC provides for distribution of a high volume of documents. Replicating this document repository within the BIC is not considered feasible (see Appendix D).

Evaluation of Management’s Response. We consider management’s actions responsive to our recommendation. Our analysis of management’s response and follow-up with several NASA personnel, found that our recommendation was no longer feasible. Although one of the original objectives of the BIC was to replace the BRIC, because of functionality differences between the two systems, replacing the BRIC is no longer a feasible option. The recommendation is considered closed.

Appendixes

Among the other appendixes, note that Appendix A contains other matters related to our audit objectives for which management is aware and is implementing corrective action. Appendix C contains our audit scope and methodology related to the issues contained in this summary report, and Appendix D, contains background information on the BFM and full cost management. Appendixes E through G contain management’s responses in their entirety that were submitted to the Office of Inspector General by way of emails dated February 13, 2004, February 25, 2004, and March 1, 2004.

List of Appendixes

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Appendix H – Report Distribution

Acronyms Used in the Report

BIC	Business Information Collector
BRIC	NASA Code BR Information Collector
BFM	Budget Formulation Module
CFM	Core Financial Module
FY	Fiscal Year
GAO	General Accounting Office
IFMP	Integrated Financial Management Program
OIG	Office of Inspector General
OMB	Office of Management and Budget

Appendix A. Other Matters

The following are matters related to our audit objectives for which management is well aware and implementing corrective action.

Program and Project Definition

The BFM and CFM are not functionally compatible. The incompatibility exists because the CFM architecture hierarchy is based on the Agencywide Coding Structure, whereas the BFM was designed using a Theme-based hierarchy. Agency officials stated that this is a well-known problem and the primary reason NASA has had difficulty defining what exactly designates either a program or project in the CFM.

NASA officials stated that the Theme-based BFM data easily maps to the budget execution data. The different design hierarchies in the BFM and CFM, however, make consistently defining programs and projects quite difficult. For example, multiple unique three-digit project numbers could exist for a given project within a program depending where (which Center) the data were obtained. NASA made standardizing program and project data among Centers a high priority. One official we interviewed considered proposing the overhaul of the entire reporting format and hierarchy. The result of such an overhaul would be consistency between budget execution [CFM] and budget formulation data.

We will not know for some time whether NASA can ensure compatibility of program and project data among Centers. Regardless, we believe NASA is on the right track because they realize the importance of designing a reporting structure and hierarchy that is consistent between the budget execution [CFM] and budget formulation hierarchies.

Full Cost Determination in Management Reports

NASA has been working to devise reports that will be useful and understandable to NASA management, while at the same time providing the full cost of a given program or project, including its individual components. The former IFMP Director designated a team to devise reports that provide, by components, the full cost of a program or a project. NASA has successfully done that, and the reports will soon be in production. As of February 23, 2004, the reports include a program or a project's full cost with the exception of the Construction of Facilities cost, which report users need to obtain from a separate report. However, NASA is working to include the Construction of Facilities cost in the reports so obtaining this cost from a separate report will not be necessary. NASA managers need the full cost reports to facilitate business decisions and provide NASA stakeholders with timely and accurate information.

Appendix B. Status of Recommendations

Recommendation No.	Resolved	Unresolved	Open/ECD*	Closed
1	X			X
2	X		9/30/04	
3	X		9/30/04	
4**				

*ECD–Estimated Completion Date.

**Recommendation 4 was withdrawn.

Appendix C. Objectives, Scope, and Methodology

Objectives

The objective of our audit was to determine whether the BFM will meet the needs of NASA's program and project managers and effectively support full cost budgeting, specifically whether:

- The BFM Project Team solicited input from users other than budget and financial management personnel (for example, NASA's program and project managers) when configuring the module to meet those users' needs; and
- BFM was functionally compatible with the IFMP CFM fully implemented in June 2003 (for example, programs and projects are consistently defined in both modules).

Scope and Methodology

We reviewed BFM requirements, the process for determining the BFM requirements, design documents and other miscellaneous documentation, and determined which users are considered integral users of the BFM. To meet our objectives, we conducted interviews with numerous NASA Headquarters and Center officials, including enterprise directors, chiefs, and deputy directors, business leads, program and resource analysts, business managers, support service contractors, business process leads, and subject matter experts.

A formal audit reporting process became difficult to achieve due to the tight schedule that the BFM Team was following to meet the targeted BFM implementation dates. To minimize our impact on the BFM Team in meeting its schedule, we used a quick response reporting process to address the objectives. Management took responsive corrective actions in response to each of the observations, but the recommendations will remain open for further OIG monitoring, follow up, and evaluation. The purpose of this report is to consolidate observations, recommendations, and management actions to meet our reporting obligations. We did not review any specific management controls during our field work.

Audit Field Work

We performed audit fieldwork related to the objectives of this report from May 2003 through February 2004 at the BFM facility and Goddard Space Flight Center in Greenbelt, Maryland; NASA Headquarters; Glenn Research Center; and in accordance with generally accepted Government auditing standards.

Appendix D. Background Information on the Budget Formulation Module and Full Cost Management

One of the primary objectives of the IFMP is to support the Agency's Full Cost Initiative, which began in response to NASA requirements and Federal law. In February 1999, NASA published its "Full Cost Initiative Agencywide Implementation Guide" (Full Cost Guide). The guide describes three elements of the Full Cost Initiative as follows:

Full Cost Accounting. In full cost accounting, all costs are tied to a particular NASA project and consist of direct costs, service costs, and G&A costs. Direct costs are costs that can be readily related to a specific project. Examples of direct costs are materials and labor. Service costs are costs that cannot be immediately related to a project. Examples of service costs are information technology and publishing services. These costs are later related to a project and are distributed to a project based on usage or consumption. G&A costs are costs that cannot be related to a specific project, but benefit all activities. Examples of G&A costs are financial management and procurement.

Cost-based Budgeting. All costs are budgeted against NASA projects and NASA plans, manages, and controls funds based on a project perspective.

Full Cost Management. The project manager should use cost information to make informed decisions regarding resources management in order to optimize the cost-effective performance of a particular project. Full cost management cannot be achieved until full cost accounting and cost-based budgeting is successfully implemented.

The Budget Formulation Module (BFM), a component of the Integrated Financial Management Program (IFMP), supports NASA's initiative for cost-based budgeting. The BFM supports formulation of NASA's institutional, program, enterprise and Agency level budget requirements. NASA plans to implement is currently implementing BFM in three releases. Release .5 was implemented in October 2003 and designed to contain 80 percent of the module's functionality as the basis for 'bottom up' Center budgeting. Release .5B, was implemented on February 23, 2004, to capture the remaining functionality that would be part of Release .5. Release 1 is to contain the remaining 20 percent of the module's functionality, and be the basis for 'top down' Headquarters budgeting.

NASA started work in the BFM in February 2002. Since the initial stages of our audit, which began in May 2003, full implementation dates have slipped twice. Originally scheduled for implementation in February 2004, the target date is now January 2005 meaning that NASA's planned use of the IFMP to implement cost-based budgeting—the final component necessary for full cost management—will be delayed until fiscal year 2006.

Appendix E. Management’s Response Received on February 13, 2004

Following is management’s verbatim response to Audit Issues 1 through 3, Recommendations 1 through 4, which we received by email on February 13, 2004. Management’s response is embedded in our issued report and is shown in bold text.

A-01-061-05

Budget Formulation Module: OIG Concerns

We are conducting an audit of the Integrated Financial Management Program (IFMP) Budget Formulation Module (BFM). BFM is the final component necessary for NASA to implement full cost management by way of the IFMP. The BFM Project Office’s initial plans were to implement the BFM in two separate Releases (Release .5 and Release 1). Release .5 was designed to contain 80 percent of the module’s functionality and was scheduled for implementation in October 2003 as the basis for ‘bottom up’ Center budgeting. Release 1 was scheduled for implementation in February 2004, contain the remaining 20 percent of the module’s functionality, and be the basis for ‘top down’ Headquarters budgeting.

Since we started our audit, the Agency’s BFM implementation schedule changed. Release .5 was scaled back significantly [NOTE: “**significant**” might be too strong a statement here. **Only the C of F functionality, G&A allocation methodology (both due to policy delays, not system related) and Plan vs. Actuals (Center workload issues) were deferred to Rel .5B**] and implemented on October 27, 2003. An additional release, Release .5B, was introduced with the intention of capturing the remaining functionality that was part of the original Release .5. That release is planned for February 23, 2004. Release 1 was delayed until May 31, 2004. In conducting the audit, we identified the following potential issues that could impact the successful implementation of the BFM.

Audit Issue 1. BFM Headquarters-Level Functionality

As of January 2004, NASA enterprise resource personnel—integral BFM users who require budget data to make business decisions and provide information to NASA stakeholders—had concerns with the functionality of BFM with phasing plans, the report form and content area, and adjustments to Center budget data. Those concerns came about because NASA enterprise resource personnel had little involvement until October 2003 in the BFM requirements definition process. [The definition of requirements for HQ functionality in BFM began with a meeting of the Enterprise and Code B representatives on June 11, 2003. Numerous workshops were held over the summer of 2003 to define HQ requirements (June 30 – July 2, July 15, August 6, August 13 –14 and September 3, 2003). A dedicated team of senior members of the resources staff from the major Enterprises (Code M, Y, S, U, and R) and Code B was convened in October 2003 to finalize the design of the HQ component of BFM.

Appendix E

This dedicated team worked through mid-November for 3 days per week to finalize requirements and design. On November 20, 2003, the requirements for the HQ component of BFM were presented to the Agency Comptroller, Steve Isakowitz, for his approval. All Enterprises were represented at that meeting and verbally gave their approval of the requirements.

The BF Project has now realigned its release strategy and schedule. In consultation with Code B, the IFM Program Office has delayed the implementation of the HQ functionality of BFM until January 2005. This decision was made to provide HQ personnel an adequate period of time to get familiar with the BFM before having to use it for producing major budget deliverables. A “dress rehearsal” environment will be available from September through December 2004 to allow HQ personnel to produce FY 06 budget deliverables as a training exercise using BFM. Enterprise representatives on the design team have endorsed this as their preferred approach. The current NASA Budget System (NBS) will be used to produce the FY 06 budget deliverables from HQ. Data entered into BFM by the Centers for their POP submit will be uploaded to NBS after May 31, 2004 to allow HQ to begin the development of their budget deliverables.]

As a result, we are concerned about whether the Agency will have sufficient time to build the necessary functionality into the BFM and test the software in time for full implementation of the module currently scheduled for May 2004.

Although the system design is essentially complete, some of the NASA enterprise resource personnel we interviewed stated they had concerns with the BFM. Specifically, those concerns involve developing phasing plans, the BFM report form and content, and adjustments to Center budget data. The issues that the enterprise personnel cited as potential problems could impede job performance and degrade the timeliness and accuracy of budget data provided to NASA’s primary stakeholders (NASA CFO office, Office of Management and Budget [OMB], and Congress).

- **Phasing Plans.** Enterprise personnel stated that the steps necessary to complete phasing plans would greatly increase using the BFM. Under the current NASA Budget System, phasing plans for current and prior year funds, as well as obligations and costs, are entered on one screen. **[There is no current NASA Budget System for phasing plans. Each Center submits phasing plans to the respective Enterprises using a variety of methods, but the most common method is Excel spreadsheets.]** To enter the phasing plans in the BFM, however, not only are current and prior year funds entered on different screens, but obligation and cost plans are also entered on separate screens. The enterprise personnel stated that having to enter data in such a manner would increase the workload, especially with the system’s reported slow processing time. **[The description of the phasing plan design is incorrect. Planners plan all**

obligations and costs on one screen, for all program years. The phasing plan screen design is very close to the current Excel template required by Code B and the Enterprises. Perhaps the Enterprises were referring to the method used in the Core Financial module for entering phasing plans.]

- **Report Form and Content.** Some Enterprise personnel stated that BFM reports that are produced by the core financial module business warehouse (which stores the budget data) would not be useful to the enterprises. Those enterprise personnel stated that obtaining needed data requires a manual process that includes exporting data from the business warehouse to an Excel spreadsheet, then manipulating the data to the format needed to perform trend analyses. Those personnel stated that the manual process takes a significant amount of time to obtain the desired results and it would be more beneficial if the BFM or the business warehouse could produce reports in a more useable format. **[The Budget Formulation module uses its own Business Warehouse environment. The report formats for Release .5 and 1.0 are separate from any formats configured for Core Finance. The issues stated in this bullet pertain only to Core Finance and there was no evidence given in the paragraph that users are having the same experience with BF.]**
- **Adjustments to Center Budget Information.** Enterprise personnel stated that BFM does not support the automated update of Center budget data resulting from enterprise-level adjustments. Currently, when enterprise personnel make adjustments to budget data, the Centers must run a manual report in order to reconcile their records to the enterprise records. Personnel stated that it would be desirable if the BFM automatically adjusted Center-level budget data when adjustments are made at the enterprise level. Manually updating budget records is labor intensive and increases the risk that enterprises' budget changes to the Center data will be inaccurate or incomplete. Ensuring that enterprise budget adjustments are automated will ensure that the following year's budget starting point is accurate. **[The level of the budget structure that decisions are made at and documented by HQ are not consistent with the level of detail that budget decisions are documented by the Centers. In many instances, the HQ decisions are at a much higher level of aggregation, and the Centers are insistent that they are able to implement the decisions at the Center level. The Release 1.0 system provides a capability to set controls that do not allow totals to exceed when the Centers are implementing decisions from HQ. The budget process incorporated into the Release 1 design supports the Centers updating their estimates after the OMB summary submit (early September), to support the submission of the detailed OMB submit in October. This will provide a established baseline for the Centers to begin their pre-POP planning activities, as well as to complete development of their phasing plans for the upcoming fiscal year.]**

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Enterprise resource personnel were not involved from the beginning in the design of the BFM. In February 2002, the BFM Project Team began conducting workshops that included NASA personnel from each Center to aid in developing system requirements and design. Management at each Center determined which personnel would attend the requirements and design sessions. Based on our review of the workshop rosters and through discussions with NASA IFMP personnel, we found that primarily Center CFO office personnel and not enterprise resource personnel or program managers, attended the workshops. The IFMP Program Executive stated that although enterprise resource personnel were invited to all of the module's requirements planning sessions, for the most part, those personnel either chose not to attend or were unable to attend. Enterprise resource personnel stated that they did not attend planning sessions because they believed that the system's requirements had already been defined and when they did raise questions concerning requirements for the BFM, IFMP personnel told them that they would have to "live with" those requirements. **[Enterprise participation in the definition of requirements for Release .5 and .5B was minimal because Enterprises view Rel .5 as a Center's bottom up planning tool not directly relevant to their budgeting activities.]** The BFM Project Manager stated that enterprise resource personnel would be involved only with the design of Release 1, and would therefore not have any involvement with the BFM until later in the implementation cycle. NASA management recently recognized that enterprise requirements needed to be established as soon as possible. As a result, on October 27, 2003, management directed that a design team of enterprise resource personnel and the NASA Headquarters Director of Resources Management convene to help define Headquarters BFM requirements. Enterprise officials we interviewed stated that this exercise was beneficial and that the team identified basic requirements for all of NASA's enterprises. The basic requirements that the team identified did not, however, include the three requirements identified by enterprise personnel, as noted. **[This is inaccurate – Phasing plans are included in Release .5B, Center reporting is included in both Release .5 and 1.0 and Center budget reconciliation is integral to the design of Release 1.0.]** Furthermore, NASA will not know until February 2004 whether the BFM software (SAP) will actually support those basic requirements. The February date is less than 4 months from the planned full release of BFM.

We are concerned about whether the Agency will have sufficient time to accommodate enterprise requirements **[This should state "Headquarters" requirements. Requirements are not confined to just the Enterprises.]** in time for the scheduled full implementation in May 2004. If Release 1 of the BFM is implemented without including all of the enterprise requirements, the Agency may be unable to obtain and provide in a timely manner complete and accurate data for both internal use and to NASA's primary stakeholders. **[At the Critical Design Review for Release 1, it was pointed out an initial set of 38 requirements was provided by HQ for evaluation. Four of those requirements were duplicated and eliminated. Of the remaining 34 requirements, 30 are fully supported. Of the 4 that are not supported, 3 requirements relate to**

control and reporting of information that is not included in the .5 dataset (budgeting of full time permanent positions). The other requirement involves explicit identification of which user changed any individual piece of information. It was accepted by the HQ team that the security features of the SEM tool provide a sufficient degree of identification to be acceptable.] In addition, if the BFM software (SAP) cannot accommodate basic enterprise requirements, NASA's use of the BFM could be delayed for another entire budget cycle, postponing further full cost-based budgeting. We believe that this situation could have been avoided had the appropriate personnel been involved in the requirements definition process at the beginning. **[The Enterprises and Code B have now agreed on the requirements for the HQ component of the BFM.]**

Recommendations

The IFMP Program Executive should:

1. Ensure that as a top priority for any future IFMP module, integral users are identified and involved at the earliest stages of design and functionality determination. **[This has been accomplished in both Release .5 and Release 1. Center representatives comprised the design team for Release .5, consistent with their role as primary users. The Enterprises and Code B comprised the design team for Release 1, as appropriate, given their role as primary users of this functionality.]**
2. Direct that the BFM project management works closely with NASA Headquarters enterprise personnel to ensure that the BFM will meet enterprise needs for phasing plans, internal and external (including OMB and congressional) reporting requirements, and adjustments to Center budget data. **[This has been done as well.]**

Audit Issue 2. Inclusion of Key BFM Functionality in Release .5B. Five key system requirements that were originally planned to be included in Release .5 were not in the release. The requirements are (1) data integrity business checks that would ensure that budget planners do not assign the wrong appropriation to a project, **[This was evaluated and it was determined this data check would result in significant system performance degradation as well as high maintenance effort to maintain the appropriation to WBS element labels.]** (2) full system traceability (audit trail), **[The existing security configuration provides sufficient traceability to determine which user would have changed specific data. A full audit trail capability results in significant growth in the size of the database and performance impact.]** (3) restricted access to embargoed budget data, **[There is not a requirement for Rel .5 to restrict access to embargoed budget data. The requirement is that Centers can restrict viewing of their data in the pre-POP process to their Center only. In subsequent**

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Agency versions, viewing outside of a Center is restricted to “released” version only (C999 and C000) and not works in progress. These requirements have been met in Rel .5.] (4) acceptable system response time, and (5) an on-line quick reference tool. **[This is being completed and provided for Release .5.]** Those five key system requirements are critical to Center program and project staff in developing their ‘bottom-up’ budget data—the primary reason that NASA needed those requirements included in Release .5. On October 20, 2003, we issued a memorandum to the NASA IFMP Executive reporting our concern that those requirements were not going to be included in Release .5. On October 22, 2003, the NASA IFMP Executive and the IFMP Director stated that because of new full-cost requirements that had been developed late in the Release .5 development cycle, the requirements originally planned for that release were deferred to an additional release—Release .5B.

Considering the late change in planning that resulted in having key functionality delayed until Release .5B (scheduled for February 23, 2004), we are concerned about whether those requirements will in fact be included in Release .5B. Including those five key system requirements in Release .5B would both ensure that the final release (Release 1, scheduled for May 31, 2004) contains the requirements and allows ample time for addressing user feedback, coding required changes into the software, and testing those changes.

Recommendation

3. The IFMP Program Executive should include and fully test in BFM Release .5B the required data integrity business checks, full system traceability, restricted access to embargoed data, system response time, and an on-line quick reference tool functions as planned before Release .5B is implemented.

Audit Issue 3. Maintaining The Legacy Data Warehouse Document System. The BFM system designed to store sensitive electronic documents pertaining to key budget decisions and directives—the Business Information Collector—does not have sufficient security safeguards to protect those documents. **[This is an incorrect assumption. The NASA “BRIC”, which has appropriate security safeguards, will continue to be the repository for these documents.]** The condition exists because the Business Information Collector does not (1) have the functionality necessary to preclude the unauthorized manipulation of documents, and (2) does not require use of a SecurID token to obtain access to the sensitive documents. **[There will be system security to preclude unauthorized users from accessing the planning folders as the first line of security, and the BIC will not be used for transmitting budget guidance or large documents.]**

The unauthorized manipulation of documents can be controlled through the use of Portable Document Files commonly referred to as .PDF files. A Portable Document File

is a file format that captures all of the elements of a printed document as an electronic image, making it difficult to change the document. A SecurID token provides an additional level of security requiring the user to combine a known password with a number generated by the token. The electronic document warehouse (the Business Information Collector) cannot maintain Portable Document Files and does not require the use of SecurID tokens.

As a result, in order to keep this critical budget function, the Agency has planned to maintain the legacy Code BR data warehouse document system—the code BR Information Collector (BRIC). The BRIC both supports the .PDF format and requires a SecurID token to access sensitive documents. Because the primary objective of the IFMP was to eliminate the many supporting systems that existed in the Agency, keeping the BRIC—which NASA personnel estimate could cost approximately \$51,000 annually to maintain—is both counter to the IFMP goals as well as costly.

Recommendation

4. The IFMP Program Executive should ensure before Release .5B is implemented that the BIC contains adequate security safeguards that protect sensitive data so the Agency can eliminate the legacy Code BR data document warehouse system.

Appendix F. Management's Response Received on February 25, 2004

Following is management's verbatim response to Audit Issues 1 through 3, Recommendations 1 through 4, which we received by email on February 25, 2004.

TO: W/Alan Lamoreaux

FROM: AG/Program Executive Officer, Integrated Financial Management Program

SUBJECT: NASA Response to Report titled "Budget Formulation Module: OIG Concerns", (Assignment number A-01-061-05)

Alan,

Please find below NASA's response to the subject report. This written response is provided in addition to our earlier comments which were e-mailed to you on February 13, 2004.

Recommendation 1: Ensure that as a top priority for any future IFMP module, integral users are identified and involved at the earliest stages of design and functionality determination.

NASA concurs with this recommendation. Recognizing that this was done on the Budget Formulation Project. Center representatives comprised the requirements and design team for Release .5, consistent with their role as primary users. The Enterprises and Code B (CFO Office) comprised the requirements design team for Release 1, as appropriate, given their role as primary users of this functionality.

Nevertheless, NASA respectfully disagrees with the statement in the OIG report that "NASA enterprise resource personnel had little involvement until October 2003 in the BFM requirements definition process". The HQ Functional Requirements definition process for the Budget Formulation module was started with a meeting of the Enterprise and Code B representatives on June 11, 2003. Afterwards, several workshops were subsequently held during the summer of 2003, (June 30 – July 2, July 15, August 6, August 13 –14 and September 3, 2003) to further define HQ requirements. Finally, a team of senior Enterprise resources staff from Codes M, Y, S, U, and R and Code B met in October 2003 to finalize the design of the HQ component of the BF Application Module. This team worked through mid-November, 3 days a week, to set the initial product requirements and design. On November 20, 2003, those were presented to the Agency Comptroller for "customer" approval. Enterprise resource communities were also represented at that meeting and were asked for approval.

Recommendation 2: Direct that the BFM project management works closely with NASA Headquarters enterprise personnel to ensure that the BFM will meet enterprise needs for phasing plans, internal and external (including OMB and congressional) reporting requirements, and adjustments to Center budget data.

NASA concurs with this recommendation. See response to Recommendation 1 above.

Recommendation 3: The IFMP Program Executive should include and fully test in BFM Release .5B the required data integrity business checks, full system traceability, restricted access to embargoed data, system response time, and an on-line quick reference tool functions as planned before Release .5B is implemented.

NASA partially concurs with this recommendation. An on-line quick reference tool will be available shortly for Release 0.5b. Regarding full system traceability (or audit trail), the existing security configuration was deemed to provide sufficient traceability to determine which user changes specific data. A full audit trail capability would result in significant growth to the size of the database and would have a significant negative performance impacts on the system. For similar reasons, the data integrity business check to validate WBS against an appropriation is not being included in Release 0.5b. This functionality was evaluated in detail and we determined that this type of data check would result in significant system performance degradation as well as noticeably high maintenance requirements in order to dynamically maintain the appropriation to WBS [work breakdown structure] element labels. In mid-April, the BF Project will release additional reports that will allow the Centers to view their data by Enterprise, Theme, and Appropriation. This will include an exception report to identify any WBS that has been planned against an incorrect appropriation.

With respect to the recommendation to restrict access to embargoed budget, it should be noted that this was not a requirement identified by NASA. However, there is related functionality provided as part of Release 0.5. For example, Centers can restrict viewing of their data in the pre-POP [program operating plan] process to their Center only. In subsequent Agency versions, viewing outside of a Center is restricted to “released” version only (C999 and C000) and not work in progress.

Finally, with respect to the recommendation to provide acceptable system response time, the Budget Formulation Project recognizes that certain processes performed in the system are unacceptably slow (for example, Center G&A [general and administrative] allocation). The Project will continue to focus on improving performance, such as re-writing batch routines in a more efficient language and incorporating the latest updates from SAP. The project will also continue to communicate realistic performance expectations to the budget formulation user community.

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Recommendation 4: The IFMP Program Executive should ensure before Release .5B is implemented that the BIC contains adequate security safeguards that protect sensitive data so the Agency can eliminate the legacy Code BR data document warehouse system.

NASA partially concurs with this recommendation. It should be noted that NASA is not using Release 0.5b for storing sensitive electronic documents pertaining to key budget decisions and directives. For the FY06 Budget Cycle (FY04 POP process), this document storage capability will continue to be provided by the NASA HQ BRIC system. Any future releases of the Budget Formulation Module, which provide budget guidelines, and any other decisions and directives, will have appropriate security safeguards which comply with Agency security policies.

Appendix G. Management's Response Received on March 1, 2004

Following is management's verbatim response to Audit Issues 1 through 3, Recommendations 1 through 4, which we received by email on February 25, 2004. Following is management's additional verbatim response to Audit Issue 3, Recommendations 4, which we received by email on March 1, 2004.

The Business Information Collector (BIC) component of SAP's Strategic Enterprise Management (SEM) module, the software used for NASA's new Budget Formulation System, was not implemented in Release .5A or .5B. Use of SEM/BIC is planned to be used in a future update. The Budget Formulation Team is currently working with the HQ design team to determine how the capability should be used in Release 1.0 to support the availability of narrative information as it relates to numeric budget guidance. Though SEM/BIC excels at associating textual information, including certain document types, with budget numbers (in versions, layouts, WBS's), it is not architected to serve as a large document repository or document management system. Appending a large volume of documents in SEM/BIC can negatively impact performance of the system. Currently, the BRIC provides for the distribution of a very large volume of documents. Replicating this document repository within the BIC is considered not feasible. It should be noted that access security within SEM/BIC, though not as strong as the BRIC, is considered adequate for operational use. SEM/BIC provides read/write access controls to planning layouts and associated information. Only authorized users can read and/or alter data and documents.

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