REVIEW OF NRC'S AGENCYWIDE DOCUMENTS ACCESS AND MANAGEMENT SYSTEM (ADAMS) PROJECT

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U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF THE INSPECTOR GENERAL

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RESULTS OF REVIEW

INTRODUCTION

In November 1998, the Office of the Inspector General (OIG) initiated a survey of the Nuclear Regulatory Commission's (NRC's) Agencywide Documents Access and Management System (ADAMS). The objective of our survey was to gather information on the current status and planned implementation of the ADAMS project to determine if there was a need for further review.

As a result of interviews with ADAMS project staff and other agency officials, and from our analysis of documentation pertaining to the project, OIG identified a need to take a more in-depth look at the project. For example, we were not able to obtain a Project Action Plan as defined in the System Development and Life-Cycle Management (SDLCM) Methodology, a comparison of actual cost to budget, or a detailed testing program. In addition, there were concerns about loss of expected functional capabilities, staff turnover, Nuclear Documents System (NUDOCS) migration, and funding. Therefore, in January 1999, OIG initiated a review of the ADAMS project. Our review focused on three aspects of ADAMS -- Schedule, Performance, and Cost.

OVERALL OBSERVATION

Based on the information provided to us, we do not see any significant impediments to the delivery of ADAMS, particularly based on the tentative revised schedules. Our analysis reflects a 'snapshot in time.' It is clear that a number of critical elements remain to be achieved before ADAMS is fully implemented.

At this point in time, it appears that the schedule will be delayed by a few months, from October 1, 1999, to January 1, 2000. While the delivery of some functional requirements has been delayed, it appears they should be in place by the time ADAMS becomes the NRC's official record-keeping system. It also appears that cost has not significantly increased over the projected level. However, we did not analyze changes in the cost of ADAMS compared to the expected functionality. We note that the agency has made some difficult decisions based on cost/benefit to the agency.

SCHEDULE

Objective: To determine whether current dates for ADAMS deliverables appear reasonable.

There were two documents which set the original completion dates for ADAMS:

- In a memorandum dated August 20, 1997, from the Chairman to the Chief Financial Officer, the Commission stated that it "supports the funding of the ADAMS system in FY 1998, which will ensure full implementation by the year 2000."

- NRC's September 1998 Office of Management and Budget submission reflects June 1999 as the date by which deployment will be completed and receipt of electronic submissions will begin.

Schedules prepared in September 1997 and March 1999 showed no change to the completion of ADAMS installation by June 1999. As of September 1997 and January 1999, ADAMS was scheduled to become NRC's official record-keeping system effective October 1999.

Current Status:

NRC acceptance testing of ADAMS Release 1 was performed March 11 - March 15, and resulted in additional work that needed to be done by Computer Sciences Corporation (CSC). ADAMS was re-delivered to NRC on April 21 with additional NRC acceptance testing scheduled to be performed during the period April 21 - May 7. At the conclusion of our field work, ADAMS web page documents, dated April 7, 1999, revealed that schedules were being revised for ADAMS installation and the two-day hands-on training course. Both ADAMS installation and ADAMS two-day hands-on training of the NRC workforce are critical milestones on the ADAMS schedule. As a result of the necessary rework of the software, there was an impact on the scheduling of these key events. ADAMS is currently scheduled to become NRC's official record-keeping system effective January 1, 2000. While delivery dates have been changed for some parts of ADAMS, we have not identified significant impediments to meeting the current completion dates for ADAMS deliverables.

Opportunities for Future Improvements:

- The ADAMS Master Schedule was developed some months after the initiation of work on ADAMS, and it does not contain information that should be included for such a schedule to be most effective in project management. For example, master schedules should include (1) dependencies, (2) critical path information, and (3) both baseline, and revised start and finish dates (and can include annotations related to changes). The schedule would then serve as a more useful tool to help manage large projects efficiently and effectively. SDLCM states that, where appropriate, all key interdependencies and/or critical paths should be identified.

- NRC personnel and contractors providing input to the master schedule should use the same software used to maintain the master schedule. This would facilitate master schedule compilation and updates.

PERFORMANCE

Objective: To determine whether the original goals and objectives established for the project will be met. The original goals and objectives, as presented in the Capital Planning and Investment Control (CPIC) document, identify the major components of ADAMS as document management (including search and retrieval), records management, workflow, and public access.

Current Status:

None of the major components of ADAMS will be delivered in full with Release 1. The intake and distribution features (document management) for externally generated documents will be delivered with Release 2. Workflow will be delivered in Release 1 with limitations that will be addressed in training and added in future releases of the commercial-off-the-shelf (COTS) software. Also, additional and deferred functionalities may be made available in these future upgrades. Originally, Release 1 was to provide the functionalities for records management and electronic information exchange (public access). These two areas will now be delivered in Release 2, with records management becoming available concurrently with, or shortly after, the electronic information exchange portion for external public access. It appears that all the components identified in the CPIC will be in the final product.

Opportunities for Future Improvements:

NRC User Testing/Functional Requirements Testing

- According to the SDLCM, detailed step-by-step procedures are to be developed for user testing. Procedures, based on the functional requirements being tested, would assist in providing assurance that errors could be effectively resolved by allowing replication of the steps taken before an error is encountered. Although procedures were addressed in the System Test and Acceptance Methodology Plan (STAMP), and the ADAMS White Paper for the various tests to be performed, they did not provide the detailed steps needed for replication of the testing.

- Testers were chosen based on their prior training and expertise. However, during our observation of user testing, a number of testers indicated they did not believe they had adequate training on the software. In addition, a number of testers did not understand the meaning of all of the functional requirements they were responsible for testing.

As a result of not having detailed procedures, it appears that the testers' understanding of the functional requirements which failed during the initial testing was questioned when the results of testing were reviewed. For example, forty-two functional requirements that originally failed were accepted as passing in a retesting of the functional requirements. However, the testers' understanding of those requirements that passed was not questioned. Based on these observations, we think that some improvements could be made in the user testing area.

ADAMS Retesting

- We emphasize the importance of performing retesting in the production environment using a realistic data set to ensure adequate information is available for the deployment decision.

- We would also emphasize the importance of performing remote access capability testing to ensure performance objectives related to regional offices, resident inspectors, and other off-site users can be met. Again, this information will be important for use in the deployment decision.

COST

Objective: To determine whether the currently approved ADAMS budget is adequate and reasonable to cover the proposed deliverables within the proposed schedule.

Current Status:

ADAMS Budget

$12.675 million is not entirely reflective of ADAMS estimated design and implementation costs. For example:

- "Sunk costs" of $3,340K were not included in the ADAMS budget. This includes $2,994K of fiscal year (FY) 1994-96 funding and $346K of FY 1997 funding.

- $863K funding for Task Assignment Control (TAC) C90156, "Design the Solution," was not included in the ADAMS budget. However, TAC C90156 started after approval of the CPIC.

- The budget covers contract support only, not NRC's full-time equivalent (FTE). The ADAMS Project Manager recently indicated that 11-12 staff were dedicated full-time. Although this level represents a snapshot in time, the FY 1999 budget reflects a considerably lower level of 4 FTEs related to ADAMS. NRC does not maintain a labor cost distribution system for the Office of the Chief Information Officer (OCIO) to account for the actual ADAMS-related effort.

Subsequent to CPIC approval, project needs for ADAMS became more defined and differed in some areas from earlier projections. However, the original CPIC budget was never recast with more relevant categories or budget estimates.[1] As a result, OCIO managed the project to the total budget, instead of to meaningful budget categories, and reasons for cost increases were difficult to identify.

In February 1999, OCIO requested additional funding of $590K for ADAMS. This would raise the ADAMS budget to $13,265K. In March 1999, $300K in additional funding was approved, raising the ADAMS budget to $12,975K ($12,675K + $300K). The remaining $290K will be processed as part of the Midyear Resource Review.

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[1] For example, "parallel processing" was budgeted for $624K; however, this budget line was never used.

There is one TAC in which the authorized amount exceeds the committed amount on the FY 1998 ADAMS budget spreadsheet. Specifically, there is a $532K shortfall in funding Modification 8 to TAC C90060. This item is also not currently recognized as a placeholder on the FY 1999 spreadsheet and could cause an additional increase in the ADAMS budget. The ADAMS Project Manager believes the $532K will not be necessary, but is still reconciling hardware/software acquisitions and needs with the current funding level.

Other items which could cause additional budget increases are (1) the 3-month delay in ADAMS becoming NRC's official record-keeping system, and (2) corrective actions for Release 1 under TAC C90235.

Costs

The ADAMS project has been managed largely by commitment. While this method addresses the staff's primary concern to protect against violating the Antideficiency Act, it does not allow visibility into how much has been spent and how much is available for specific portions of the project. There has been no concerted effort to roll up all contractor costs for comparison with budget estimates.

Some costs are intermingled with non-ADAMS activities. For example, $150,000 was folded into a $2.3 million contract for systems programming support services for Data General and Hewlett Packard Minicomputers. Another example involved adding ADAMS funding to a major contract (Sytel) for Next Generation Network services. Identification of costs to date does not appear to be a priority.

Opportunities for Future Improvements:

- Update the budget with realistic budget categories and budget estimates.

- In accordance with the SDLCM requirements, collect actual cost data for comparing with budget estimates, computing variances, and determining any needed corrective actions.