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NASA

Major Management
Challenges

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Mr. Chairman and Members of the Committee:

We are pleased to be here to discuss the major management challenges currently facing the National Aeronautics and Space Administration (NASA). We have previously testified before you regarding similar management challenges affecting other major federal agencies under this Committee's jurisdiction. Our testimony today will (1) highlight the NASA programs and activities we see as priorities for possible congressional action and oversight and (2) discuss how the Government Performance and Results Act could help in addressing the major management challenges that NASA faces.

Summary

NASA has identified the major overall challenge it faces: to manage a world-class research and development agency for aeronautics and space science and technology in an environment of diminishing resources. NASA has reduced its program plans substantially over the past several years to align them better with likely budgets. However, recent plans for balancing the federal budget may require NASA to absorb additional reductions.

To help adjust its programs to likely budgets, NASA began a number of years ago to develop and refine a strategic plan and strategic planning process. As you have heard from prior witnesses in this series of hearings, key laws, such as the Government Performance and Results Act of 1993 and the Chief Financial Officers Act of 1990, are intended to provide a framework for congressional oversight of agency strategic planning and management to accomplish goals. NASA's strategic planning provides an appropriate starting point for discussing many of the management challenges the agency faces.

Overall, we see 11 challenges for NASA management. These challenges fall into two categories: three that require immediate attention and eight that warrant "watchful waiting," or more routine, periodic oversight. A primary distinction between the two categories is that the management challenges in our first category may require congressional action to help resolve. At the Committee's request, we provided information several months ago on all 11 challenges. We understand that this information will be made part of the record of these hearings. Therefore, we will briefly summarize only a few of the challenges today.

Management Challenges That May Require Congressional Action

The management challenges that may require congressional action are

- controlling space station costs,
- managing budget carryover balances, and
- streamlining management of test facilities.

Controlling Space Station Costs

We are currently conducting a follow-up review to our report and testimony last year on the continuing cost control difficulties in the space station program.¹ Last month, we testified before the Science, Technology, and Space Subcommittee on the program's worsening cost control problems.² At that time, we discussed the current and prospective adverse cost impacts of the Russian Service Module delay and noted that the cost and schedule performance of the station's prime contractor continues to deteriorate unabated.

By far, the greatest future cost growth risk NASA faces in the space station program is posed by the potential continuation of the Russian government's poor performance. NASA recently began to implement the first step of a three-step recovery plan for addressing this problem. Step 1 includes adjusting the space station program to the 8-month delay in the availability of the Service Module and providing up to \$300 million in additional fiscal year 1997 and 1998 funding to help provide backup capability if the Service Module delivery were to slip by as much as another year. NASA will decide later this year on whether to initiate step 2. If that step becomes necessary, the primary activity would be to permanently replace the Service Module's power, control, and habitation capabilities at an estimated cost of \$750 million. The need for step 3, which would involve space station resupply missions using the space shuttle or other launch systems, does not have to be decided until next year. NASA has not estimated the cost of step 3, but the cost would be considerable. Other areas of cost risk and cost growth also affect the program, including the added cost of achieving the assembly complete milestone due to the initial Service Module delay, continued prime contractor cost control problems, and new integrated testing requirements.

¹Our current follow-up review is being done at the request of Senator Bumpers and Representative Dingell. Our report and testimony last year were entitled: Space Station: Cost Control Difficulties Continue (GAO/NSIAD-96-135, July 17, 1996) and (GAO/T-NSIAD-96-210, July 24, 1996).

²Space Station: Cost Control Problems Continue to Worsen (GAO/T-NSIAD-97-177, June 18, 1997).

All of these areas of cost growth and cost risk, if realized, could add billions of dollars to the cost of the space station program. However, NASA will not have cost estimates for several of these areas before the Congress completes action on NASA's funding request for fiscal year 1998. After this information becomes available, the Congress may wish to consider reviewing the space station program. Such a review could focus on reaching agreement with the executive branch on the future scope and cost level for a station program that merits continued U.S. government support.

Managing Budget Carryover Balances

Last summer, we reported and testified on the wide range of budget carryover balances among NASA's programs and the high balances carried by some of them.³ NASA said it would improve the management of carryover balances and reduce their size. However, the actual carryover balance at the end of fiscal year 1996 was about \$4.5 billion—\$1 billion higher than estimated by NASA halfway through the fiscal year. This balance was well above the carryover balance level suggested by a NASA internal study. That study said that a carryover balance equivalent to 3 months of budget authority should be the threshold. NASA's carryover balance at the end of fiscal year 1996 exceeded this threshold by over \$1 billion.

NASA's internal study also recommended a series of actions to reduce and better manage carryover balances. NASA has made progress in implementing the recommendations. However, it is too early to tell what impact NASA's actions will have on its balances. NASA is currently predicting that its carryover balance at the end of fiscal year 1997 will be significantly lower. However, some individual programs still plan to carry over large portions of their budgets. Unless NASA demonstrates that it can control its carryover balances or justifies the large carryover balances seen in some programs, the Congress may wish to use excess carryover balances to help meet NASA's request for new obligational authority.

Streamlining Management of Test Facilities

NASA and the Department of Defense (DOD) separately manage a variety of similar test facilities, such as rocket propulsion test stands and wind tunnels. Last year, NASA and DOD teams were directed to find ways to reduce investment and increase the effectiveness and efficiency of six

³NASA Budget: Carryover Balances for Selected Programs (GAO/NSIAD-96-206, July 16, 1996) and (GAO/T-NSIAD-96-207, July 18, 1996).

types of aerospace facilities. The teams recommended the formation of NASA and DOD alliances to continue cooperation in these areas.

Although NASA has suggested the national management of wind tunnels and NASA and DOD recently signed an agreement in principle to move in that direction, overall progress in establishing and initiating operations of the alliances has been uneven. Most of the alliances did not organize or meet at all during the past year, and only one has contributed to an investment-related decision.

Despite a commitment to increased cooperation, NASA and DOD are separately evaluating consolidation of selected test facilities without the participation of the other agency. In some areas, the separate search for external customers could result in NASA and DOD facilities competing against each other. This situation is most likely in the area of rocket engine test facilities, which each agency has in excess of its existing and likely future requirements. In September 1996 testimony, we said that NASA might need outside help in reducing its facilities.⁴ We have not seen anything since that time to change our basic view. As a result, we still believe that the Congress may wish to consider an independent means to determine an appropriate mix of aerospace test facilities governmentwide.

Management Challenges Requiring Periodic Oversight

Our watchful waiting category covers the following eight management challenges:

- overseeing space shuttle operations,
- reducing Earth Observing System cost,
- helping develop new launch system technologies,
- preserving an adequate workforce while downsizing,
- developing a fully integrated financial management system,
- determining environmental liability,
- overseeing contract management activities, and
- improving information technology management.

Many of these challenges represent long and difficult undertakings, and some of them are in the early stages of development or implementation. Some of the challenges make total or substantive changes in the way NASA has traditionally done business. Examples include having a contractor operate the space shuttle under greatly reduced NASA

⁴NASA Infrastructure: Challenges to Achieving Reductions and Efficiencies (GAO/T-NSIAD-96-238, Sept. 11, 1996.)

supervision, researching and developing launch system technology under a cooperative agreement with the private sector, focusing contracts more on performance and outcomes rather than process, and implementing information technology management improvements.

This group of challenges also involves providing new, needed capabilities for managing data. Examples include organizing NASA's business and management practices to help implement a fully integrated financial management system and organizing and disseminating Earth Observing System data.

Finally, the impacts of two of the challenges on NASA's future human and financial resources are not currently well understood. These challenges involve determining future work force downsizing impacts on research or safety and establishing the level of financial liability for environmental cleanup.

By suggesting that watchful waiting is an appropriate oversight strategy at this time for this group of management issues, we are not implying that these issues are trouble free. In fact, some of them are currently encountering developmental difficulties. For example, the development of the information systems portion of the Earth Observing System is currently behind schedule. The failure to adequately manage these challenges could adversely affect NASA's ability to achieve its goals. To illustrate, risks could increase if NASA loses too many highly skilled employees too soon or if NASA's contractors are unable to successfully adapt to, and adequately perform in, their new roles in developing and operating space transportation systems. Any such threat would warrant immediate congressional attention and potential congressional action.

Further Observations on Possible Solutions

To this point, we have specifically suggested that increased congressional oversight is necessary to help NASA deal with its current management challenges and that adequately addressing several challenges may require congressional action. In a more general context, the consultative framework of the Government Performance and Results Act, other recent laws intended to improve federal government management, and NASA's strategic planning process provide an opportunity to obtain a better understanding of what goals NASA programs are supposed to achieve and how they are progressing toward those goals.

Now may be an appropriate time to start focusing on a crucial element required by the Results Act—the development and application of performance measures that are linked to clear, focused, and measurable goals—especially as they relate to those NASA programs that currently or prospectively face challenging problems. For example, the essential questions to be answered about the space station program could be (1) whether it has priorities and clearly understood measures for goals, such as advancing human exploration of space, advancing science and technology, establishing U.S. leadership in international cooperation in space, and managing a complex program in a timely and cost-effective manner and (2) whether these goals are the appropriate ones. Similar questions need to be asked about every other NASA program.

Neither the Congress nor NASA should expect effective management performance or clear program outcomes without well understood and agreed-upon goals. Unless goals are well defined, it is more difficult to assess the impact of, and develop a consensus on dealing with, significant events, such as Russia's performance problems associated with the space station. The Results Act provides an opportunity to discuss and agree on goals, their relative priorities, and measurements of progress toward them.

We have previously reported that establishing goals and measuring performance in a research and development environment, such as NASA's, are very difficult.⁵ NASA's goals must necessarily be ambitious to keep the agency on the cutting edge of science and technology. However, setting high goals carries an increased risk of failure. For the Results Act to function fully and effectively for NASA, it is vital that there be a common understanding of the agency's specific goals among the key parties—NASA, the administration, and the Congress. Ultimately, improved management can be both a cause and a product of working toward mutually agreed, focused goals that are supported by an adequate commitment of resources.

This concludes my prepared statement, Mr. Chairman. I would be happy to respond at this time to any questions you or members of the Committee may have.

⁵Measuring Performance: Strengths and Limitations of Research Indicators (GAO/RCED-97-91, Mar. 21, 1997.)

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